2.3543




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MINING LANDS SECTION

MINOREX LIMITED

ASSESSMENT REPORT

BLANCHE RIVER PROPERTY

OTTO TOWNSHIP

LARDER LAKE MINING DIVISION

John F. Stones
Geologist B.Sc.

80-10-22

## 1.0 INTRODUCTION

The Blanche River property consists of nineteen contiguous claims numbered 545588 to 545590 inclusive, 398199 to 398207 inclusive and 398224 to 398230 inclusive in Otto Township. The claims were acquired to cover the north contact of the Otto Stock and the surrounding Keewatin metasediments and metavolcanics. Several conductors were located on the property as a result of the airborne E.M. survey, released in September 1979. Minorex field personnel completed follow-up ground work to locate and test these anomalies.

The surveys consisted of:

- detailed geological mapping at a scale of 1 inch to 200 feet
- a horizontal shootback electromagnetic survey
- a proton magnetometer survey.

## 2.0 LOCATION AND ACCESS

The claim group is located one mile south of Swastika in Otto Township. The Otto Lake road crosses the west end of the property on claim 398199. An old logging road proceeds east across the property to line 16 west. Blanche River traverses the 3 northernmost claims 545588 to 545590. Access to these claims is gained by hiking southward along the eastern shore of Otto Lake to Bear Rapids.

## 3.0 TOPOGRAPHY AND VEGETATION

Relief varies from moderate slopes and flat lying areas to steep rocky escarpments located in the northern and western portions of the property. The Blanche River flows to the southeast across the northernmost claims. Three large beaver ponds and a small un-named lake are located along the southern boundary of the claim group.

Stands of poplar, balsam, jackpine and alders are native to the region. Poplar and balsam fir populate the slopes and low lying areas whereas jackpine dominates the steep rocky terrain. Alders are encountered in low lying rannes between ridges, swampy lowlands and the fringes of beaverponds.

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## 4.0 PREVIOUS WORK

### 4.1 Assessment Files

No previous work is recorded in the assessment files; however, several large trenches were located on quartz veins and massive sulphide zones which were probably investigated for gold.

### 4.2 Kirkland Lake Initiatives Program (KLIP)

An electromagnetic and total intensity magnetic survey was flown over the area in 1979 to stimulate mining exploration in the Kirkland Lake area. The survey was funded by the Kirkland Lake Initiatives Program and compiled and interpreted by the Ontario Geological Survey. A total of eleven (11) conductors were located on the present claim group.

## 5.0 GEOLOGY

### 5.1 General Geology

The Blanche River claim group is underlain by rocks which form part of the Abitibi Greenstone Belt. Keewatin Age mafic and felsic metavolcanics and metasediments are in contact with an intrusive body of syenite, the Otto Stock, which is located to the south of the property. The contact trends in an east-west direction across the southern portion of the claim group.

### 5.2 Table of Lithologies

P r e c a m b r i a n

Proterozoic

Alkalic Intrusive Rocks
- mafic syenite, syenite contaminated by country rock

Intrusive Contact

Archean

Felsic Metavolcanics (Keewatin)
- iron formation, silicic tuff and agglomerate.

Mafic Metavolcanics and Metasediments (Keewatin)
- basalt, andesite, chloritic mafic tuff, agglomerate, altered (bleached, carbonatized) volcanic and sedimentary rocks.

5.2 Table of Lithologies (Cont'd)

Intrusive Contact (Cont'd)

- andesite, porphyry, amygdaloidal and spherulitic dacite.
- metavolcanics, amphibolite and amphibolite gneiss.

5.3 Discussion of Lithologies

5.3.1 Intermediate to Mafic Metavolcanics

Volcanics examined on the property are andesitic to basaltic in composition and occur as massive, pillowed or foliated flows. Weathered outcrop exposures are generally dark grey-green to black in color. Altered outcrops display pale grey-green to white bleached spots on surface from carbonization. Evidence of low grade metamorphism is featured by outcrops of amphibolite and amphibolite gneiss, characterized by a coarse granular texture on surface.

Cross fracturing is common on outcrop surfaces and distinct pillowed lavas were noted on the westmost claim. Deformation of the pillowed lavas made top determinations extremely difficult.

Veins of orthoclase and quartz are regularly found throughout the volcanics. In some instances, foliated feldspar and quartz produces a banded appearance similar to the felsic tuffs.

Aplite dikes and veins of syenite intrude the metavolcanics in the west and southwest regions of the property.

5.3.2 Felsic Metavolcanics

The southern portion of the property is underlain by finely banded felsic tuffs interbedded with mafic metavolcanics. The tuffs are siliceous and cherty with interbedded bands of magnetite. Low grade metamorphism of the tuff produces zones of foliated chlorite schist.

Narrow stratabound bodies of pyrite-pyrrhotite iron formation occur within the tuff horizon. Assay samples taken of the massive sulphides revealed low copper, lead, zinc, silver and gold values.

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### 5.3.3 Alkalic Intrusives

Injections of black mafic syenite and pink felsic syenite occur in the volcanics in the southeastern region of the claim group. Zenoliths of the metavolcanics were observed in some of the larger syenite dikes.

## 5.4 Structure

A prominent lineament marked by a steep ridge trends north-south across the east side of the property. In the northern three claims, an east west lineament is indicated by an abrupt steep ridge.

Bedding in the tuffs strikes 110-120 degrees southeast and dips 70-80 degrees to the south.

# 6.0 GEOPHYSICAL SURVEYS

## 6.1 Horizontal Shootback E.M. Survey

A horizontal loop E.M. survey was undertaken between the dates of May 9, 1980 and June 4, 1980 by Minorex personnel. Readings were taken at 50 foot stations along parallel lines spaced 400 feet apart. Low frequency (390 Hertz) and medium frequency (1830 Hertz) readings were taken at each station. Both operators traverse along the same line and in turn transmit and receive to measure the dip angle of the field. The two dip angles are then added together and the resultant dip angle is the measure of conductivity. The maximum penetration using the 200 foot coil spacing is approximately 100 feet.

### 6.1.1 Survey Results

Due to the relatively high resultant dip angles, the results were profiled at a scale of 1 inch to 40 degrees on the accompanying map. Values in excess of the $\pm$ 15 degrees were considered to be anomalous. Three moderately strong anomalies designated A, B and C are located on lines 16 west, 4 west and 20 east. These anomalies appear to correspond to a narrow stratbound body of massive sulphides within the felsic tuffs.

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## 6.2 Proton Magnetometer Survey

A proton magnetometer survey was undertaken between the dates of May 9, 1980 and June 4, 1980 by Minorex personnel. Readings were taken at 50 foot intervals on lines spaced 400 feet apart. Drift corrections were made by linearly distributing the error on each traverse line by holding the base line and tie line values fixed.

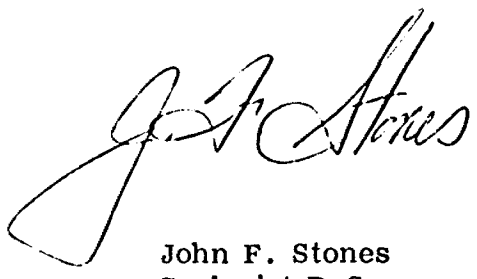
### 6.2.1 Survey results

The magnetometer survey was successful in defining the magnetic felsic tuffs from the mafic to intermediate metavolcanics.

The results of the survey were contoured at 1,000 gamma intervals. Background magnetivity was in the range of 58,000 gammas. Values above 60,000 gammas appear to be associated with magnetite and pyrite pyrrhotite facies iron formation.

## 7.0 RECOMMENDATIONS

The conductors merit further investigation by geological mapping and geochemical sampling. A vertical loop survey should be completed to detail the conductors prior to diamond drilling.



John F. Stones
Geologist B.Sc.

October 22, 1980

Ontario

Ministry of Natural Resources

File _____

# GEOPHYSICAL – GEOLOGICAL TECHNICAL DATA S

42A01SE8906 2.3543 OTTO

900

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

Type of Survey(s) Linecutting, Geological Mapping, MAGNETOMETER, Horizontal Shootback E.M.

Township or Area Otto Twp

Claim Holder(s) Minorex Limited, P.O. Box 7
Thetford Mines, Que. G6G 5R9

Survey Company Minorex Limited

Author of Report John F. Stones, Geologist B.Sc.

Address of Author P.O. Box7, Thetford Mines, P.Q. G6G 5R9

Covering Dates of Survey March 5 - June 4, 1980
(linecutting to office)

Total Miles of Line Cut 18.7 miles

**SPECIAL PROVISIONS CREDITS REQUESTED**

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

| | DAYS per claim |
|---|---|
| Geophysical | |
| --Electromagnetic | 20 |
| --Magnetometer | 20 |
| --Radiometric | |
| --Other | |
| Geological | 40 |
| Geochemical | |

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

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

DATE: Oct. 22, 1980 SIGNATURE: J.F. Stones
Author of Report or Agent

Res. Geol. _____ Qualifications 2.2.36

Previous Surveys

| File No. | Type | Date | Claim Holder |
|---|---|---|---|
| | | | L.D |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**MINING CLAIMS TRAVERSED**
**List numerically**

| (prefix) | (number) |
|---|---|
| 398199 | |
| 398200 | |
| 398201 | |
| 398202 | |
| 398203 | |
| 398204 | |
| 398205 | |
| 398206 | |
| 398207 | |
| 398224 | |
| 398225 | |
| 398226 | |
| 398227 | |
| 398228 | |
| 398229 | |
| 398230 | |
| 545588 | |
| 545589 | |
| 545590 | |

TOTAL CLAIMS 19

If space insufficient, attach list

OFFICE USE ONLY

## GEOPHYSICAL TECHNICAL DATA

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

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

### MAGNETIC

Instrument _____

Accuracy – Scale constant _____

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 _____

# ELECTROMAGNETIC SURVEY TECHNICAL DATA

| | |
|---|---|
| Instrument | Crone CEM |
| Coil Configuration | Transmitting coil horizontal, receiving coil vertical |
| Coil Separation | 200 feet |
| Accuracy | ± 0.5 degrees |
| Method | Horizontal shootback |
| Frequency | Medium 1830 hertz<br>Low 390 hertz |
| Parameters Measured | Dip angle of conductor |
| Line spacing | Parallel lines 400 feet apart |
| Station intervals | 50 foot spacings |

# MAGNETIC SURVEY TECHNICAL DATA

| | |
|---|---|
| Instrument | McPhar G.P.-70 Proton Magnetometer |
| Sensor | Omni directional, toroidal coil |
| Accuracy | ± 1 gamma |
| Background | Approximately 58,000 gammas |
| Drift correction method | Linear distribution of error on each traverse line holding the base line and tie line values fixed |
| Base station location | Intersection of base line and line 0+00 |
| Base station value | 58,634 gammas |
| Check-in intervals | Every 60 minutes |
| Line spacing | Parallel lines 400 feet apart |
| Station intervals | 50 foot stations |

to Swastika
1 Mile

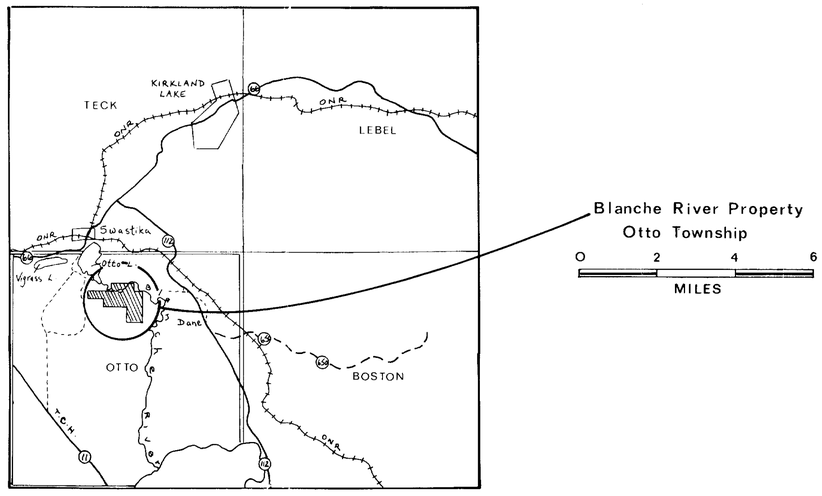
Otto Lake

Blanche River

L.0+00
L.4+00 W
L.8+00W
L.12+00W
L.16+00W
L.20+00W
L.24+00W
L.28+00W
L.32+00W
L.36+00W
L.40+00W

545589
398201
398202
398203
398206
398207
398224

Beaver Pond




Blanche River Property
Otto Township

0 2 4 6
MILES

# MINOREX LIMITED

GEOLOGY

BLANCHE RIVER PROPERTY

KIRKLAND LAKE AREA
LARDER LAKE MINING DIVISION
ONTARIO

2.3543

| DATE | SCALE | DWG Nº |
|---|---|---|
| June 1980 | 1" = 200 Feet | |

John Holmes
Minorex Limited
October 31, 1980

## LEGEND

PRECAMBRIAN

PROTEROZOIC

3 — ALKALIC INTRUSIVE ROCKS
mafic syenite & syenite contaminated by surrounding country rocks; quartz syenite, granite & aplite dikes

ARCHEAN

intrusive contact

2 — FELSIC METAVOLCANICS (KEEWATIN)
banded felsic metavolcanics, tuffs ranging from dacite to rhyolite interbedded with magnetite - chert; pyrite - pyrrhotite facies iron formation

1b — MAFIC METAVOLCANICS (KEEWATIN)
mafic volcanics metamorphosed to amphibolite & amphibolite gneiss, & intrusive diorite

1a — tuff & agglomerate; pillowed & massive basalt & andesite; amgdaloidal & variolitic varieties

swamp
lineation
lineament
trench
foliation
prominent ridge
joint
pillowed volcanics
exposed outcrop
assumed boundary
bedding

FEET
0 200 400 600 800

42A01SE0006 2.3543 OTTO

200

to Swastika
1 Mile

Otto Lake

545590

545589

River

Blanche

398199

398200

398201

398202

398203

398206

398207

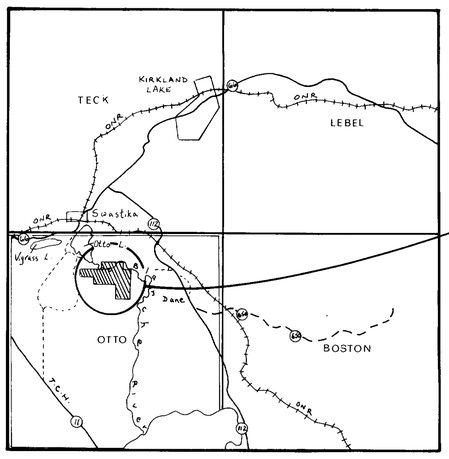
398224

Beaver Pond

Beaver Pond

A

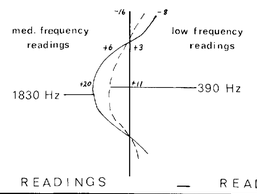
B




Blanche River Property
Otto Township

0 2 4 6
MILES

# LEGEND




— + READINGS — READINGS —

| | |
|---|---|
| INSTRUMENT: | CRONE CEM |
| FREQUENCY: | 1830 & 390 Hz |
| COIL SPACING: | 200 FEET |
| PROFILE SCALE: | 1" = 40' |

0 200 400 600 800
FEET

# MINOREX LIMITED

HORIZONTAL SHOOTBACK SURVEY

BLANCHE RIVER PROPERTY

KIRKLAND LAKE AREA 2.3543
LARDER LAKE MINING DIVISION
ONTARIO

| DATE | SCALE | DWG Nº |
|---|---|---|
| June 1980 | 1" = 200 Feet | |

John Stores
Minorex Limited
October 30, 1980

42A01SE0006 2.3543 OTTO

to Swastika
1 mile

Otto Lake

Blanche River

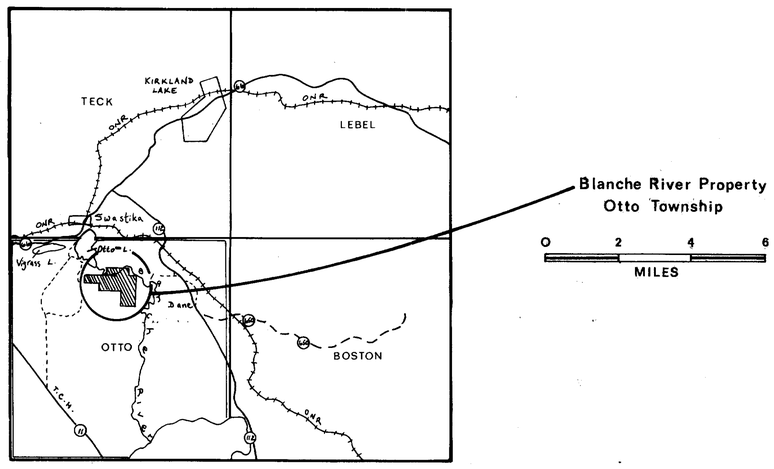
Beaver Pond

Beaver Pond

L.56+00W
L.52+00W
L.48+00W
L.44+00W
L.40+00W
L.36+00W
L.32+00W
L.28+00W
L.24+00W
L.20+00W
L.16+00W
L.12+00W
L.8+00W
L.4+00W
L.0+00
L.4+00E
L.8+00E

398199
398200
398201
398202
398203
398206
398207
398224

545590
545589




Blanche River Property
Otto Township

0 2 4 6
MILES

# MINOREX LIMITED

MAGNETOMETER SURVEY

BLANCHE RIVER PROPERTY

KIRKLAND LAKE AREA
2.3543 LARDER LAKE MINING DIVISION
ONTARIO

| DATE | SCALE | DWG No |
|---|---|---|
| June 1980 | 1" = 200 Feet | |

## LEGEND

0 200 400 600 800
FEET

- 0 – 59,000 GAMMAS
- 59,000 – 60,000
- 60,000 – 61,000
- 61,000 – 62,000
- ABOVE 62,000

PROTON MAGNETOMETER SURVEY

INSTRUMENT: McPHAR MODEL G.P. 70

SENSOR: OMNI DIRECTIONAL, TOROIDAL COIL

ACCURACY: ±1 GAMMA

John Ames
Minerex Limited
October 31, 1980

42A01SE0086 2.3543 OTTO

L.8 +00W
L.4 +00W
L.0+00
L.4 +00E
L.8 +00E
L.12+00E
L.16+00E
L.20 +00E
L.24+00E
L 28+00E
L.32 +00E
L.36+00E
Blanche River
545589
545588
398203
398204
398205
398224
398225
398226
398227
398228
398229
398230
Beaver Pond
1a
1b
2
3
85
88
75
86
87
90
110

lineation

trench

prominent ridge

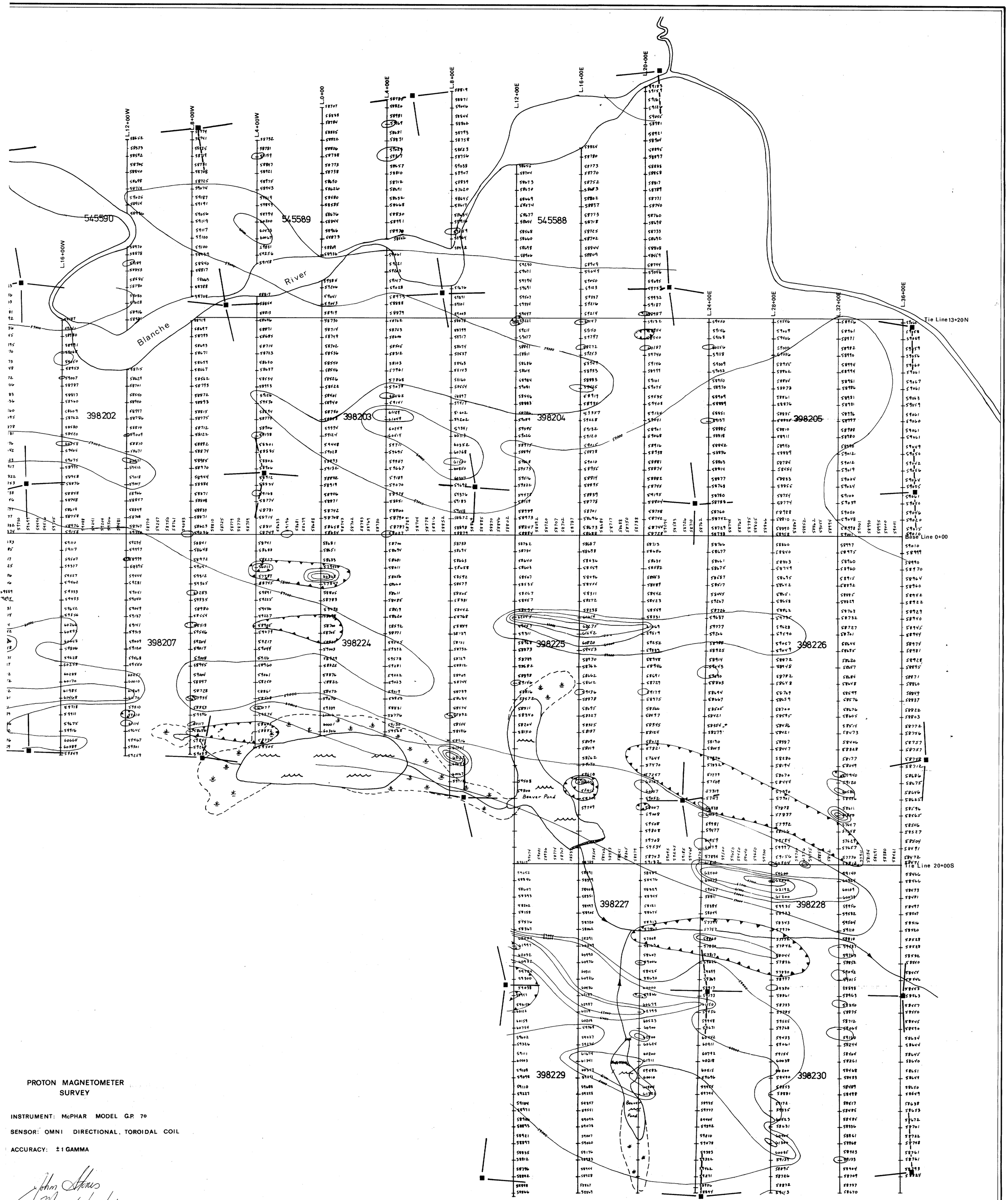
exposed outcrop
assumed boundary

85 joint

65 bedding

L.16+00W
L.12+00W
L.8+00W
L.4+00W
L.0+00
L.4+00E
L.8+00E
L.12+00E
L.16+00E
L.20+00E
L.24+00E
L.28+00E
L.32+00E
L.36+00E
Tie Line 13+20N
Base Line 0+00
Tie Line 20+00S
545590
545589
545588
River
Blanche
398202
398203
398204
398205
398207
398224
398225
398226
398227
398228
398229
398230
A
B
C
Beaver Pond
Beaver Pond

John Stokes
Minosek Limited
October 30, 1980




PROTON MAGNETOMETER SURVEY

INSTRUMENT: McPHAR MODEL G.P. 70

SENSOR: OMNI DIRECTIONAL, TOROIDAL COIL

ACCURACY: ± 1 GAMMA

John Ahern
Minecor Limited
October 31, 1980