



41P11NW0003 2.11769 CABOT

010

GEOLOGICAL REPORT  
ON THE  
MAPPING AND SAMPLING PROGRAMME  
of  
Cabot Township Property  
Larder Lake Mining Division  
Province of Ontario

for

ACTUATE RESOURCES LIMITED

RECEIVED  
NOV 15 1988  
MINING LANDS SECTION

Report #592  
M. Oudejans  
Geologist  
A.C.A. HOWE INTERNATIONAL LIMITED  
14 November, 1988



41P11NW0003 2.11789 CABOT

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MAPS: Property Geology (5 in total)

SUMMARY

During the months of May-August, 1988, a geological mapping and sampling programme was conducted over the Cabot Township property by A.C.A. Howe International Limited on behalf of Actuate Resources Limited.

The property consists of a block of 94 claims located approximately 29 kilometres east-northeast of the town of Gogama. Access is via secondary township roads.

Cabot Twp. hosts a suite of metavolcanic flows with interlayered metasediments, metagabbros, and diabase dyke sets. The rocks trend approximately N60°E with near vertical dips. Several old showings (pits and trenches) were sampled to confirm earlier reported mineralization. Pits IV and V checked out favourably and additional new occurrences were discovered that indicated equally favourable Au, Ag and base metal mineralization. Especially good sample returns of 0.16 oz Au/tonne, 0.66 oz Ag/tonne, and 0.85% Cu were obtained from a flow contact zone at L22E/8+90N.

Further work is required to fully evaluate the potential of the property for precious and base metal mineralization. This work should include detailed mapping and sampling over zones of prime interest with follow-up stripping, trenching and blasting. Zones

of interest are flow and/or lithological contacts between metavolcanics and metasediments or metagabbros, alteration zones associated with the diabase dykes, and shear zones associated with faults.

## 1.0 INTRODUCTION

### 1.1 General

The following report provides a description of the Cabot Township property, its location, access and physiography, and presents the results of field work carried out on behalf of Actuate Resources Limited by A.C.A. Howe International Limited. Through the months of May-August, 1988 a geological mapping and sampling programme was conducted over a block of 94 contiguous claims. The geochemical sampling entailed assaying for Au, Ag, Cu, Zn and Pb with selective assaying for Ni, Mo, and Co.

The property was initially explored by Jonsmith Mines Limited in autumn of 1961 with approximately 8,500' of follow-up diamond drilling during 1963. Most of the subsequent investigation primarily by Canadian Johns-Mansville Co. Ltd (CJM) has been focused on the Claw Lake Stock immediately south-east of Actuate Resources' property. Most recently (December, 1987), a combined airborne magnetic and VLF-EM survey was flown by Ferderber Geophysics Ltd. centred over Claw Lake.

In addition to private venture, the Ontario Geological Survey performed a regional reconnaissance mapping study of Cabot and Kelvin Township during the summer of 1975 (Carter, 1986). This

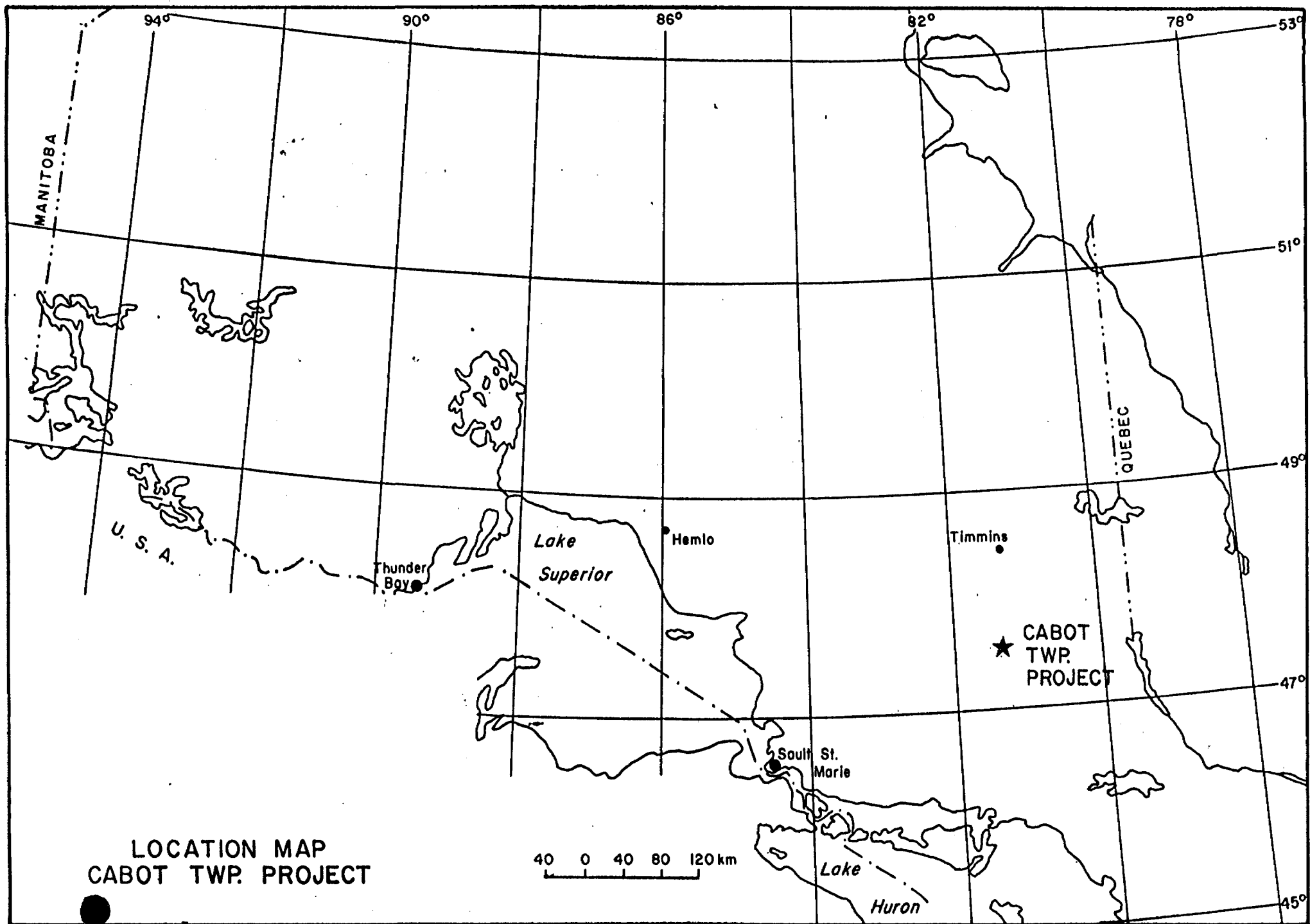


Figure 1

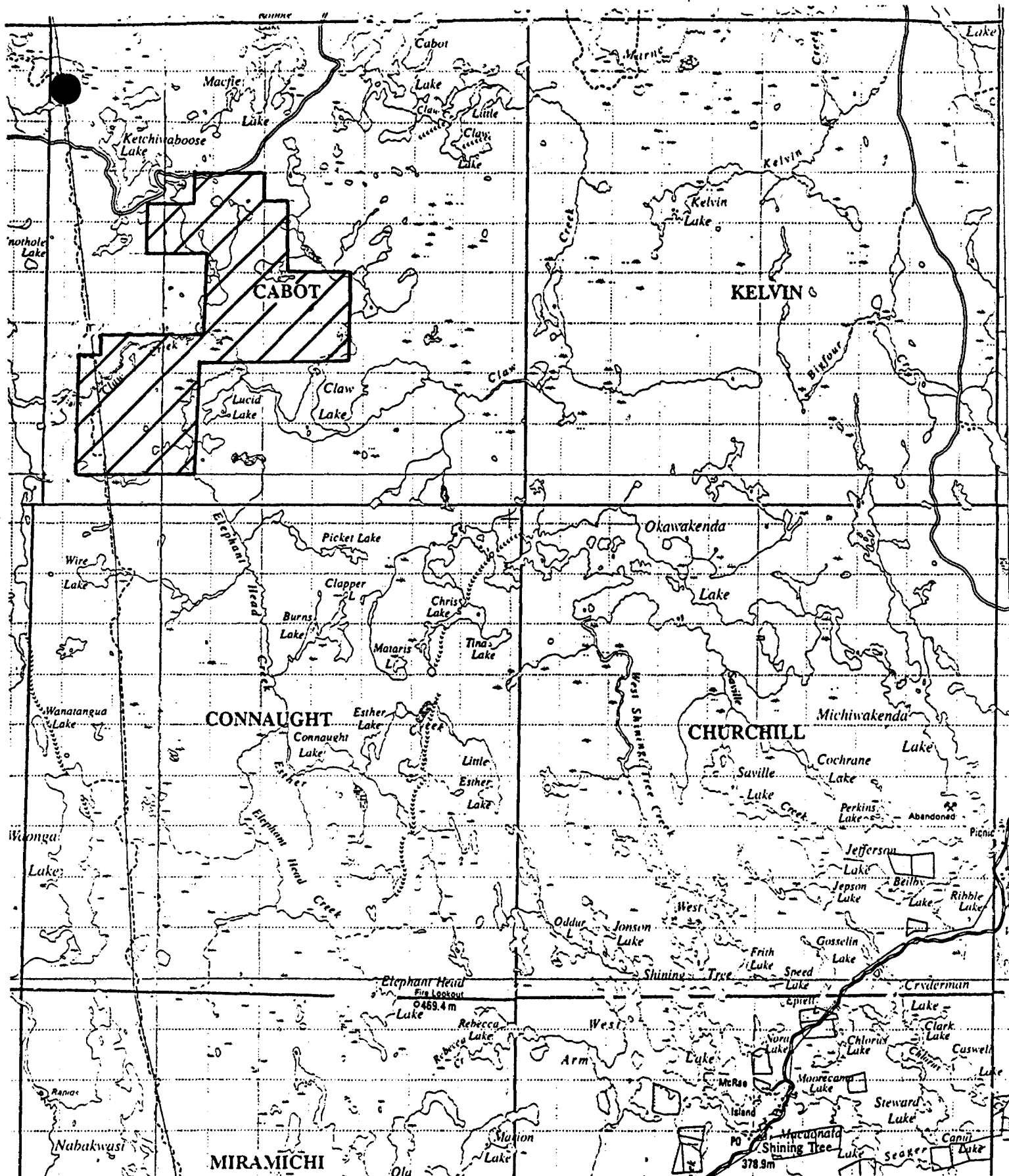


Figure 2

**CABOT TWP. PROJECT  
LOCATION MAP**

1:100 000



One centimetre represents one kilometre

report has been prepared with reference to field data and O.G.S. and Jonsmith Mines Ltd. reports and maps.

## 1.2 Property Description

The property consists of a group of 94 claims (Table 1) located in Cabot Township (District of Sudbury NTS:41P/11), approximately 29 kilometres east-northeast of the town of Gogama, Ontario (Figures 1 and 2). Mapping and sampling was carried out over all of the claims, to the reasonable limit of summer traversing (i.e. excluding water bodies).

The group of claims is irregularly shaped, located in the southwest and central portions of Cabot Twp and occupies nearly one-fifth of the township. The entire group is approximately 1522 hectares in size. All 94 claims (Figure 3) are currently active and their mineral rights are held by Actuate Resources Limited.

The topography generally has low relief with the exception of an esker complex in the northern half of the township. In addition, some steep ridges outcrop in areas underlain by metavolcanic rocks. Claw and Elephant Creeks transect the property and drain to the west and south respectively. Drainage varies, especially due to recent beaver damming. These activities have submerged sections of the central property and rendered them impassable. Approximately 25% of the property is covered by cedar bog or



alder swamp, rock exposure is 5-10% at best, and the remainder of the ground is mixed forest with areas of significant overburden.

### 1.3 Location and Access

The Cabot Township property is situated in the Sudbury District of northeastern Ontario. This region falls within the jurisdiction of the Larder Lake Mining Division, Ministry of Northern Development and Mines. The property is located specifically 29 kilometres east-northeast of Gogama, Ontario and lies immediately adjacent (to the north and west) of property held by Premier Explorations Inc. That area, between Lucid and Claw Lakes, has, historically and to-date, been extensively worked. From another perspective, the Cabot Township property is located approximately 83 kilometres south-southwest of Timmins or about 144 kilometres northwest of Sudbury.

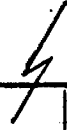
Access to the property is reasonable; Grassy River Road, which runs north of old highway 560 allows access to Ketchiwaboose Lake. From this point, various parts of the property can be reached via old logging roads. A service road for a hydro transmission line that intersects the southwest map area also facilitates access. Map coverage is provided by National Topographic Series Map 41P/11, 1:50,000 scale.

## 1.4 Permit Status

Claims staked:	February, 1987	
Report of work due:	February, 1988	
Extension granted to:	September 1, 1988	
Report of work filed:	August 29, 1988,	
Geophysical Report Filed:	October 28, 1988	Holds property until September 1, 1989
Geological Report Filed:	November, 1988	Holds property until September 1, 1990

		959551 ①	959552 2	959553 3	959554 4		
1074281 4	1074278 ①	959558 8			959556 6	959555 5	
1074282 5	1074277 2	959559 9			028464 ①	959557 7	
1074283 6	1074280 3	959560 10	959561 11	959562 12	1074287 2	1074286 ①	
			959575 25	959563 13	959564 14	959565 15	
			959574 24	959571 21	959570 20	959566 16	959567 17
			959573 23	959572 22	959569 19	959568 18	968260 10
			959593 13	959594 14	959597 17	959598 18	968251 ①
			959592 12	959595 15	959596 16	959599 19	959600 20
							968253 3
							968254 4

recorded wrong  
should be 968258



959583 3	959584 4	959587 7	959588 8	959591 11	
959581 ①	959582 2	959585 5	959586 6	959589 9	959590 10
959550 30	959549 29	959548 28	959547 27	959546 26	959545 25
959521 ①	959528 8	959529 9	959536 16	959537 17	959544 24
959522 2	959527 7	959530 10	959535 15	959538 18	959543 23
959523 3	959526 6	959531 11	959534 14	959539 19	959542 22
959524 4	959525 5	959532 12	959533 13	959540 20	959541 21

THE TOWNSHIP  
OF  
**CABOT**  
DISTRICT OF  
SUDBURY  
  
LARDER LAKE  
MINING DIVISION  
  
SCALE: 1-INCH=40 CHAIN

Figure 3

Table 1

Cabot Township = 94 claims

L959521 - L959550 inclusive .....	30
L959551 - L959575 inclusive .....	25
L959581 - L959600 inclusive .....	20
L968251 - L968260 inclusive .....	10
L1028464 inclusive .....	1
L1074278 - L1074283 inclusive .....	6
L1074286 - L1074287 inclusive .....	<u>2</u>
Total .....	94

Table 2

959521		959560	74926-8;74943	968260	75366
2		1	74932-5;75152-75163;75209; 75308-24;75335-8	1028464	
3	75476,7	2	75151;74944,5;75305-7;75208	1074278	
4	75165	3		9	
5	75167; 75171	4		1074280	
6	75166	5		1	
7		6		2	
8	75339; 75294,5	7	75174,5;75226;75365	3	
9		8		1074286	75491-500; 75176-9
959530		9	75231;75369	1074287	
1	75340;75210	959570			
2	75168-70;75172,3	1			
3		2	75221-3		
4	75289,90	3			
5	75286,7	4			
6	75291;75204-7	5			
7		959581			
8		2			
9		3			
10		4	75279-84		
959540	75211-13	5			
1		6	75164		
2	75346-50;75288	7			
3	75345	8			
4		9	75331-4;74949-50		
5	75276	959590			
6	75341-4	1	75327-30;74948		
7	75285	2	75326		
8	75277,8;75299,300	3	75352-4		
9	75296-8	4	75362-4		
959550	752772,3	5	75351;75361;75375;74946		
1		6	75355-60;74942		
2		7	74936-41;75370-4;75224		
3		8	75225		
4		9			
5		10			
6		959600	75367,8		
7		968251			
8	74929-74931	1			
9	75180-82;75214-220	2			
		3			
		4			
		5	75230		
		6	75227-9		
		7			
		8			
		9	75367,8		

## 2.0 HISTORY AND RECENT ACTIVITY

### 2.1 Regional History

In the Shining Tree area, numerous occurrences of gold, silver, copper, nickel, cobalt and molybdenum have been found. The area lies within a large greenstone belt that also includes large mining camps such as Timmins and Kirkland Lake.

The first serious mineral exploration began in 1919 when Thomas Saville discovered gold mineralization in a felsic intrusive on the central peninsula of Claw Lake. The Saville claim group has been optioned several times and adjacent property was also extensively prospected. In 1960, occurrences of chalcopyrite-bornite-magnetite-gold and nickel in metavolcanics, metasediments and mafic intrusives were discovered by Jonsmith Mines Limited in central Cabot Township. Considerable surface work involving trenching and blasting and some diamond drilling has been exercised in the area.

### 2.2 Property History

That part of Cabot Township presently held by Actuate Resources Limited has undergone only limited recorded geological scrutiny. Jonsmith Mines Limited held 45 contiguous claims in the central township in 1962; some of which overlap Actuate claims L959552-

7, 959561-2, , 1028464, and 1074286-7. During the summer of 1960 exploration activity began in an area approximately 1.65 kilometres east of Ketchiwaboose Lake. Through prospecting, three types of mineralization were identified in three different areas within mafic intrusive, mafic metavolcanic and metasedimentary rocks. Prospecting was followed-up with 1772 metres of diamond drilling and magnetic and electromagnetic surveys. Assay results from the central area ran 0.06-0.08 Au per ton at best and 0.01-0.03 oz Au/ton over appreciable widths in "banded slate and graywacke" (locations not specified) and nickel bearing sulphides in "sediments" ran up to 2% Ni in "selected samples". Sulphide enriched quartz-calcite veins yielded 0.58 oz Ag per ton in the east-central area of the Jonsmith property (now claim L959555) with associated Cu, Pb and minor Au. The third area, in the southeast, returned grab sample assays of 5.89% Cu, 0.32% Ni, and low silver values with the exception of a 44.45 oz Ag per ton grab sample from a breccia zone.

By 1975, Falconbridge Nickel Mines Limited had secured 12 contiguous claims that were formerly part of the southern claims in the Jonsmith Group. these claims correspond roughly with those presently recorded as L959566-72 and L968256-60. Falconbridge did not file for assessment credits, but the property had probably been optioned as a result of previous drilling by Jonsmith and Longyear which indicated the presence of



massive sulphides in a gabbroic host. Assay results were not available.

### 2.3 Present Programme

Since the work completed on or near the property has been sporadic (exploration crews have examined the area roughly once every decade), a comprehensive investigation of a larger property was deemed feasible in an attempt to tie-in the smaller occurrences. In particular, the three mineralized areas that Jonsmith outlined in their report warranted further study. In addition to a mapping programme, 192 geochemical grab samples were collected and assayed from any favourably mineralized rock units and from every old pit or trench that could be located.

A magnetometer survey (see accompanying report) was also carried out to supplement the geology, delineate diabase dykes and to outline potential chalcopyrite-magnetite mineralization.

### 3.0 GEOLOGICAL PERSPECTIVE

#### 3.1 General Geology

The Cabot Township property is situated near the southwestern end of the Abitibi supracrustal volcanic belt of the Superior Province. This greenstone belt extends for approximately 560 kilometres and hosts a variety of precious metals deposits including the Timmins, Kirkland Lake, and Val d'Or mining camps.

In this area, the Abitibi Greenstone Belt is comprised complex assemblage of interbedded, metavolcanic and metasedimentary rocks that have been intruded by both felsic and mafic rocks.

The felsic intrusives are represented primarily by the quartz diorite of the nearby Claw Lake stock and the porphyritic granodiorite of the Togo Batholith to the west. The mafic intrusives occur most commonly as gabbros and diabase dykes. The diabase dykes are of different ages, compositions and trends; the oldest are tholeiitic dyke sets trending north-northwest, north and north-northeast. These, in turn, are cut by a later east-southeasterly trending alkalic dyke set.

The interbedded subalkalic metavolcanic flows (intermediate to mafic in composition) and clastic metasediments form the northern limb of a synclorium in the northern half of the township.

These rocks strike approximately N50°E and dip about 75° to the southeast.

The Ketchiwaboose Lake Fault is a major structure that transects the property in the west, strikes N-NW and continues into Connaught Township where it becomes the Elephant Head Lake Fault. Shearing occurs along this fault, but in the map area the fault is only expressed as an airphoto lineament.

### 3.2 Property Geology

The Cabot Township property is predominantly underlain by interlayered tholeiitic to calcalkalic metavolcanic flows and subalkalic pyroclastic rocks. These rocks are Archean in age and have been regionally subjected to low grade-greenschist facies metamorphism which causes chloritization, sericitization and pyritization, carbonitization and some silicification of the metavolcanic rocks.

Ultramafic metavolcanics have not been observed on the property. Rather, the most common rocks are the mafic and intermediate metavolcanics. Characteristically they are aphyric, aphanitic massive flows varying in colour from dark green to medium grey as an indication of tholeiitic to calcalkalic composition respectively. Coarser grained flows are believed to come from the interior of the assemblage. Where porphyritic, the mafic flows exhibit

equant feldspar phenocrysts <5 mm in diameter. Agglomerates have been mapped by government geologists, but they have not been identified as such here; instead, since the feldspar bombs were not observed, they would be classified as porphyritic flows or crystalline tuffs. the intermediate flows have pale elongated feldspar phenocrysts up to 1 cm in size. As an indication of the extrusive nature of the flows, deformed fine grained pillows averaging 0.5 m in size, tops trending approximately southeast, have been observed. Structure is generally absent in the mafic (basaltic) metavolcanics with good foliation developed only at zones of contact. This holds true for the intermediate (andesitic-dacitic) metavolcanics. These rocks are also represented by pyroclastics, but lack bedding and sorting. The tuffs are generally massive and unstratified ranging from fine grained (< .5 mm) to coarse grained (2 mm) along strike, and occasionally have been misinterpreted as metasediments. This is not surprising due to the interlayering of the metasediments with the tuffaceous (pyroclastic) metavolcanics. The only discriminating feature in the metasediments is a banding or contoured layering nature. Where lapilli are observed, they are light-grey in a darker grey-green matrix. the cherty units are graded, fining upwards, and form the uppermost part of the metavolcanic sequence.

The nature of the felsic (rhyolitic) metavolcanics is very similar to that of the mafic metavolcanics. Discriminating

features are colour as a reflection of composition. Light grey to pale pink is representative of higher felsic content. The pinkish brown colour imparted is often due to the oxidization of disseminated fine grained pyrite. Since the felsic rocks are generally aphanitic, they are unsubdivided because of the difficulty of differentiating between a tuff or a flow.

Identification of metamorphosed mafic and ultramafic intrusives is limited. These rocks are massive, medium to coarse grained green gabbros most commonly occurring in sill-like units interlayered with the metavolcanics. The quartz gabbros are typically lighter in colour and more medium grained, whereas, the olivine (more tholeiitic) gabbros have been subjected to more metamorphism as seen in their texture and alteration products.

Coarse grained biotite granodiorites typical of the Togo Batholith to the west have not been observed on the property. However, more prevalent were felsic intrusive dykes that may have originated from the Claw Lake Stock. These rocks are characteristically fine to medium grained quartz diorite and, in some cases, a trondhjemite porphyry. The trondhjemite in particular exhibits a red-brown colour as a result of plagioclase feldspar staining (Carter, 1986) not K-spar as would be expected.

The last rocks to be classified on the property were the mafic intrusive dykes. They have been left unsubdivided because except

for one W-NW trending dyke of alkalic composition all are tholeiitic diabbases trending most prevalently northwesterly. These dykes are black, massive, medium to fine grained and highly magnetic. The sole alkalic dyke is medium grained porphyritic with yellow-green feldspar phenocrysts and is not as magnetic in nature as the tholeiitic dykes.

The Quaternary deposits in the area that drape the Precambrian rocks should also be noted. In the southern half of the property the cover is primarily a silty-gravel characteristic of a ground moraine deposit. The northern portion of the property has a fine grained pale coloured sand veneer of glacial outwash. Some sand dunes, convex southward, and a number of glaciofluvial eskers trending W-SW occur in the area.

### 3.3 Structure

Field measurements indicated that the interbedded metavolcanic flows and metasediments that underlie most of the Cabot Twp property trend approximately N60°E and dip SE roughly 75° to near vertical. Government geologists have indicated from strike and dip measurements that there is a syncline located in the northwest part of the property. No physical evidence of folding was observed but due to the low grade of regional metamorphism, folding does not seem to be a major contributing factor to the development of structure in the area.

Faulting does not seem to be prevalent in the area either. Only two major faults occur in the map area. Some minor displacement between the metavolcanic layers and the diabase dykes due to isolated faulting was observed. For the most part, the two large faults, the Ketchiwaboose Fault, transecting the west part of the property roughly in a N-NW to S-SE direction, and a fault in the east central part of the property trending NE, are inferred from photo lineaments. The Ketchiwaboose Fault has been interpreted by the O.G.S. as a "gravity fault downthrown to the west" (Carter, 1986). A fault scarp observed along the east side of Elephant Head Creek agrees with this theory. The fault to the east appears stratabound and should be the focus of further study. Geophysical interpretation loosely supports these structures.

#### 3.4 Correlation of Geology and Geophysics

The magnetic survey data has delineated as many as 20 different tholeiitic diabase dyke sets trending NNW and one alkalic diabase dyke trending WNW. The high density of dyke occurrences has led to masking of any subtle magnetic field response from the metavolcanic rocks that underlies the majority of the property. Two large faults have been inferred from characteristic magnetic signatures of a series of magnetic lows adjacent to magnetic highs. Of particular interest were the metagabbroic units

outlined by distinct magnetic highs of several thousand nT in magnitude.



#### 4.0 MINERALIZATION

Deposits of economic interest in the Cabot Township area are considered to fall into the following categories (after Carter, 1986): (1) porphyry-type copper-molybdenum-gold-silver mineralization, (2) Cobalt-type silver-cobalt-nickel mineralization, (3) massive sulphide volcanogenic-type copper-lead-zinc mineralization, and (4) copper-magnetite gabbro mineralization. Only types 3 and 4 pertain significantly to the mineralization developed on the property.

The stratiform sulphides of type 3 occur at contact zones between metavolcanic flows and pyroclastic rocks, such as the intermediate tuffs, and/or the contact between metasedimentary rocks. In this environment, epithermal Cu-Au mineralization may be present. The showings at L17E/13+75N, L22E/8+90-N and pit V, yielding assays of 0.06 oz Au, 0.19 oz Ag per tonne, 0.16 oz Au, 0.66 oz Ag per ton as well as 0.85% Cu, and 0.12 oz Au, 0.14 oz Ag per ton as well as 0.37% Cu respectively are excellent examples. In this case gold most commonly occurs as impregnation associated with disseminated and cubic pyrite. Other similar type mineralization occurrences are located at L11W/1+50S (0.22 oz Ag per tonne) and L4W/2+50N (0.06 oz Ag per tonne).

Type 4 chalcopyrite-magnetite mafic intrusive mineralization has been located in several zones on the property. Gabbroic and

metagabbroic sill-like units are exposed on the eastern portion of the property just south of the baseline and the small lake there, and in smaller lenses towards the south and southwest ends of the claim group. Assayed samples taken at L25+15E/2+30S, L16E/2+12S, and L9+25W/11+25N in close association to mafic intrusives returned values of 0.07 oz Ag per tonne, 0.08 oz Ag per ton and 0.17% Pb, and 0.05 oz Au, 0.16 oz Ag per ton respectively.

Several of the old pits in the northeast part of the property display mineralization reminiscent of type 2 Cobalt-type mineralization. Sampling of pit IV, in close proximity to what is believed to be a hydrothermally altered north-northwesterly trending diabase dyke, has returned assay values of 0.08 oz Ag per ton and 0.12% Cu, 0.39% Zn, and 0.19% Pb.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

A reconnaissance mapping and sampling programme indicated that Actuate Resources' Cabot Twp. property hosts a suite of metavolcanic flows, metagabbros and metasediments. These rocks trend approximately N60°E with near-vertical dips. Flow and lithological contacts provide an excellent environment for at least two different types of sulphide mineralization. Anomalous base and precious metal values were indicated over many zones on the property.

Stratiform sulphides of volcanic flow and pyroclastic rock association have returned repeatable assay values of > 0.10 oz Au per tonne. Three zones at L17E, L22E and pit V (previously described), identified with volcanogenic type copper-lead-zinc mineralization, warrant further detailed sampling (possibly channel sampling) including stripping, trenching, and blasting. This work would better define strike length or extent of the showings.

Assayed samples of rocks with association to chalcopryrite-magnetite mafic intrusive-type mineralization returned favorable values of 0.05 oz Au and 0.16 oz Ag per tonne. The metagabbroic units south of the baseline in the east and north of Beaver Lake deserve closer scrutiny. In fact, all of the metagabbros should

be fully delineated with particular emphasis on contacts and any possible magnetic high correlation.

Follow-up investigation of the area around Pit IV, which returned good base metal values is also deemed necessary to establish the exact nature, relation and extent between the hydrothermally altered diabase and Cobalt-type mineralization.

The Cabot Twp. property, as mentioned, is inundated by up to 25% lake, bog and swamp and significant overburden. For this reason, a geochemical-soil sampling programme is highly recommended. This survey would provide a more complete picture of mineralized trends across the property, especially where outcrop is sparse.

A diamond drilling programme over some of the anomalous zones (both magnetic and mineralized) should not be ruled out; however, a more thorough examination of the many showings with good mineralization potential should be considered first for optimum drill target delineation.

6.0 REFERENCES

Campbell, R.A.

1988: Report on the Combined Airborne Magnetic and VLF-Electromagnetic Surveys (for) Premier Explorations Inc., Cabot Township, Ontario; private report.

Carter, M.W.

1986: Geology of Cabot and Kelvin Townships, District of Sudbury; Ontario Geological Survey Report 249. Accompanied by Map 2470, Scale 1:31,680 or 1 inch to 1/2 mile.

MacVeigh, E.L.

1962: Report on Geological, Electromagnetic and Magnetometer Surveys of Parts of Jonsmith and Glenburk Mining Properties, Cabot Twp., Gogama, Ontario; private report.

CERTIFICATE OF QUALIFICATIONS

I, Marc John Oudejans, of 400 Soudan Avenue, Toronto, Ontario, hereby certify that:

1. I have been employed since April, 1987 as an explorationist at A.C.A. Howe International Ltd., Mining and Geological Consultants, with offices at Suite 1400, 22 Front Street West, Toronto, Ontario, M5J 1C4.
2. I am a graduate of the University of Waterloo, Waterloo, Ontario with a Bachelor of Science (1985) degree in Applied Earth Sciences (Co-operative Option).
3. I have practiced my profession for 4 years in various capacities as a geologist and/or geophysicist in the field of exploration and research.
4. This report is based on firsthand surveying of the property, interpretation of data supplied by A.C.A. Howe International Limited, and a review of published and private reports.
5. I hold no interest in Actuate Resources Ltd.

Toronto, Ontario  
14 November, 1988

  
\_\_\_\_\_  
M.J. Oudejans

**APPENDIX**

1. Receipts or Geogchemical Assays (Expenditure Credits)
2. Technical Data Statement



**MIN  
• EN  
LABORATORIES LTD.**

SPECIALISTS IN MINERAL EN  
CHEMISTS • ASSAYERS • ANALYSTS • C

**VANCOUVER OFFICE:**  
705 WEST 15TH STREET  
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P.O. BOX 867  
TIMMINS, ONTARIO CANADA P4N 7G7  
TELEPHONE: (705) 264-9996

0. \*

772.25 +  
236.00 +  
920.00 +  
284.50 +  
570.50 +  
216.75 +  
143.00 +  
65.00 +  
3208.00

TO : A.C.A. HOWE INTERNATIONAL  
1400-22 FRONT ST., W.  
TORONTO, ONT.  
M5J 1C4

INVOICE No 8891C  
PAGE : 1 OF 1  
DATE : May 30/88  
ACCOUNT: 10108

ATTENTION: D. GEGNAC/G. ROWATT  
PROJECT: CABOT TWP B202

FILE NO. 82-789

QTY DESCRIPTION	UNIT PRICE	AMOUNT
47 ROCK GEOCHEM - AG CU PB ZN	5.50	258.50
47 ROCK GEOCHEM - AU FIRE	7.25	340.75
1 ASSAY - AU	8.50	8.50
47 ROCK SAMPLE PREP	3.50	164.50
* TOTAL *		772.25

THESE ARE PROFESSIONAL SERVICES AND ARE PAYABLE WHEN RENDERED.  
OUTSTANDING BALANCES OVER 30 DAYS WILL BE CHARGED 2% INTEREST/MONTH.

**PAID**  
CK. No. 170  
772.25 6/24/88

*Paid June 24/88*  
*ck 170*  
*Wheeler*

A.C.A. Howe  
A/C PAYABLE

ACCOUNT \_\_\_\_\_

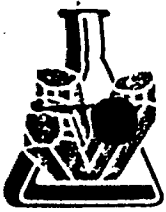
POST DATE \_\_\_\_\_

POST JOURNAL *208* *011* *JK*

APPROVED \_\_\_\_\_

*Actuate - Cabot*





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P.O. BOX 867  
TIMMINS, ONTARIO CANADA P4N 7G7  
TELEPHONE: (705) 264-9996

**INVOICE**

TO: A.C.A. HOWE INTERNATIONAL  
BOX 130  
NORTH COBALT, ONT.  
POJ 1R0

INVOICE No: 8981C  
PAGE: 1 OF 1  
DATE: Jun 07/88  
ACCOUNT: 1010B

ATTENTION: D. GENAC/G. ROWATT  
PROJECT: ACUATE RES. 8202

FILE No: 82-B33

QTY DESCRIPTION	UNIT PRICE	AMOUNT
14 ROCK GEOCHEM - AU FIRE	7.25	101.50
14 ROCK GEOCHEM - AG CU PB ZN	5.50	77.00
14 ROCK SAMPLE PREP	3.50	49.00
	<b>SUBTOTAL</b>	<b>227.50</b>
2 PAGES FAXED	0.50	1.00
LONG DISTANCE CALL	7.50	7.50
	<b>* TOTAL *</b>	<b>236.00</b>

THESE ARE PROFESSIONAL SERVICES AND ARE PAYABLE WHEN RENDERED.  
OUTSTANDING BALANCES OVER 30 DAYS WILL BE CHARGED 2% INTEREST/MONTH.

A.C.A. Howe A/C PAYABLE
ACCOUNT
TERMS & EXT.
FURCH JOURNAL
APPROVED <i>2/3</i>
DATE <i>Acuate - Cobalt</i>
INVOICE NO.

*OK for payment*

*June 13/88*

*Cobalt - Twp.*

*paid July 25/88*

*ck 260*

*Whelbert*



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P.O. BOX 887  
TIMMINS, ONTARIO CANADA P4N 7G7  
TELEPHONE: (705) 264-9996

TO : A.C.A. HOWE INTERNATIONAL  
1400-22 FRONT ST. WE.,  
TORONTO, ONT.  
M5J 1C4

ATTENTION: D. BIGNAC/G. ROWATT  
PROJECT: B202

QTY	DESCRIPTION
93	ROCK GEOCHEM - AU FIRE
93	ROCK GEOCHEM - AG CU ZN PB
12	ROCK GEOCHEM - NI
1	ROCK GEOCHEM - MO CO
9	ASSAYS - AU
93	ROCK SAMPLE PREP

THESE ARE PROFESSIONAL SERVICES AND /  
OUTSTANDING BALANCES OVER 30 DAYS WIL

2.00 +  
12.00 x  
1.00 =  
12.00 \*  
12.00 +  
39.00 x  
3.50 =  
136.50 \*  
136.50 +  
39.00 x  
5.50 =  
214.50 \*  
214.50 +  
39.00 x  
7.25 =  
282.75 \*  
282.75 +  
4.00 x  
8.50 =  
34.00 \*  
34.00 +  
681.75 =  
~~2727.00~~

INVOICE No 9106C  
PAGE : 1 OF 1  
DATE : Jun 15/88  
ACCOUNT: 10108

	UNIT PRICE	AMOUNT
	7.25	674.25
	5.50	511.50
	1.00	12.00
	2.00	2.00
	8.50	76.50
	3.50	325.50
<b>* TOTAL *</b>		<b>1601.75</b>

0.00 \*  
1601.75 -  
681.75 +  
→ 920.00

RENDERED.  
INTEREST/MONTH.

<b>A.C.A. Howe</b>	
<b>A/C PAYABLE</b>	
ACCOUNT	
PROJECT/DEPT.	
PURCH JOURNAL	211
APPROVED	<i>[Signature]</i>
DATE	Arturate - Calist
AMOUNT	

*paid July 28/88  
at 260  
Muehler*



**MIN  
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JUN 27 1988

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**TIMMINS OFFICE:**  
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TELEPHONE: (705) 264-9996

**INVOICE**

TO : A.C.A. HOWE INTERNATIONAL  
1400-22 FRONT ST. WE.,  
TORONTO, ONT.  
M5J 1C4

INVOICE No: 9175C  
PAGE : 1 OF 1  
DATE : Jun 23/88  
ACCOUNT: 10108

ATTENTION: D. GIGNAC/G. ROWATT  
PROJECT: B202

FILE No: 82-909

QTY	DESCRIPTION	UNIT PRICE	AMOUNT
18	ROCK GEOCHEM - AU FIRE	7.25	130.50
18	ROCK GEOCHEM - AG CU ZN PB	5.50	99.00
1	ROCK GEOCHEM - MD	1.00	1.00
18	ROCK SAMPLE PREP	3.00	54.00

\* TOTAL \* 284.50

THESE ARE PROFESSIONAL SERVICES AND ARE PAYABLE WHEN RENDERED.  
OUTSTANDING BALANCES OVER 30 DAYS WILL BE CHARGED 2% INTEREST/MONTH.

A.C.A. Howe A/C PAYABLE	
ACCOUNT	
PRICES & EXT.	
PURCH. JOURNAL	213
APPROVED	
DATE INVOICED	26/07/88
Inv. No.	

*DL*  
Paid July 25/88  
rc 260.  
Muller



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**TIMMINS OFFICE:**  
33 EAST IROQUOIS ROAD  
P.O. BOX 887  
TIMMINS, ONTARIO CANADA P4N 7G7  
TELEPHONE: (705) 264-9996

**INVOICE**

TO : A.C.A. HOWE INTERNATIONAL  
P.O. BOX 130  
NORTH COBALT, ONT.

INVOICE No 9206C  
PAGE : 1 OF 1  
DATE : Jun 27/88  
ACCOUNT: 10108

*Actual Resources  
Labo Project*

ATTENTION: D. GIGNAC/G. ROWATT  
PROJECT: B202

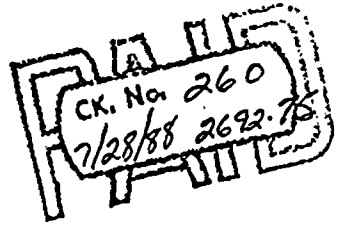
FILE No: B2-933

QTY DESCRIPTION	UNIT PRICE	AMOUNT
34 ROCK GEOCHEM - AG CU PB ZN	5.50	187.00
34 ROCK GEOCHEM - AU FIRE	7.25	246.50
3 ASSAYS - AU	8.50	25.50
34 ROCK SAMPLE PREP	3.00	102.00
	<b>SUBTOTAL</b>	<b>561.00</b>
4 PAGES FAXED	0.50	2.00
LONG DISTANCE CALL	7.50	7.50
	<b>* TOTAL *</b>	<b>570.50</b>

THESE ARE PROFESSIONAL SERVICES AND ARE PAYABLE WHEN RENDERED.  
OUTSTANDING BALANCES OVER 30 DAYS WILL BE CHARGED 2% INTEREST/MONTH.

A.C.A. Howe A/C PAYABLE	
ACCOUNT	
PRICES & EXT.	
PURCH JOURNAL	217
APPROVED	
DATE	Actual Resources Cobalt
INVOICE NO.	

*OK for payment.  
July 6/88*



*Dupuis*

*Paid  
July 28/88  
M. Hubert*



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TELEPHONE: (705) 264-9996

**INVOICE**

TO : A.C.A. HOWE INTERNATIONAL  
P.O. BOX 130  
NORTH COBALT, ONT.

INVOICE No: 93350  
PAGE : 1 OF 1  
DATE : Jul 01/88  
ACCOUNT: 10108

ATTENTION: D. BIGNAC/G. ROWATT  
PROJECT: B202

FILE No: 82-943

QTY DESCRIPTION	UNIT PRICE	AMOUNT
13 ROCK GEOCHEM - AU FIRE	7.25	94.25
13 ROCK GEOCHEM - AG	2.50	32.50
11 ROCK GEOCHEM - CU PB ZN	3.00	33.00
1 ASSAY - AU	8.50	8.50
13 ROCK SAMPLE PREP	3.00	39.00
	<b>SUBTOTAL</b>	<b>207.25</b>
4 PAGES FAXED	0.50	2.00
LONG DISTANCE CALL	7.50	7.50
	<b>* TOTAL *</b>	<b>216.75</b>

THESE ARE PROFESSIONAL SERVICES AND ARE PAYABLE WHEN RENDERED.  
OUTSTANDING BALANCES OVER 30 DAYS WILL BE CHARGED 2% INTEREST/MONTH.

*Actual Res.  
Capot*

A.C.A. Howe A/C PAYABLE	
ACCOUNT	
PRICES & EXT.	
PURCH JOURNAL	<i>P.3</i>
APPROVED	<i>Atteste - Capot</i>

*OK for payment*

*D. Bignac*

*July 11/88*

**PAID**  
CK. No. 328  
8/31/88 216.75

*Paid  
Aug 31/88  
By 328  
M. Bignac*



White Analytical Laboratories

P.O. Box 187, 374 Browning St., Halleybury, Ontario P0J 1K0  
(705) 672-3107

# INVOICE

NO: 33095  
DATE: 07-29-88  
PAGE: 1 of 1

SOLD TO:

A. C. A Howe International  
P.O. Box 130  
North Cobalt, Ontario  
P0J 1R0

SHIP TO:

*Actual Same*  
*Cabot*

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	AMOUNT																																									
1315	13	1	Au	8.500	110.50																																									
1315	13	1	Sample Preparation	2.500	32.50																																									
<table border="1" style="width: 100%;"> <tr> <td colspan="3" style="text-align: center;">A.C.A. Howe A/C PAYABLE</td> <td rowspan="8" style="vertical-align: middle; text-align: center;"> <i>OK</i>  <i>1/1/88</i>  <i>Aug. 2/88</i> </td> <td colspan="2"></td> </tr> <tr><td>ACCOUNT</td><td></td><td></td><td colspan="2"></td></tr> <tr><td>TERMS &amp; EXT.</td><td></td><td></td><td colspan="2"></td></tr> <tr><td>PURCH JOURNAL</td><td></td><td></td><td colspan="2"></td></tr> <tr><td>APPROVED</td><td></td><td><i>B3</i></td><td colspan="2"></td></tr> <tr><td>CLIENT</td><td></td><td></td><td colspan="2"></td></tr> <tr><td>DATE INVOICED</td><td></td><td></td><td colspan="2"></td></tr> <tr><td>INV. No.</td><td></td><td></td><td colspan="2"></td></tr> </table>						A.C.A. Howe A/C PAYABLE			<i>OK</i> <i>1/1/88</i> <i>Aug. 2/88</i>			ACCOUNT					TERMS & EXT.					PURCH JOURNAL					APPROVED		<i>B3</i>			CLIENT					DATE INVOICED					INV. No.				
A.C.A. Howe A/C PAYABLE			<i>OK</i> <i>1/1/88</i> <i>Aug. 2/88</i>																																											
ACCOUNT																																														
TERMS & EXT.																																														
PURCH JOURNAL																																														
APPROVED		<i>B3</i>																																												
CLIENT																																														
DATE INVOICED																																														
INV. No.																																														
COMMENTS: Net 30 Days.				TOTAL	143.00																																									

*Paid Aug 31/88*  
*ch 326*  
*Wulbert*



BEEL W WHITE ANALYTICAL LABORATORIES LTD.

P.O. Box 187, 374 Browning St., Halleybury, Ontario POJ 1K0  
(705) 672-3107

# INVOICE

NO: 33102  
DATE: 07-29-88  
PAGE: 1 of 1

SOLD TO:

A. C. A Howe International  
P.O. Box 130  
North Cobalt, Ontario  
POJ 1R0

SHIP TO:

Same

*Activate  
Cobalt*

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	AMOUNT
1322	13	1	Cu	2.000	26.00
1322	13	1	Zn	1.000	13.00
1322	13	1	Ag	1.000	13.00
1322	13	1	Pb	1.000	13.00
A.C.A. Howe A/C PAYABLE					
ACCOUNT					
PRICES & EXT.					
PURCH JOURNAL					
APPROVED					
CLIENT					
DATE INVOICED					
INV. NO.					
COMMENTS: Net 30 Days.				TOTAL	65.00

*OK.  
Original Aug. 2/88*

*paid Aug 31/88  
ck 326-  
Michael*

JAN 13/89  
M. Oudejans

\*\*\*\* Certificate of GEOCHEM \*\*\*\*

Company: A.C.A. HOWE INTERNATIONAL  
Project: CABOT TWP B202  
Attention: D. GEGNAC/G. ROWATT

File: 82-789/P1  
Date: MAY 29/88  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE PFB	AG PPM	CU PPM	PB PPM	ZN PPM
74 926	1	0.2	14	10	12
74 927	2	0.3	48	4	5
74 928	1	0.2	25	8	13
74 929	40	1.0	79	23	100
74 930	110	1.6	75	32	148
74 931	100	1.2	123	34	157
74 932	760	1.6	26	22	45
74 933	20	0.6	17	16	32
74 934	220	1.0	22	13	50
74 935	2000	4.0	27	15	20
74 936	2	0.7	52	18	125
74 937	1	0.2	40	9	75
74 938	1	0.5	30	7	66
74 939	1	0.7	27	13	58
74 940	5	1.4	200	16	122
74 941	1	0.6	47	9	64
74 942	2	0.4	36	8	66
74 943	1	0.2	6	13	102
74 944	3	0.2	14	2	24
74 945	1	0.6	62	16	72
74 946	1	0.6	60	10	90
74 947	3	0.4	70	16	97
75 351	2	0.4	13	10	14
75 352	1	0.2	4	10	33
75 353	2	0.8	100	15	110
75 354	1	0.7	48	17	95
75 355	1	0.6	27	8	66
75 356	1	0.2	16	2	15
75 357	1	1.2	37	11	250
75 358	1	1.0	25	12	143

Certified by R. L. L...

MIN-EN LABORATORIES LTD.



\*\*\*\* Certificate of Geochem \*\*\*\*

Company: A.C.A. HOWE INTERNATIONAL  
 Project: CABOT TWP B202  
 Attention: D. GEGNAC/G. ROWATT

File: B2-789/P2  
 Date: MAY 29/88  
 Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE FPB	AG PPM	CU PPM	PB PPM	ZN PPM
75 359	1	0.8	97	28	110
75 360	2	1.0	58	33	158
75 361	3	0.4	33	11	55
75 362	1	1.6	500	850	84
75 363	1	1.1	275	690	74
75 364	2	1.0	73	112	90
75 365	1	1.0	100	34	123
75 366	2	0.6	50	11	47
75 367	1	0.7	43	14	72
75 368	1	0.6	50	8	50
75 369	2	0.7	85	14	67
75 370	2	1.2	46	35	75
75 371	3	0.8	33	9	77
75 372	1	0.6	41	11	89
75 373	1	0.6	25	14	60
75 374	1	0.4	11	8	75
75 375	23	0.4	26	6	55

Certified by \_\_\_\_\_



MIN-EN LABORATORIES LTD.

\*\*\*\* Certificate of ASSAY \*\*\*\*

Company: A.C.A. HOWE INTERNATIONAL  
Project: CABOT TWF 8202  
Attention: D.GEGNAC/G.ROWATT

File: 82-789/P1  
Date: MAY 29/88  
Type: ROCK ASSAY

We hereby certify the following results for samples submitted.

Sample Number	AU G/TONNE	AU OZ/TON
74 935	2.02	0.059

Certified by \_\_\_\_\_

*R. Lohame*

MIN-EN LABORATORIES LTD.

\*\*\*\* Certificate of GEOCHEM \*\*\*\*

Company: A.C.A. HOWE INTERNATIONAL  
Project: ACUATE RESOURCES 8202  
Attention: D.GENAC/GAVIN ROWATT

File: 82-833/P1  
Date: JUNE 7/88  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE PPB	AG PPM	CU PPM	PB PPM	ZN PPM
74 948	4	0.5	46	8	64
74 949	6	0.7	80	4	55
74 950	3	0.8	29	20	102
75 326	3	0.5	5	4	34
75 327	7	0.5	6	7	50
75 328	2	0.3	6	5	76
75 329	2	0.9	51	23	82
75 330	4	0.4	26	2	96
75 331	3	0.8	25	11	73
75 332	1	0.3	8	83	164
75 333	3	2.1	56	162	173
75 334	2	0.9	102	16	47
75 476	1	1.2	21	25	44
75 477	2	0.8	18	18	42

Certified by \_\_\_\_\_

MIN-EN LABORATORIES LTD.

\*\*\*\* Certificate of GEOCHEM \*\*\*\*

Company: ACA HOWE INTERNATIONAL  
 Project: 8202  
 Attention: D. GIGNAC/G. ROWATT

File: 82-873/P1  
 Date: JUNE 14/88  
 Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE PPB	AG PPM	CU PPM	ZN PPM	PB PPM	NI PPM
75 151	6	1.4	21	81	20	
75 152	2	0.3	12	48	9	
75 153	1	1.6	34	100	11	
75 154	9	1.0	38	70	13	
75 155	4	0.9	32	96	12	
75 156	2	0.7	39	82	14	
75 157	1	1.2	41	121	18	
75 158	8	1.8	43	114	17	
75 159	1	1.6	40	126	28	
75 160	3	1.7	44	107	22	
75 161	2	1.6	62	111	19	
75 162	5	2.3	51	85	23	
75 163	1	1.4	43	91	18	
75 176	9	2.9	515	3900	1850	
75 177	2	2.2	510	265	580	
75 178	3	2.4	1240	360	615	
75 179	2	1.3	430	86	152	
75 180	590	1.9	665	54	29	
75 181	2100	4.8	3500	46	47	
75 182	3760	4.3	3650	45	33	

Certified by

*R. Lasham*

MIN-EN LABORATORIES LTD.

\*\*\*\* Certificate of Geochem \*\*\*\*

Company:ACA HOWE INTERNATIONAL  
Project:8202  
Attention:D.GIGNAC/G.ROWATT

File:82-873/P2  
Date:JUNE 14/88  
Type:ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE PFB	AG PPM	CU PPM	ZN PPM	PB PPM	NI PPM
75 305	1	1.2	1340	101	23	
75 306	4290	22.5	8500	39	68	
75 307	46	2.8	325	140	29	
75 308	375	2.6	102	40	12	
75 309	1260	6.4	58	27	16	
75 310	184	2.3	47	42	14	
75 311	22	1.2	45	42	13	
75 312	310	1.8	36	25	12	
75 313	260	2.2	41	33	18	
75 314	1	1.2	104	38	15	
75 315	1	1.1	33	75	9	
75 316	1	0.6	25	53	16	
75 317	2	0.8	36	74	8	
75 318	1	0.7	93	32	14	
75 319	1780	4.3	41	23	13	
75 320	4	1.0	30	78	12	

Certified by \_\_\_\_\_



MIN-EN LABORATORIES LTD.

\*\*\*\* Certificate of GEOCHEM \*\*\*\*

Company: ACA HOWE INTERNATIONAL  
Project: B202  
Attention: D. GIGNAC/G. ROWATT

File: B2-873/P3  
Date: JUNE 15/88  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE PFB	AG PPM	CU FPM	ZN PPM	PB PPM	MO PPM	CO PPM
75 321	7	0.9	22	76	12		
75 322	3	1.7	30	46	21		
75 323	196	1.5	37	42	18		
75 324	9	1.2	31	64	20		
75 335	2	1.5	42	97	21		
75 336	4	1.1	38	113	19		
75 337	7	0.6	61	106	10		
75 338	6	1.4	39	120	23		
75 491	6	0.2	75	27	17		
75 492	5	0.4	52	34	18		
75 493	10	0.2	65	22	50		
75 494	2	0.1	178	18	12		
75 495	2	0.2	96	11	4		
75 496	1	1.8	240	15	17		
75 497	2	0.2	200	10	8		
75 498	1	0.4	160	22	15		

Certified by

*R. Lahore*

MIN-EN LABORATORIES LTD.

\*\*\*\* Certificate of ASSAY \*\*\*\*

Company: ACA HDWE INTERNATIONAL  
Project: 8202  
Attention: D. GIGNAC/G. ROWATT

File: 82-873/P1  
Date: JUNE 15/88  
Type: ROCK ASSAY

We hereby certify the following results for samples submitted.

Sample Number	AU G/TONNE	AU OZ/TON
75 181	2.60	0.076
75 182	4.09	0.119
75 306	5.43	0.158
75 309	1.41	0.041
75 319	1.80	0.053

Certified by \_\_\_\_\_

  
MIN-EN LABORATORIES LTD.

\*\*\*\* Certificate of Geochem \*\*\*\*


Company:ACA HOWE INTERNATIONAL  
Project:8202  
Attention:D.GIGNAC/G.ROWATT

File:82-873/P4  
Date:JUNE 15/88  
Type:ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE FPB	AG PPM	CU PPM	ZN PPM	PB PPM
75 499	6	4.4	1085	147	309
75 500	2	2.3	657	122	232

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\*\*\*\* Certificate of GEOCHEM \*\*\*\*

Company: ACA HOWE INTERNATIONAL  
Project: 8202  
Attention: D. GIGNAC/G. ROWATT

File: 82-909/P1  
Date: JUNE 21/88  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE PFB	AG PPM	CU PPM	ZN PPM	PB PPM	MO PPM
75 164	4	0.7	19	20	13	
75 204	2	0.8	23	131	16	
75 205	3	0.8	38	68	9	
75 206	27	7.4	64	107	18	
75 207	2	1.3	36	122	27	
75 276	18	0.7	17	79	10	
75 339	3	0.6	169	83	9	
75 340	1	0.8	42	46	12	
75 341	2	0.9	28	117	13	
75 342	1	0.6	17	51	8	
75 343	3	0.7	15	38	9	
75 344	2	0.9	11	39	3	
75 345	16	1.3	41	80	15	
75 346	98	1.0	12	11	7	12
75 347	559	0.9	13	18	11	
75 348	462	0.8	11	17	9	
75 349	123	0.6	13	14	8	
75 350	64	0.7	14	10	8	

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TIMMINS, ONTARIO CANADA P4N 7G7  
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*Certificate of GEOCHEM*

Company: ACA HOWE INTERNATIONAL  
Project: B202  
Attention: D. BIGNAC/G. ROWATT

File: B2-933/P1  
Date: JUNE 27/88  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE PFB	AG PFM	CU PFM	PB PFM	ZN PPM
75 165	4	0.6	146	18	61
75 166	2	0.7	50	8	57
75 167	2	0.4	23	14	42
75 168	3	1.0	14	17	75
75 169	2	0.2	16	5	17
75 170	1	0.5	65	19	83
75 171	1	0.4	17	24	66
75 172	2	0.2	9	5	52
75 173	3	0.1	7	3	38
75 277	24	0.2	200	2	35
75 278	6	0.5	59	50	168
75 279	41	0.8	205	12	119
75 280	11	0.5	28	15	52
75 281	11	1.0	141	8	84
75 282	1000	3.7	111	17	86
75 283	1200	4.8	26	10	26
75 284	1550	5.4	37	20	71
75 285	21	2.3	54	122	176
75 286	3	0.6	49	14	81
75 287	2	0.2	14	3	18
75 288	2	0.4	22	6	77
75 289	2	0.1	61	4	49
75 290	3	0.8	120	12	102
75 291	1	0.6	35	15	125
75 292	2	0.4	9	3	37
75 293	3	0.4	8	2	54
75 294	2	0.8	47	24	98
75 295	1	1.0	175	20	137
75 296	2	1.2	35	18	112

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TELEPHONE: (705) 264-9986

## Certificate of Geochem

Company: ACA HOWE INTERNATIONAL  
Project: 8202  
Attention: D. GIGNAC/G. ROWATT

File: 82-933/P2  
Date: JUNE 27/88  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE PPB	AG PPM	CU PPM	PB PPM	ZN PPM
75 297	64	1.2	121	28	54
75 298	2	0.8	30	13	37
75 299	5	0.7	101	24	160
75 300	3	0.4	28	6	102
75 332	2	0.6	40	103	163

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TIMMINS, ONTARIO CANADA P4N 7G7  
TELEPHONE: (705) 264-9998

## Certificate of ASSAY

Company: ACA HOWE INTERNATIONAL  
Project: B202  
Attention: D. BIGNAC/B. ROWATT

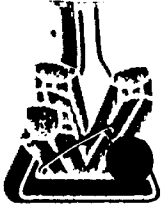
File: B2-933/P1  
Date: JUNE 27/88  
Type: ROCK ASSAY

We hereby certify the following results for samples submitted.

Sample Number	AU G/TONNE	AU OZ/TON
75 282	1.05	0.031
75 283	1.41	0.041
75 284	1.60	0.047

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TELEPHONE: (705) 264-9996

***Certificate of GEOCHEM***

Company: ACA HOWE INTERNATIONAL  
Project: B202  
Attention: D. GIGNAC / G. ROWATT

File: 82-943/P1  
Date: JULY 1/88  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AU-FIRE PPB	AG PPM	CU PPM	PB PPM	ZN PPM
75 208	2900	13.2			
75 209	650	3.0			
75 210	4	0.9	63	3	38
75 211	2	0.6	38	8	81
75 212	3	0.4	26	6	14
75 213	1	0.2	11	3	10
75 214	158	0.9	290	24	62
75 215	410	1.5	805	25	35
75 216	354	1.6	640	32	60
75 217	625	1.2	1200	28	47
75 218	106	1.3	340	27	62
75 219	625	1.6	1200	18	22
75 220	710	2.4	1540	26	21

Certified by

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P.O. BOX 867  
TIMMINS, ONTARIO CANADA P4N 7G7  
TELEPHONE: (705) 264-9998

**Certificate of ASSAY**

Company: ACA HOWE INTERNATIONAL  
Project: B202  
Attention: D. GIGNAC/G. ROWATT

File: B2-943/P1  
Date: JULY 1/88  
Type: ROCK ASSAY

We hereby certify the following results for samples submitted.

Sample Number	AU G/TONNE	AU OZ/TON
75 20B	3.28	0.096

Certified by \_\_\_\_\_



MIN-EN LABORATORIES LTD.



# BELL - WHITE ANALYTICAL LABORATORIES LTD.

P.O. BOX 187.

HAILEYBURY, ONTARIO

TEL: 672-3107

## Certificate of Analysis

NO. 1322

DATE: July 29, 1988

SAMPLE(S) OF: Rock (13)

RECEIVED: July 1988

SAMPLE(S) FROM: Mr. D. Gignac, A.C.A. Howe International

<u>Sample No.</u>	<u>Cu ppm</u>	<u>Zn ppm</u>	<u>Ag ppm</u>	<u>Pb ppm</u>
75174	72	36	2.4	26
5	4	6	0.2	ND
75221	26	49	0.2	20
2	66	104	1.0	30
3	64	40	0.6	40
4	68	372	1.6	98
5	44	22	0.4	10
6	68	206	1.2	18
7	28	160	1.2	24
8	6	6	0.2	8
9	12	34	0.2	6
75230	104	127	0.8	16
1	44	834	2.8	1720

NOTE: N.D. denotes not detected.

IN ACCORDANCE WITH LONG-ESTABLISHED NORTH AMERICAN CUSTOM, UNLESS IT IS SPECIFICALLY STATED OTHERWISE GOLD AND SILVER VALUES REPORTED ON THESE SHEETS HAVE NOT BEEN ADJUSTED TO COMPENSATE FOR LOSSES AND GAINS INHERENT IN THE FIRE ASSAY PROCESS.

BELL-WHITE ANALYTICAL LABORATORIES LTD.

PER 



# BELL - WHITE ANALYTICAL LABORATORIES LTD.

P.O. BOX 187.

HAILEYBURY, ONTARIO

TEL: 672-3107

## Certificate of Analysis

NO. 1315

DATE: July 29, 1988

SAMPLE(S) OF: Rock (13)

RECEIVED: July 1988

SAMPLE(S) FROM: B. Jarne Westin, A.C.A. Howe International

<u>Sample No.</u>	<u>Gold ppb</u>
75174	5
5	151**
75221	11
2	7
3	5
4	8
5	26
6	4
7	14
8	10
9	22
75230	10
1	7

\*\*Checked

IN ACCORDANCE WITH LONG-ESTABLISHED NORTH AMERICAN CUSTOM, UNLESS IT IS SPECIFICALLY STATED OTHERWISE GOLD AND SILVER VALUES REPORTED ON THESE SHEETS HAVE NOT BEEN ADJUSTED TO COMPENSATE FOR LOSSES AND GAINS INHERENT IN THE FIRE ASSAY PROCESS.

BELL-WHITE ANALYTICAL LABORATORIES LTD.

PER 





41P11NW0003 2.11769 CABOT

020

A GEOPHYSICAL REPORT  
ON THE  
1988 GROUND MAGNETIC SURVEY  
of

Cabot Township Property  
Larder Lake Mining Division  
Province of Ontario

for

ACTUATE RESOURCES LIMITED

RECEIVED

OCT 28 1988

MINING LANDS SECTION

Report #590  
M. Oudejans  
Geologist/Geophysicist  
A.C.A. HOWE INTERNATIONAL LTD.  
28 October, 1988

*Send this file*



41P11NW0003 2.11769 CABOT

020C

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APPENDIX: CLAIM SKETCH

MAPS: Ground Magnetic Data (5 in total)

SUMMARY

During the month of May-August, 1988, a ground magnetic survey was conducted over the Cabot Township property by ACA Howe International Limited on behalf of Actuate Resources Limited. The magnetic data outlined numerous geological features, predominantly tholeiitic diabase dykes. Significant magnetic anomalies indicated area underlain by metagabbroic rocks. These rocks have potential for chalcopyrite-magnetite mineralization.

It is recommended that further geophysical investigation in the form of a selective HLEM survey be conducted over the property to assist in geological mapping and to locate potential drill targets.

## 1.0 INTRODUCTION

### 1.1 General

The following report describes the results of a ground magnetometer survey carried out on behalf of Actuate Resources Limited by A.C.A. Howe International Limited. Through the months of May-August, 1988, a total of 155 kilometres of data was collected over a block of 94 contiguous claims in Cabot Township. Preliminary interpretation of the results has been provided for property assessment purposes.

The geophysical investigation was one facet of a grass-roots precious metal exploration programme. The magnetic signatures can be used to supplement the geological mapping by outlining certain geological units hosting magnetic minerals, and indicating the presence of shear and alteration zones, and folding structures.

### 1.2 Property Description

The property consists of a group of 94 claims (Table 1) located in Cabot Township (District of Sudbury NTS:41P/11), approximately 29 kilometres east-southeast of the town of Gogama, Ontario (Figures 1 and 2). Ground geophysics covered all of the claims, to the reasonable limit of summer traversing (i.e. excluding water bodies).

The group of claims is irregularly shaped, located in the southwest and central portions of Cabot Twp and occupies nearly one-fifth of the township. The entire group is approximately 1522 hectares in size. All 94 claims are currently active and their mineral rights are held by Actuate Resources Limited.

The topography generally has low relief with the exception of an esker complex in the northern half of the township. In addition, some steep ridges outcrop in areas underlain by metavolcanic rocks. Claw and Elephant Creeks transect the property and drain to the west and south respectively. Drainage varies, especially due to recent beaver damming. These activities have submerged sections of the central property and rendered them impassable. Approximately 25% of the property is covered by cedar bog or alder swamp, rock exposure is 5-10% at best, and the remainder of the ground is mixed forest with areas of significant overburden.

Table 1

Cabot Township = 94 claims

L959521 - L959550 inclusive .....	30
L959551 - L959575 inclusive .....	25
L959581 - L959600 inclusive .....	20
L968251 - L968260 inclusive .....	10
L1028464 inclusive .....	1
L1074278 - L1074283 inclusive .....	6
L1074286 - L1074287 inclusive .....	<u>2</u>
Total .....	94

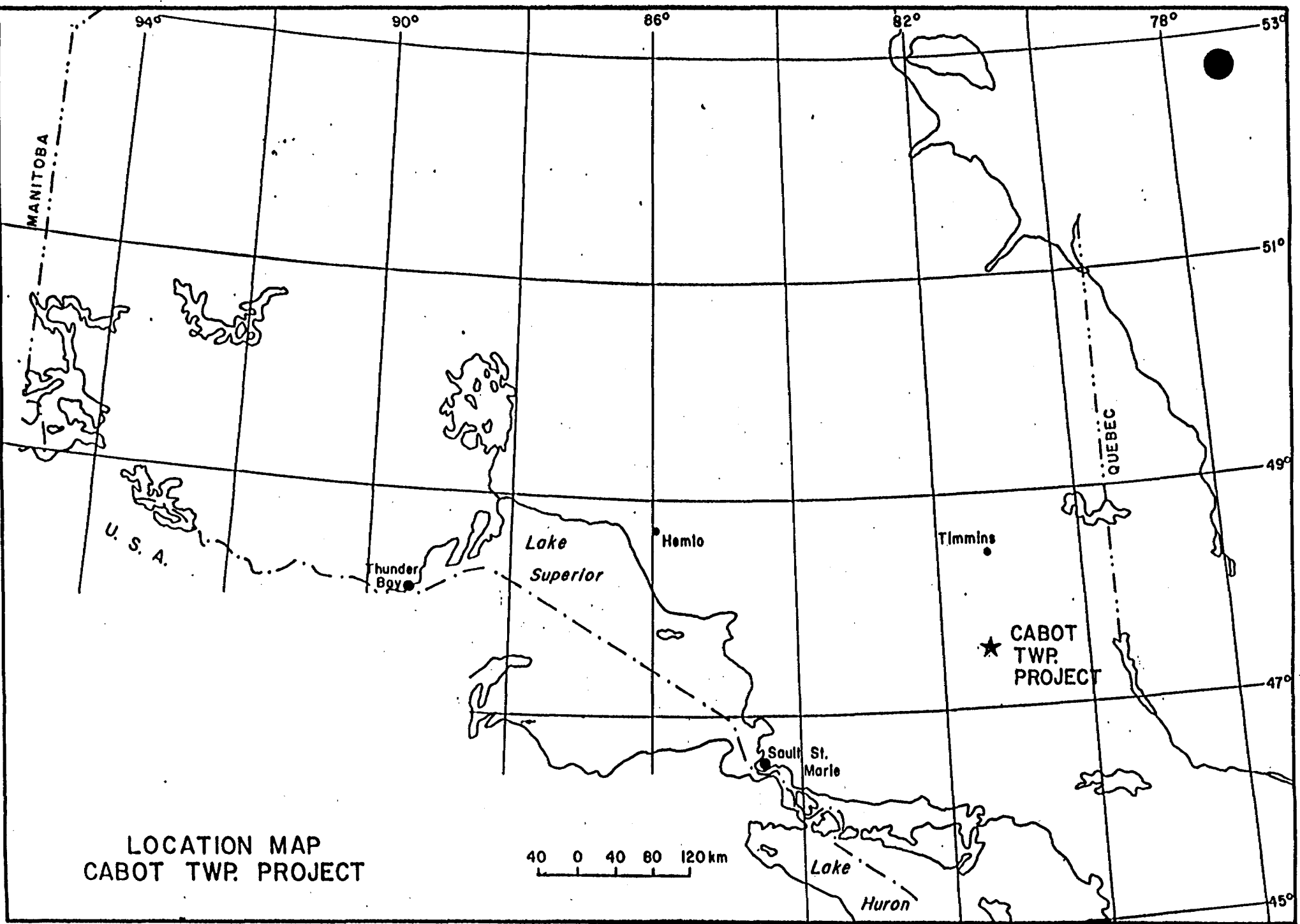


Figure 1

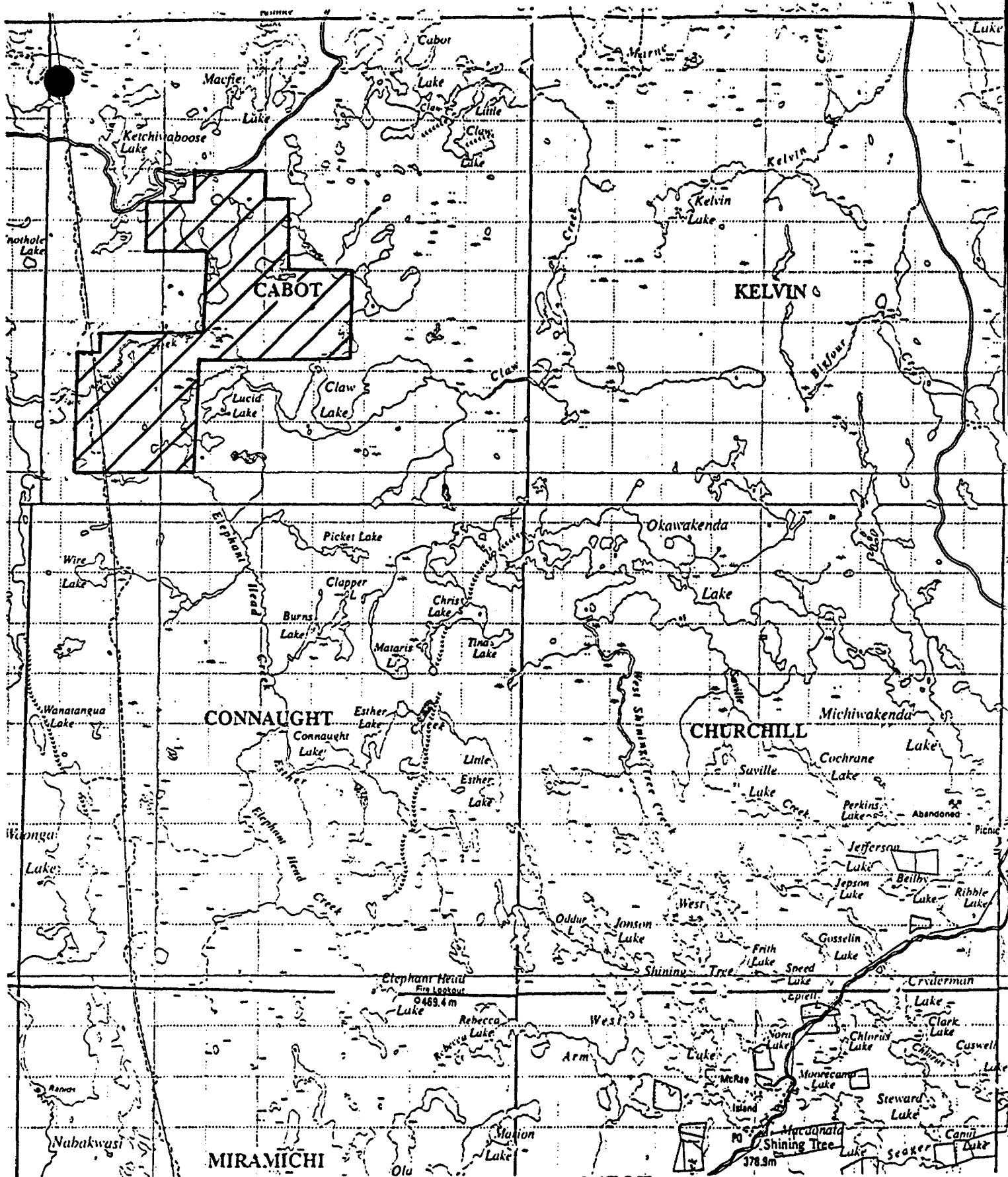


Figure 2

**CABOT TWP. PROJECT  
LOCATION MAP**

1:100 000



One centimetre represents one kilometre



### 1.3 Location and Access

The Cabot Township property is situated in the Sudbury District of northeastern Ontario. This region falls within the jurisdiction of the Larder Lake Mining Division, Ministry of Northern Development and Mines. The property is located specifically 29 kilometres east-northeast of Gogama, Ontario and lies immediately adjacent (to the north and west) of property held by Premier Explorations Inc. That area, between Lucid and Claw Lakes, has, historically and to-date, been extensively worked. From another perspective, the Cabot Township property is located approximately 83 kilometres south-southwest of Timmins or about 144 kilometres northwest of Sudbury.

Access to the property is reasonable; Grassy River Road, which runs north of old highway 560 allows access to Ketchiwaboose Lake. From this point, various parts of the property can be reached via old logging roads. A service road for a hydro transmission line that intersects the southwest map area also facilitates access. Map coverage is provided by National Topographic Series Map 41P/11, 1:50,000 scale.

## 2.0 GEOLOGICAL PERSPECTIVE

### 2.1 General Geology

The Cabot Township property is situated near the southwestern end of the Abitibi supracrustal volcanic belt of the Superior Province. This greenstone belt extends for approximately 560 kilometres and hosts a variety of precious metals deposits including the Timmins, Kirkland Lake, and Val d'Or mining camps.

The Abitibi Greenstone Belt is comprised in this area of a complex assemblage of interbedded, metavolcanic and metasedimentary rocks that have been intruded by both felsic and mafic rocks.

The felsic intrusives are represented primarily by the quartz diorite of the nearby Claw Lake stock and the porphyritic granodiorite of the Togo Batholith to the west. The mafic intrusives occur most commonly as gabbros and diabase dykes. The diabase dykes are of different ages, compositions and trends; the oldest are tholeiitic dyke sets trending north-northwest, north and north-northeast. These, in turn, are cut by a later east-southeasterly trending alkalic dyke set.

The interbedded subalkalic metavolcanic flows (intermediate to mafic in composition) and clastic metasediments form the northern limb of a synclinorium in the northern half of the township. These rocks strike approximately N50°E and dip about 75° to the southeast.

The Ketchiwaboose Lake Fault is a major structure that transects the property in the west, strikes N-NW and continues into Connaught Township where it becomes the Elephant Head Lake Fault.

Shearing occurs along this fault, but in the map area the fault is only expressed as an airphoto lineament.

## 2.2 Economic Geology

Deposits of economic interest in the area are considered to fall into the following categories: (1) felsic intrusive, granodiorite-copper molybdenum sulphide association, (2) "Cobalt" type arsenide ores, (3) stratiform sulphides of volcanic flow and felsic tuff association, and (4) chalcopyrite-magnetite mafic intrusive mineralization. Deposits of the first type are found in the Lucid Lake - Claw Lake area over the Claw Lake Stock immediately southeast of the property. Deposits of the second category have been located in some of the many pits that occur in the north part of the Cabot property. This mineralization can be associated with both the Matachewan and Nipissing-type dykes in the area. The stratiform sulphides of type three also have been observed in the north portion of the claim group in association with the felsic metavolcanics. The final category of rocks of economic interest outcrop on the eastern portion of the property just south of the baseline and the small lake there, in a metagabbroic intrusive host.

### 3.0 MAGNETIC SURVEY RESULTS

#### 3.1 Survey Parameters

The entire property was surveyed utilizing the computerized proton precession magnetometer system, the GSM-18, manufactured by Gem Systems of Richmond Hill, Ontario. Two units were operated as mobiles with a third as the base station, located centrally on the grid. The base station data was used for diurnal reduction of the mobile data.

Magnetic readings were taken every 12.5 metres, on grid lines which were spaced 100 metres apart. The azimuth of the baseline was 045°.

#### 3.2 Data Presentation

The magnetic data has been presented in contour form, using 100 gamma intervals. The datum utilized was 58,000 gammas, (as a result, a reading of 58,422 gammas would be shown as 422 gammas) and the individual reading for each station has been indicated. The scale of the clear overlay is 1:2,500.

#### 3.3 Interpretation

The magnetic survey data, at the present scale, does not give an immediate depiction of the general geological trends of the property. The grid orientation and the bias inherent in the contouring process has not delineated properly some of the more significant geological features. With a re-interpretation of the contouring and optimum grid re-orientation perpendicular to existing lines the diabase dykes would probably be better resolved.

From the given information, the magnetic data reveals many spurious anomalies approximately 1000 nT above background. In most cases, these anomalies appear quite linear and can be visually traced predominantly in a N-NW direction. One exception occurs in the NW corner of the property. Here two isolated anomalies can be linked to allow for the interpretation of a possible mafic intrusive trending W-NW. This area is swampy and has little exposed outcrop, hence the dyke's presence cannot be geologically verified. Not much attention should be given to the mafic dykes because the majority of them lack sulphide mineralization. A possible exception involves the pits located around L25E/5+00N. There is evidence of hydrothermal alteration there typical of type 2 (Co-arsenides) mineralization in close association with an adjacent dyke to the west of the pits. The dykes will not be individually identified owing to the delineation of some 20 dyke sets. The proliferation of the dykes and, consequently, their strong magnetic influence also serves to mask the regional rock's magnetic signature. Therefore, the metavolcanic rocks cannot be well discriminated from the background magnetic field. Perhaps a weak correlation may be drawn in those areas with moderate contour density representative of mafic metavolcanics and low contour density equated to intermediate to felsic metavolcanics which have lower magnetic susceptibility. This situation seems to arise near Claw Creek Bay (L24W/12+00N). The magnetic response suggests a possible contact zone in the metavolcanics with type 3 (massive sulphide) mineralization.

Government geologists have inferred a major fault, the Ketchiwaboose Lake Fault, which traverses through the center of the west half of the claim block parallel to the dyke structures. No physical evidence for the fault's exact location has been found but a distinct lack of magnetic response between L6W at its north end and L10W at the baseline accompanied by a series of magnetic lows in the vicinity of Elephant Head Creek south of the

baseline may outline the structure. A second fault, trending approximately north, indicated on the government map north of Claw Lake, can also be discerned (centered about L18W/6+00S) from the presence of significant lows between adjacent magnetic highs.

The most interesting magnetic anomalies on the property are those associated with the metamorphosed mafic intrusives. The gabbroic units occur at the bottom of the SW portion of the property (baseline and L28W), the top of the SW portion (L9W/14+00N) and in the central NE portion (around baseline and L18E). They are characterized by high total magnetic field values (+2000 nT) well above the values ascribed to the diabase (~ 1000 nT). In these instances, the contour bias adequately reflects the NE trend to the rock units. The metagabbroic units should be considered for further investigation due to their potential for type 4 (Cu-Fe) mineralization.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

The magnetic survey data has delineated as many as 20 different tholeiitic diabase dyke sets trending NNW and one alkalic diabase dyke trending WNW. The high density of dyke occurrences has led to masking of any subtle magnetic field response from the metavolcanic rocks that underlies the majority of the property. Two large faults have been inferred from characteristic magnetic signatures of a series of magnetic lows adjacent to magnetic highs. Of particular interest were the metagabbroic units outlined by distinct magnetic highs of several thousand nT in magnitude.

It is recommended that the total field magnetics map be recontoured at a condensed scale (1:5000) to allow for better visualization and identification of magnetic trends. If the recontouring procedure can be computer-assisted then feature-enhancement techniques such as grid re-orientation, filtering and biasing would be greatly facilitated. In fact, the generation of a vertical gradient version of the map is suggested to help in outlining geological contacts.

This magnetic survey should be followed-up with additional geophysical surveys. Several airborne electromagnetic (EM) surveys have been flown in the vicinity (Smith, 1984), and the conductors identified in these surveys (for example, the SE trending conductor through the center portion of the grid) should be studied using ground-EM survey; the origin of signals from the two main transmitting stations are such that optimum coupling cannot be achieved. However, a 3 channel horizontal loop EM survey could be used effectively to correlate conductive and structural trends with the magnetic anomalies. In addition, the HLEM survey would provide good resolution and greater depth of penetration than could be obtained with a standard VLF-EM survey.

The next survey should cover specific targets such as the previously mentioned conductor, the metagabbro horizons, the faults and the diabase dyke are believed to have associated hydrothermal alteration. This will assist in better defining potential drill targets.



5.0 REFERENCES

Campbell, R.A.

1988: Report on the Combined Airborne Magnetic and VLF-Electromagnetic Surveys (for) Premier Explorations Inc., Cabot Township, Ontario; private report.

Carter, M.W.

1986: Geology of Cabot and Kelvin Townships, District of Sudbury; Ontario Geological Survey Report 249. Accompanied by Map 2470, Scale 1:31,680 or 1 inch to 1/2 mile.

Smith, P.A.

1984: Dighem<sup>III</sup> Survey of the Shining Tree Area, Ontario for Manwa Exploration Services Ltd; private report.

Watts, A.

1980: Report (qualifying) on an Aeromagnetic Survey (in) Cabot Township, Northern Ontario (for) Amax Minerals Exploration; private report.

CERTIFICATE OF QUALIFICATIONS

I, Marc John Oudejans, of 400 Soudan Avenue, Toronto, Ontario, hereby certify that:

1. I have been employed since April, 1987 as an explorationist at A.C.A. Howe International Ltd., Mining and Geological Consultants, with offices at Suite 1400, 22 Front Street West, Toronto, Ontario, M5J 1C4.
2. I am a graduate of the University of Waterloo, Waterloo, Ontario with a Bachelor of Science (1985) degree in Applied Earth Sciences (Co-operative Option).
3. I have practiced my profession for 4 years in various capacities as a geologist and/or geophysicist in the field of exploration and research.
4. This report is based on firsthand surveying of the property, interpretation of data supplied by A.C.A. Howe International Limited, and a review of published and private reports.
5. I hold no interest in Actuate Resources Ltd.

Toronto, Ontario  
28 October, 1988

  
M.J. Oudejans

		959551 ①	959552 2	959553 3	959554 4		
1074281 4	1074278 ①	959558 8			959556 6	959555 5	
1074282 5	1074277 2	959559 9			1028464 ①	959567 7	
1074283 6	1074280 3	959560 10	959561 11	959562 12	1074282 2	1074286 ①	
			959575 25	959563 13	959564 14	959565 15	
			959574 24	959571 21	959570 20	959566 16	959567 17
			959572 22	959572 22	959569 19	959568 18	968260 10
			959593 13	959594 14	959597 17	959598 18	968251 ①
			959592 12	959595 15	959596 16	959599 19	959600 20
							968253 3
							968254 4
							968257 7
							968256 6
							968255 5

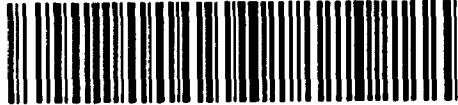
recorded wrong  
should be 968258

959583 3	959584 4	959587 7	959588 8	959591 11	959592 12	959595 15	959596 16	959599 19	959600 20	968253 3	968254 4
959581 ①	959582 2	959585 5	959586 6	959589 9	959590 10						
959550 30	959549 29	959548 28	959547 27	959546 26	959545 25						
959521 ①	959528 8	959529 9	959526 16	959537 17	959544 24						
959522 2	959527 7	959530 10	959535 15	959538 18	959543 23						
959523 3	959526 6	959531 11	959534 14	959539 19	959542 22						
959524 4	959525 5	959532 12	959533 13	959540 20	959541 21						

THE TOWNSHIP  
OF  
**CABOT**  
DISTRICT OF  
SUDBURY  
LARDER LAKE  
MINING DIVISION  
SCALE: 1-INCH=40 CHAIN



Ontario



41P11NW0003 2.11769 CABOT

900

Ministry of  
Northern Development  
and Mines

Ministère du  
Développement du Nord  
et des Mines

880 Bay Street  
3rd Floor  
Toronto, Ontario  
M5S 1Z8

(416) 965-4888

February 19, 1989

Your File: W8808-388  
Our File : 2.11769

Mining Recorder  
Ministry of Northern Development and Mines  
4 Government Road East  
Kirkland Lake, Ontario  
P2N 1A2

Dear Sir:

RE: Notice of Intent dated January 25, 1989  
Geological Survey & Geophysical (Magnetometer) Survey  
submitted on Mining Claims L 959551 et al in Cobot Township

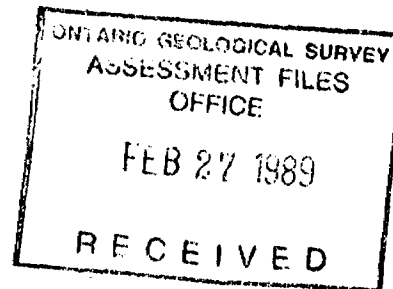
The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

This approval replaces our letter of February 9, 1989, which contained a typographical error on the work credit statement.

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

Yours sincerely,

W.R. Cowan  
Provincial Manager, Mining Lands  
Mines & Minerals Division



SH:sc

Encls:

cc: Actuate Resources Ltd  
Mr. Doug. P Martin  
Suite 1400  
10 King Street E.  
Toronto, Ontario  
M5C 1C3

cc: A.C.A. Howe International Ltd  
P.O. Box 130  
North Cobalt, Ontario  
POJ 1R0

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

cc: Resident Geologist  
Kirkland Lake, Ontario

REVISED

Recorded Holder  
Actuate Resources Ltd.

Township or Area  
Cabot Township

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
<b>Geophysical</b> Electromagnetic _____ days Magnetometer <u>40</u> days Radiometric _____ days Induced polarization _____ days Other _____ days Section 77 (19) See "Mining Claims Assessed" column	L 959551 to 557 inclusive 1028464 959560 to 563 inclusive 959567 to 574 inclusive 1074279 to 283 inclusive 1074286-87 959521 to 550 inclusive 959581 to 599 inclusive 968251 968256 to 260 inclusive
<b>Geological</b> <u>20</u> days <b>Geochemical</b> _____ days Man 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.	

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

<u>15 days Geological</u> <u>30 days Magnetometer</u>	<u>10 days Geological</u> <u>20 days Magnetometer</u>	<u>5 days Geological</u> <u>10 days Magnetometer</u>
L 959558-59-66 1074278 968252-55	L 959564-75 959600 968253-54	L 959565

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) - 60.

*Land Management*

Mining Act

Type of Survey(s) **Geological - Geophysical 2-1176** Township or Area **GABot**  
 Claim Holder(s) **Actuate Resources Ltd / Doug P. Martin** Prospector's Licence No. **T 4996 / M 24054**  
 Address **#1400, 10 King St. E Toronto Ontario. MSC 1C3**  
 Survey Company **A.C.A. Howe International Ltd.** Date of Survey (from & to) **12 04 88** Total Miles of line Cut **96.82**  
 Name and Address of Author (of Geo-Technical report) **Marc Oudejans P.O. Box 130 North Cobalt Ontario, POJ-1R0 (705-672-2244)**

Credits Requested per Each Claim in Columns at right

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

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
L	959551		L	959573	
	959552			959574	
	959553			959575	
	959554			1074278	
	959555			1074279	
	959556			1074280	
	959557			1074281	
	959558			1074282	
	959559			1074283	
	1028464			1074286	
	959560			1074287	
	959561			959521	
	959562			959522	
	959563			959523	
	959564			959524	
	959565			959525	
	959566			959526	
	959567			959527	
	959568			959528	
	959569			959529	
	959570			959530	
	959571			959531	
	959572				

RECEIVED  
SEP 19 1988  
MINING LANDS SECTION

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.

Total number of mining claims covered by this report of work. **94**

For Office Use Only  
 Total Days Cr. Recorded **5640** Date Recorded **Aug 29/88** Mining Recorder **M. Wiermer**  
 Date Approved as Recorded **2 P. Sep Revised statement** Branch Director

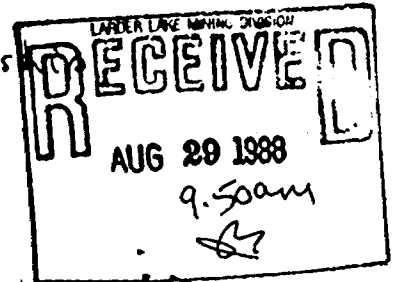
Date **Sept 7/88** Recorded Holder or Agent (Signature) **D. Gignac**

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 **Daniel J. Gignac, A.C.A. Howe International Ltd. Box 130 North Cobalt Ontario, POJ-1R0**  
 Date Certified **Sept. 7/88** Certified by (Signature) **D. Gignac**

Aug. 25/88

Actuate Resources Ltd.

Cabot Towns



Mining claims traversed (continued)

Prefix	number	Days credit.	Prefix	number	Days credit.
				959588	60
L	959532	60		959589	60
	959533	60		959590	60
	959534	60		959591	60
	959535	60		959592	60
	959536	60		959593	60
	959537	60		959594	60
	959538	60		959595	60
	959539	60		959596	60
	959540	60		959597	60
	959541	60		959598	60
	959542	60		959599	60
	959543	60		959600	60
	959544	60	L	968251	60
	959545	60		968252	60
	959546	60		968253	60
	959547	60		968254	60
	959548	60		968255	60
	959549	60		968256	60
	959550	60		968257	60
L	959581	60		968258	60
	959582	60		968259	60
	959583	60		968260	60
	959584	60			
	959585	60			
	959586	60			
	959587	60			

[Signature] Aug. 25/88



File \_\_\_\_\_

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) Geological

Township or Area Carot Township

Claim Holder(s) Actuate Resources Limited

Survey Company A.C.A. Howe International Limited

Author of Report Marc Oudejans

Address of Author 400 Soudan Avenue, Toronto, Ont.

Covering Dates of Survey September, 1987 to August 1988
(linecutting to office)

Total Miles of Line Cut 132.2 Kilometres

MINING CLAIMS TRAVERSED
List numerically

See table 1 in report
(prefix) (number)

SPECIAL PROVISIONS
CREDITS REQUESTED

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

ENTER 20 days for each additional survey using same grid.

Table with 2 columns: Geophysical, Geological, Geochemical. Rows include Electromagnetic, Magnetometer (40\*), Radiometric, Other, and Geochemical (x).

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

Magnetometer \_\_\_\_\_ Electromagnetic \_\_\_\_\_ Radiometric \_\_\_\_\_
(enter days per claim)

DATE: Nov. 14, 1988 SIGNATURE: M. Oudejans
Author of Report or Agent

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

Previous Surveys

Table with 4 columns: File No., Type, Date, Claim Holder. Multiple rows for listing previous surveys.

TOTAL CLAIMS 94

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 5520 Number of Readings 11040
Station interval 12.5 metres Line spacing 100 metres
Profile scale N/A
Contour interval 200 gammas (nT)

MAGNETIC

Instrument GMS - 18 Computerized Proton Precession: Magnetometer
Accuracy - Scale constant 0.5 nT
Diurnal correction method Base Station Reduction
Base Station check-in interval (hours) Automatic readings every 3 Seconds
Base Station location and value Approximately at the north end of L18E/
approximately 100 m south of Camp on Ketchiwaboose Lake Value: 58400nT

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

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) \_\_\_\_\_

Instrument(s) \_\_\_\_\_

(specify for each type of survey)

Accuracy \_\_\_\_\_

(specify for each type of survey)

Aircraft used \_\_\_\_\_

Sensor altitude \_\_\_\_\_

Navigation and flight path recovery method \_\_\_\_\_

Aircraft altitude \_\_\_\_\_ Line Spacing \_\_\_\_\_

Miles flown over total area \_\_\_\_\_ Over claims only \_\_\_\_\_

GEOCHEMICAL SURVEY - PROCEDURE RECORD

Numbers of claims from which samples taken See table 2 in accompanying report

Total Number of Samples 192

Type of Sample rock  
(Nature of Material)

Average Sample Weight 2kg

Method of Collection grab

Soil Horizon Sampled \_\_\_\_\_

Horizon Development \_\_\_\_\_

Sample Depth \_\_\_\_\_

Terrain 10% outcrop, as much as 25%  
swamp and inundated land

Drainage Development swampy - drains SW

Estimated Range of Overburden Thickness varies  
shallow up to 100 m deep in areas of  
glacial drift

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis \_\_\_\_\_

General \_\_\_\_\_

ANALYTICAL METHODS

Values expressed in: per cent   
p. p. m.   
p. p. b.

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, -(circle)

Others Au. in ppb

Field Analysis (\_\_\_\_\_ tests)

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

Field Laboratory Analysis

No. (\_\_\_\_\_ tests)

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

Commercial Laboratory (\_\_\_\_\_ tests)

Name of Laboratory Min-En (Timmins), Bell-White  
(Hailbury)

Analytical Method Rock geochem & fire assay for over

Reagents Used \_\_\_\_\_ 2000 ppb

General The geophysical report has been submitted  
separately and a technical data statement was not  
included at that time.

Burrows Twp. - M.691

THE TOWNSHIP  
OF

CABOT

DISTRICT OF  
SUDBURY

LARDER LAKE  
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	—
CANCELLED	—

NOTES

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

Flooding rights on Mattagami Lake to contour elev. 1070' to Northern Ont. Power Co. Ltd. L.O. 7199. File: 36881.

SAND and GRAVEL

Ⓜ MNR GRAVEL RESERVE 3C22

■ Trapline Cabin

DATE OF ISSUE  
JEC 18 1987  
LARDER LAKE  
MINING RECORDER'S OFFICE

#1

PLAN NO. M.695

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

Togo Twp. - M.1158

Kelvin Twp. - M.964

Connaught Twp. - M.730

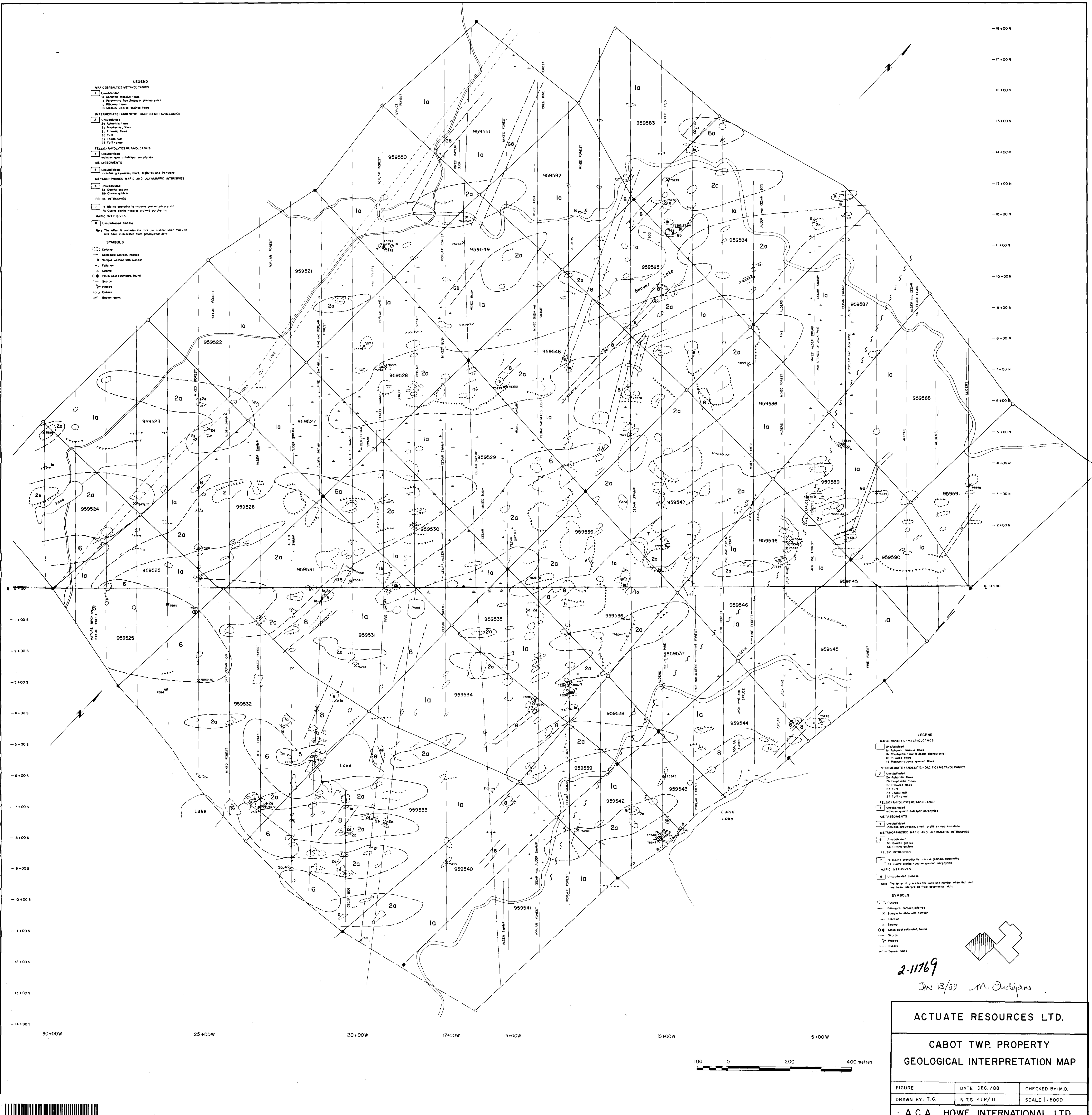


41P11NW003 2.11769 CABOT

RECEIVED August 14-1984

- LEGEND**
- MAFIC/BASALTIC METAVOLCANICS**
- 1 Unsubdivided
  - 2a Aphonic flows
  - 2b Porphyritic flow (albite-epidote)
  - 2c Plagioclase flows
  - 2d Medium-coarse grained flows
- INTERMEDIATE (ANDSITIC-DIOBTIC) METAVOLCANICS**
- 3 Unsubdivided
  - 4a Aphonic flows
  - 4b Porphyritic flows
  - 4c Plagioclase flows
  - 4d Lath luff
  - 4e Luff chert
  - 4f Luff chert
- FELSIC (DIOBTIC) METAVOLCANICS**
- 5 Unsubdivided
  - 6a Quartz gabbro
  - 6b Diabase gabbro
- METASEDIMENTARY**
- 7a Biotite granodiorite-coarse grained porphyritic
  - 7b Quartz diorite-coarse grained porphyritic
- MAFIC INTRUSIVES**
- 8 Unsubdivided diabase
- Note: The letter 'G' precedes the rock unit number when that unit has been interpreted from geophysical data.
- SYMBOLS**
- Outcrop
  - Geological contact, inferred
  - X Sample location with number
  - - - Fault line
  - ~ Swamp
  - Clear pool estimated, found
  - Stream
  - Pond
  - Estuary
  - Beaver dam

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  - Beaver dam

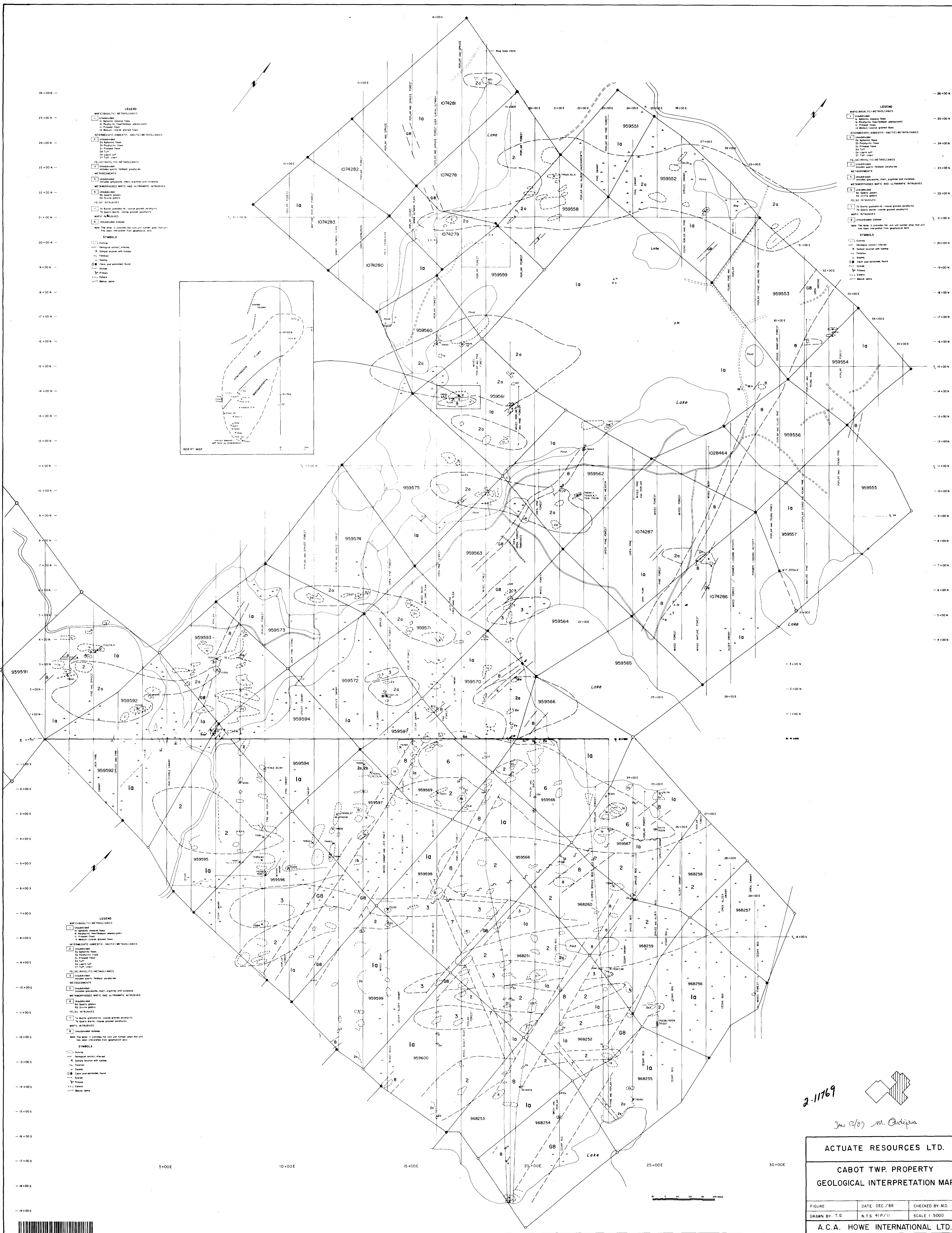


2-11769  
 Jan 13/89 M. Oudjans

<b>ACTUATE RESOURCES LTD.</b>		
<b>CABOT TWP. PROPERTY</b>		
<b>GEOLOGICAL INTERPRETATION MAP</b>		
FIGURE:	DATE DEC./88	CHECKED BY M.O.
DRAWN BY: T.G.	N.T.S. 41P/11	SCALE 1:5000
<b>A.C.A. HOWE INTERNATIONAL LTD.</b>		







**LEGEND**

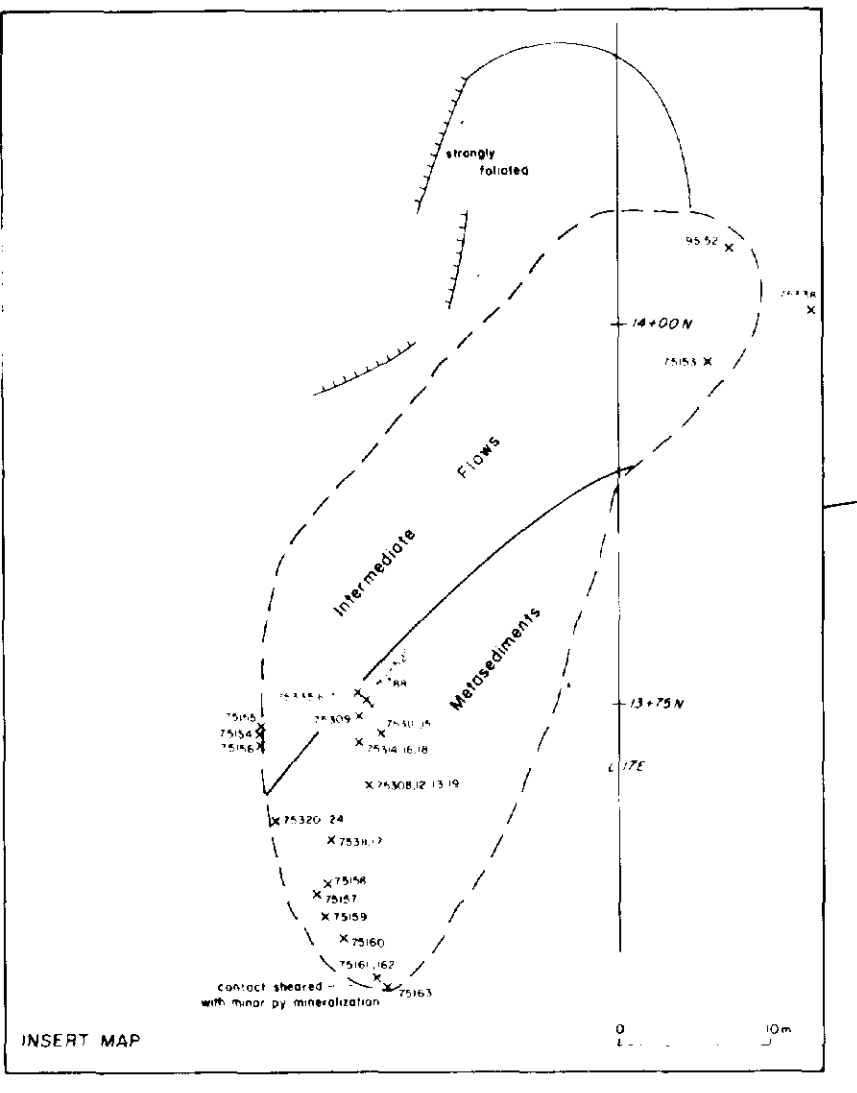
**MAFIC-BASALTIC METAVOLCANICS**

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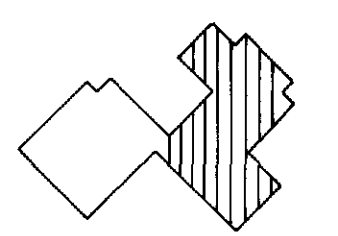
**LEGEND**

**METAMORPHIC METAVOLCANICS**

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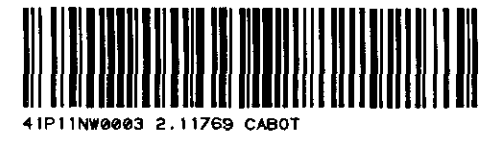
2-11769



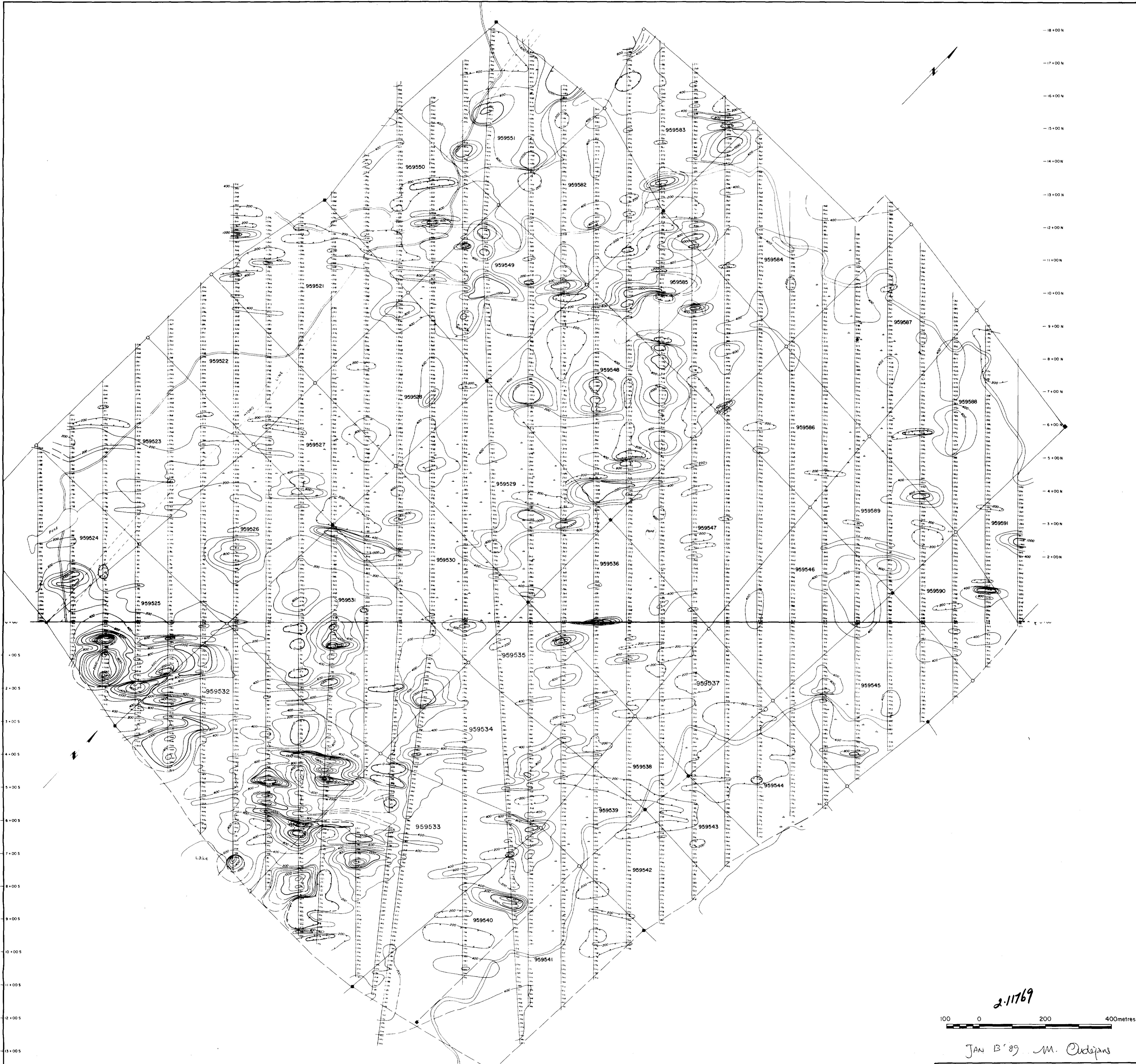
Jan 12/89 M. Odjapan

**ACTUATE RESOURCES LTD.**  
**CABOT TWP. PROPERTY**  
**GEOLOGICAL INTERPRETATION MAP**

FIGURE	DATE DEC./88	CHECKED BY M.O.
DRAWN BY T.G.	NTS 41P/11	SCALE 1:5000
A.C.A. HOWE INTERNATIONAL LTD.		

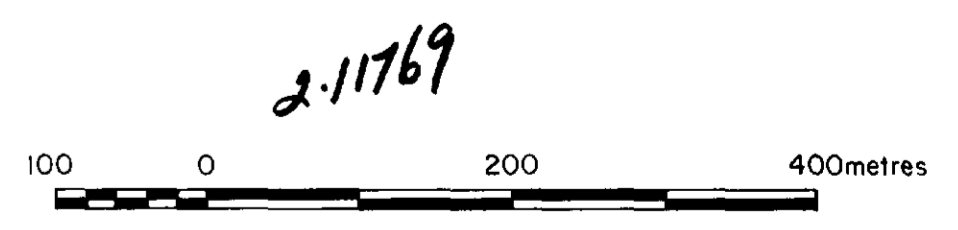






18+00 N  
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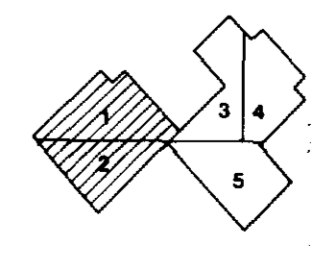
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JAN 13 '89 M. Oudjans

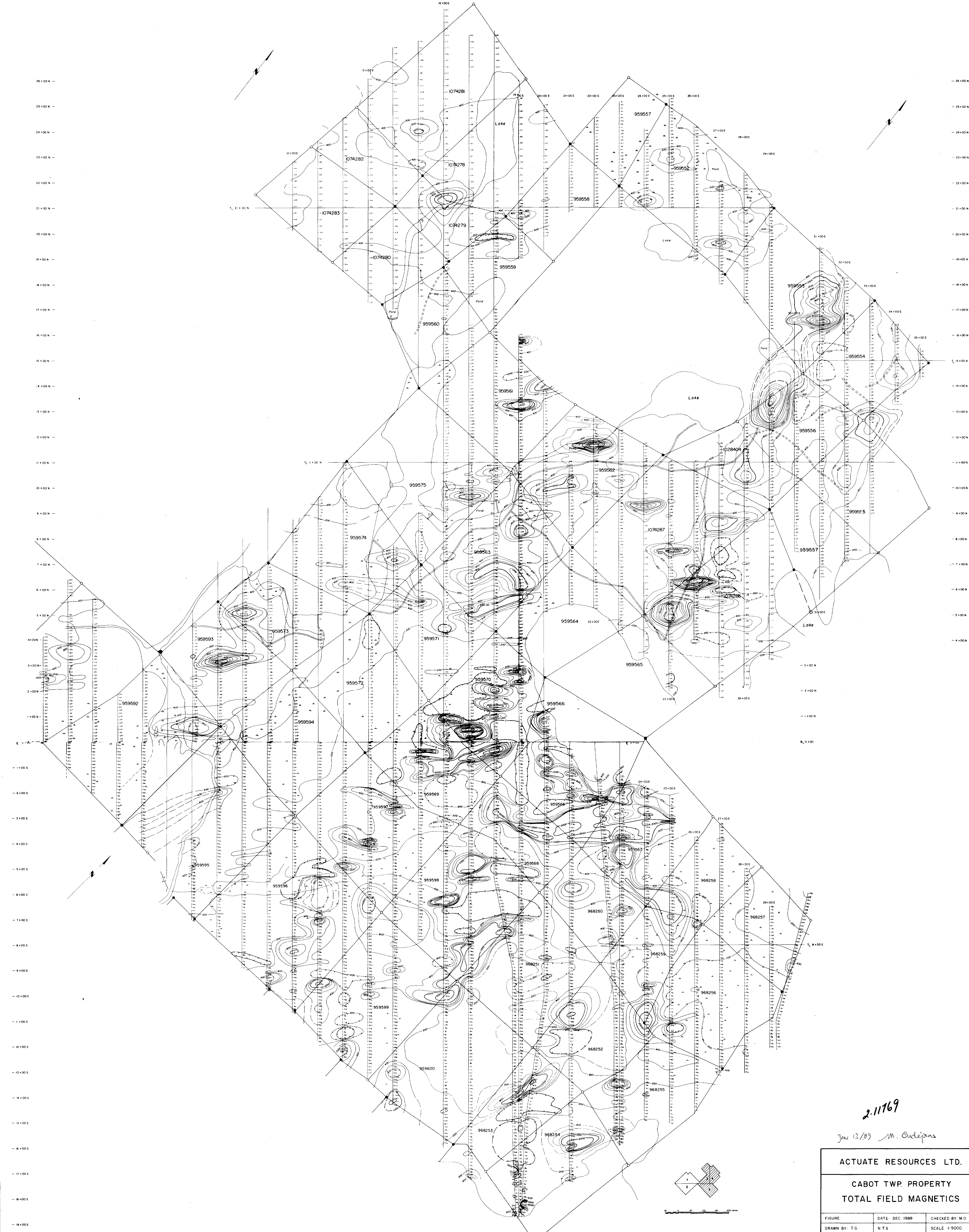
ACTUATE RESOURCES LTD.

CABOT TWP. PROPERTY  
TOTAL FIELD MAGNETICS

FIGURE:	DATE: DEC. 1988	CHECKED BY: M.O.
DRAWN BY: T.G.	N.T.S.	SCALE: 1:5000
A.C.A. HOWE INTERNATIONAL LTD.		







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Jan 13/89 M. Cudejans

ACTUATE RESOURCES LTD.  
 CABOT TWP. PROPERTY  
 TOTAL FIELD MAGNETICS

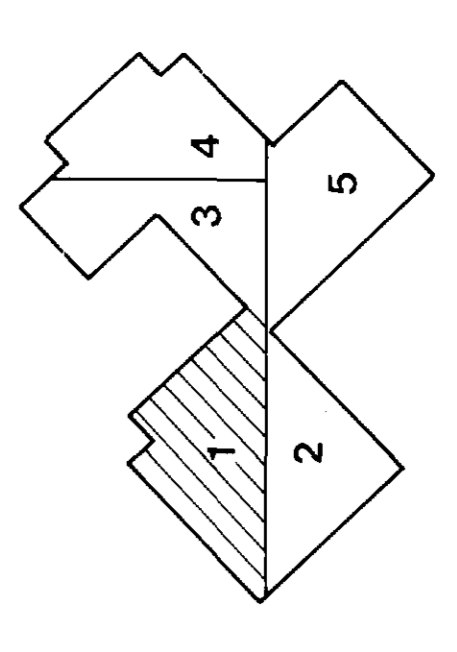
FIGURE	DATE: DEC. 1988	CHECKED BY: M.O.
DRAWN BY: T.G.	N.T.S.	SCALE 1:5000

A.C.A. HOWE INTERNATIONAL LTD.



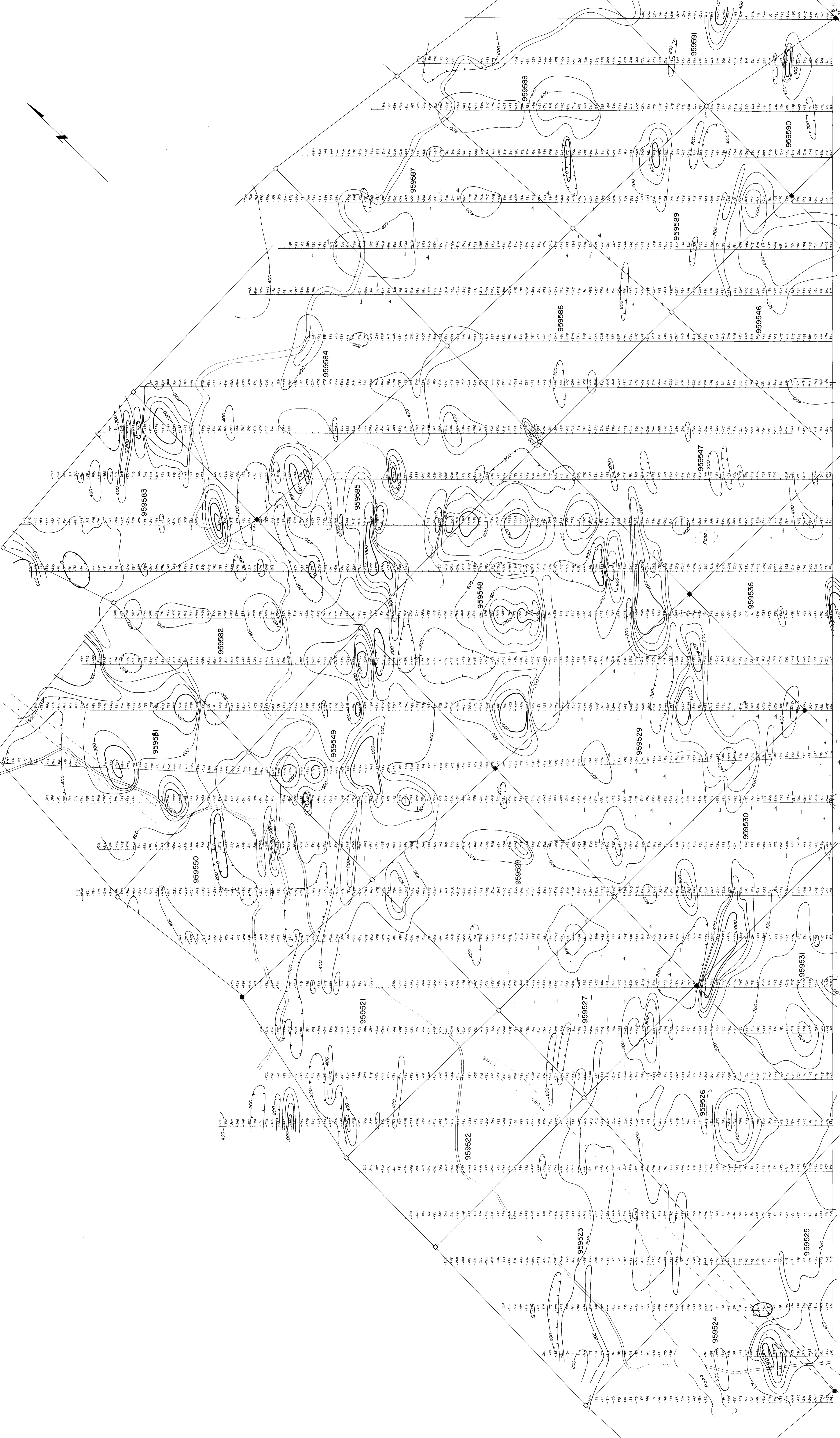


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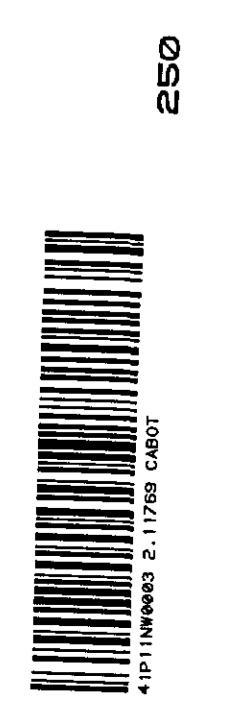


0 50 100 200 300 METERS  
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ACTUATE RESOURCES LTD.  
CABOT TWP. PROPERTY  
TOTAL FIELD MAGNETICS  
DRAWN BY S.G. N.T.S. CHECKED BY M.D.  
SCALE 1:2000  
A.C.A. HOWE INTERNATIONAL LTD.

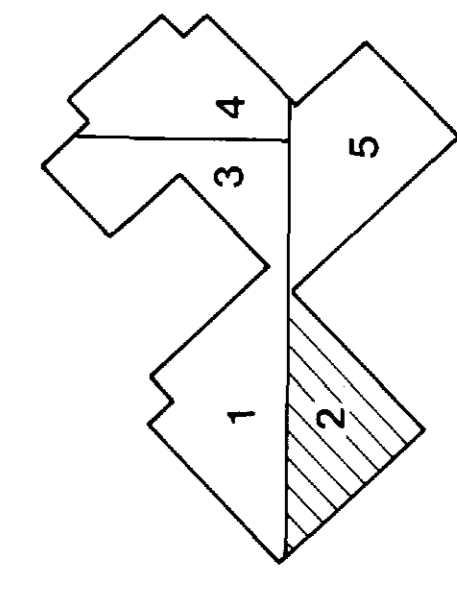
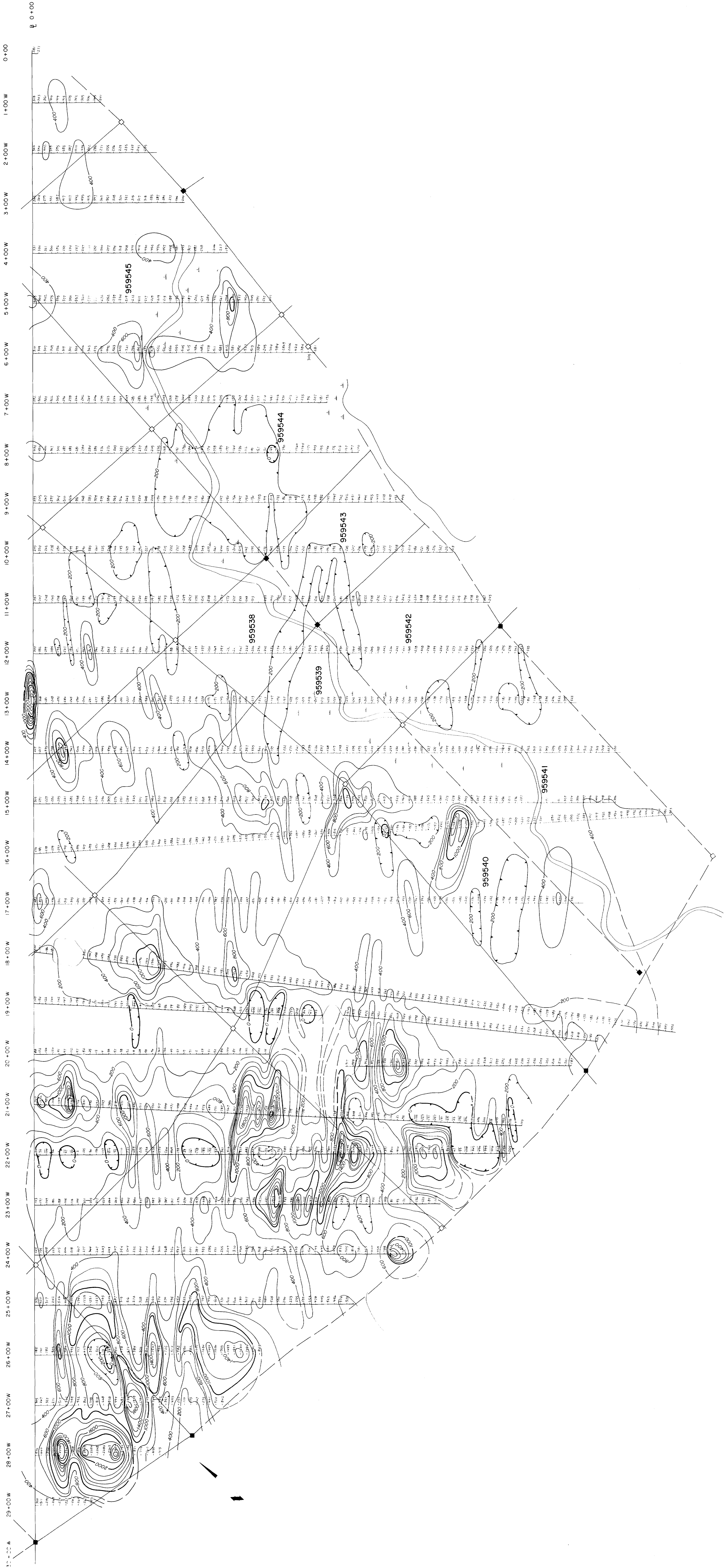


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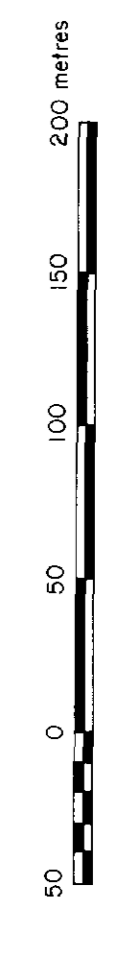


2580





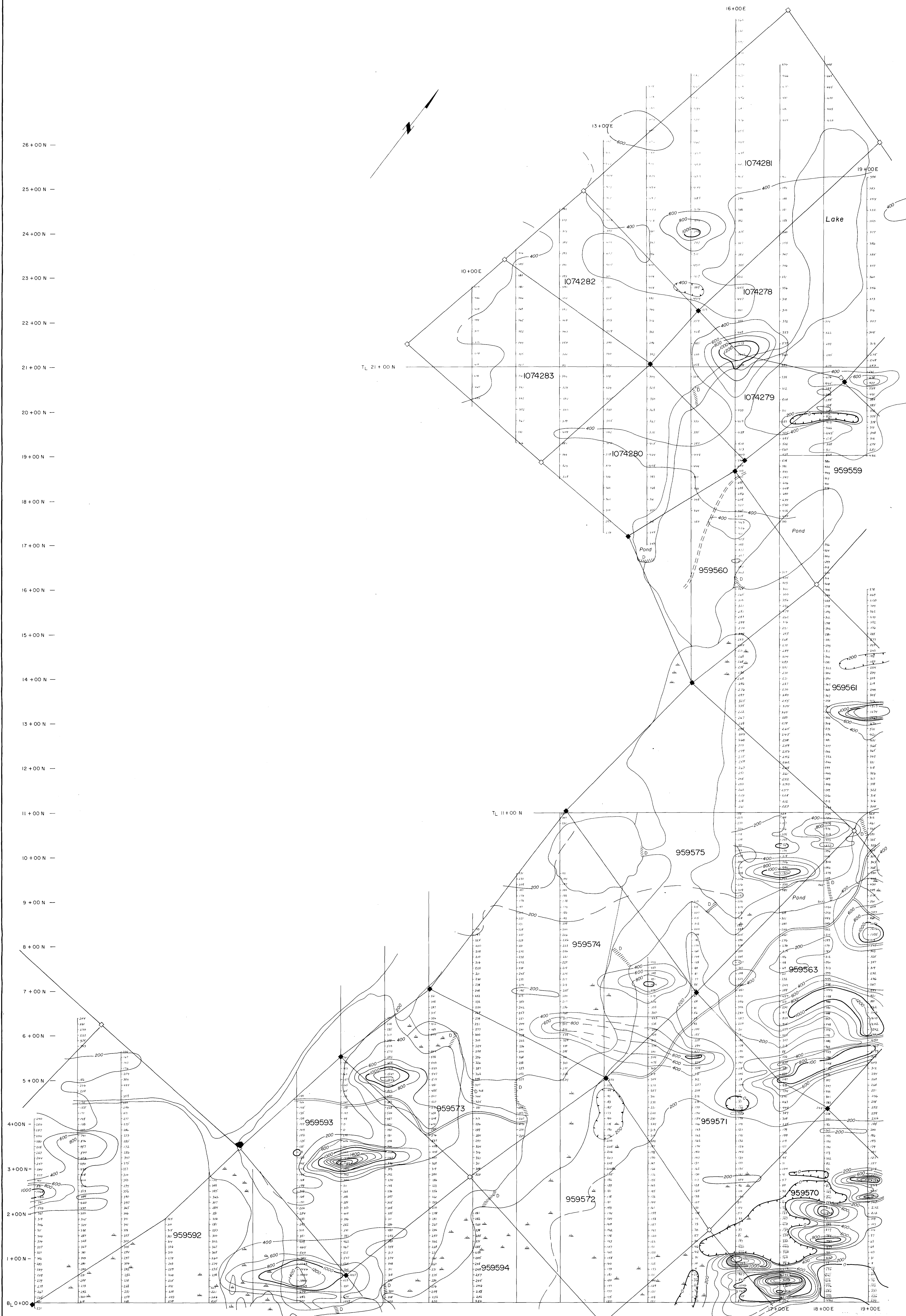
2.11.00



ACTUATE RESOURCES LTD.  
 CABOT TWP. PROPERTY  
 TOTAL FIELD MAGNETICS

FIGURE:	DATE: OCT 1988	CHECKED BY: A.O.
DRAWN BY: S.O.	N.T.S.	SCALE: 1:2500





ACTUATE RESOURCES LTD.

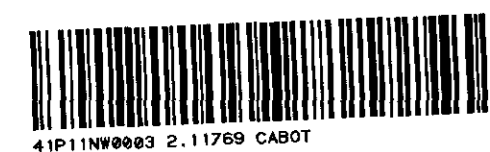
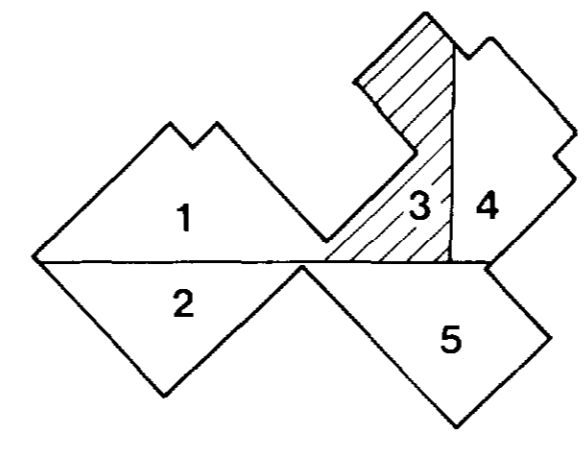
CABOT TWP. PROPERTY

TOTAL FIELD MAGNETICS

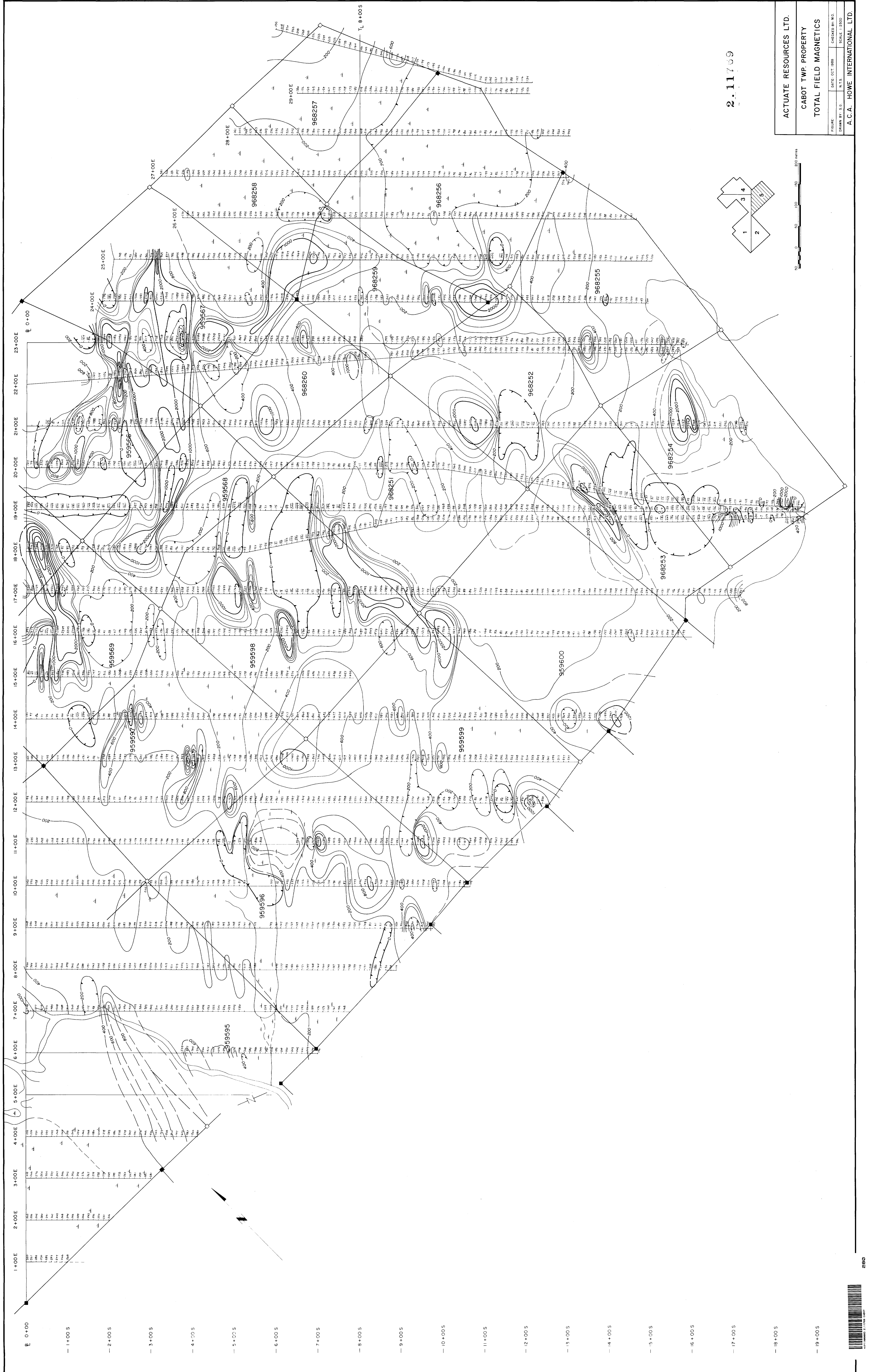
FIGURE: DATE: OCT. 1988 CHECKED BY: M.D.

DRAWN BY: S.B. N.T.S. SCALE: 1:2500

A.C.A. HOWE INTERNATIONAL LTD.



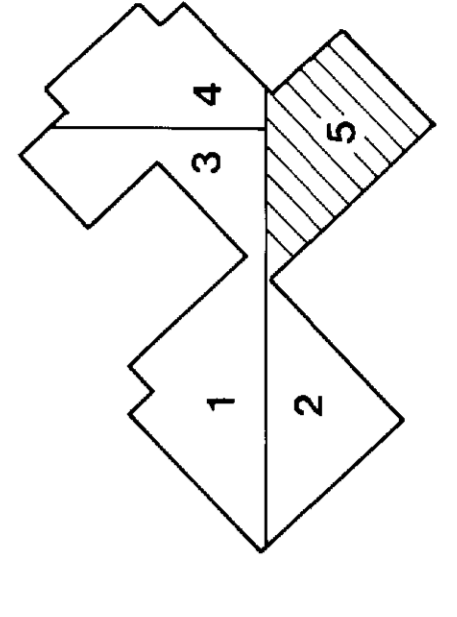
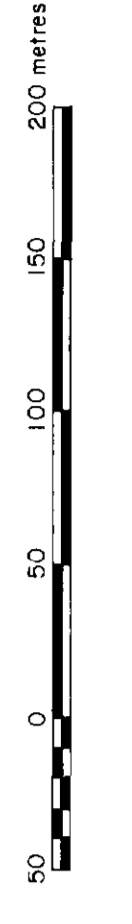




2.11709

ACTUATE RESOURCES LTD.  
 CABOT TWP. PROPERTY  
 TOTAL FIELD MAGNETICS

FIGURE: DATE: OCT. 1988  
 DRAWN BY: S.G. N.T.S.  
 CHECKED BY: M.O.  
 SCALE: 1:2000  
 A.C.A. HOWE INTERNATIONAL LTD.



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