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**ASSESSMENT REPORT**

describing

**GEOLOGICAL MAPPING, PROSPECTING, GEOCHEMICAL  
SAMPLING AND GEOPHYSICAL SURVEYS**

at the

**BOB PROPERTY**

Bob 1-14 YC72674-YC72687

NTS 105G/06

Latitude 61°19'N; Longitude 131°11'W

located in the

Watson Lake Mining District  
Yukon Territory

prepared by

Archer, Cathro & Associates (1981) Limited

for

**STRATEGIC METALS LTD.**

by

H. Smith, B.Sc. Geology, GIT  
December 2008

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## **INTRODUCTION**

The Bob property covers a lead-zinc-silver prospect located in the Pelly Mountains of Yukon Territory. It is wholly owned by Strategic Metals Ltd.

This report describes a two phase exploration program conducted in summer and early fall 2008. Phase I was done on July 20 and comprised helicopter-borne versatile time-domain electromagnetic (VTEM) and magnetic surveys, which were flown over the property by Geotech Ltd. Phase II was performed by Archer, Cathro & Associates (1981) Limited between September 2 and 9. It involved geological mapping, prospecting and geochemical sampling by a two person crew working from a fly camp on the property. The author participated in Phase II and her Statement of Qualifications appears in Appendix I.

## **PROPERTY LOCATION, CLAIM DATA AND ACCESS**

The Bob property consists of 14 contiguous mineral claims located 94 km southeast of Ross River in southeastern Yukon, at latitude 61°19'N and longitude 131°11'W on NTS 105G/06 (Figure 1). The claims are registered in the Watson Lake Mining Recorder in the name of Archer Cathro, which holds them in trust for Strategic. Claim data are listed below while the locations of individual claims are illustrated on Figure 2.

<u>Claim Name</u>	<u>Grant Number</u>	<u>Expiry Date*</u>
Bob 1-14	YC72674-YC72687	February 27, 2013

\*Expiry date includes 2008 work which has been filed for assessment credit but not yet accepted.

Phase I work was done from the Ross River Airport with intraday refuelling at a temporary staging area along the Robert Campbell Highway, 55 km northeast of the property. The crew and camp involved in Phase II work used the same staging area for mobilization and demobilization, which were done by a Bell 206B helicopter operated by Trans North Helicopters from its base in Ross River.

## **HISTORY**

The Bob area was first staked in 1962 by Cassiar Asbestos Corporation as the Red claims. Cassiar performed hand trenching but did not report results. The area was re-staked by prospectors in 1966 (Tintina claims), 1971 (Herb claims) and 1974 (Jen claims), but no other work was reported.

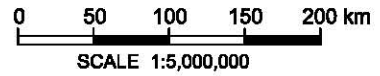
In 1977, Cominco restaked the area as the Nole claims and carried out soil geochemical sampling and geological mapping. This work delineated a 1000 m by 100 m roughly east-west trending zone hosting greater than 100 ppm lead and 300 ppm zinc in soils. Peak values were 26,300 ppm lead and 10,400 ppm zinc (Paterson, 1978). The Nole claims subsequently lapsed.

In 1987, the Geological Survey of Canada (GSC) conducted reconnaissance-scale stream sediment sampling on the map sheet where the Bob claims are located. A sample taken from a

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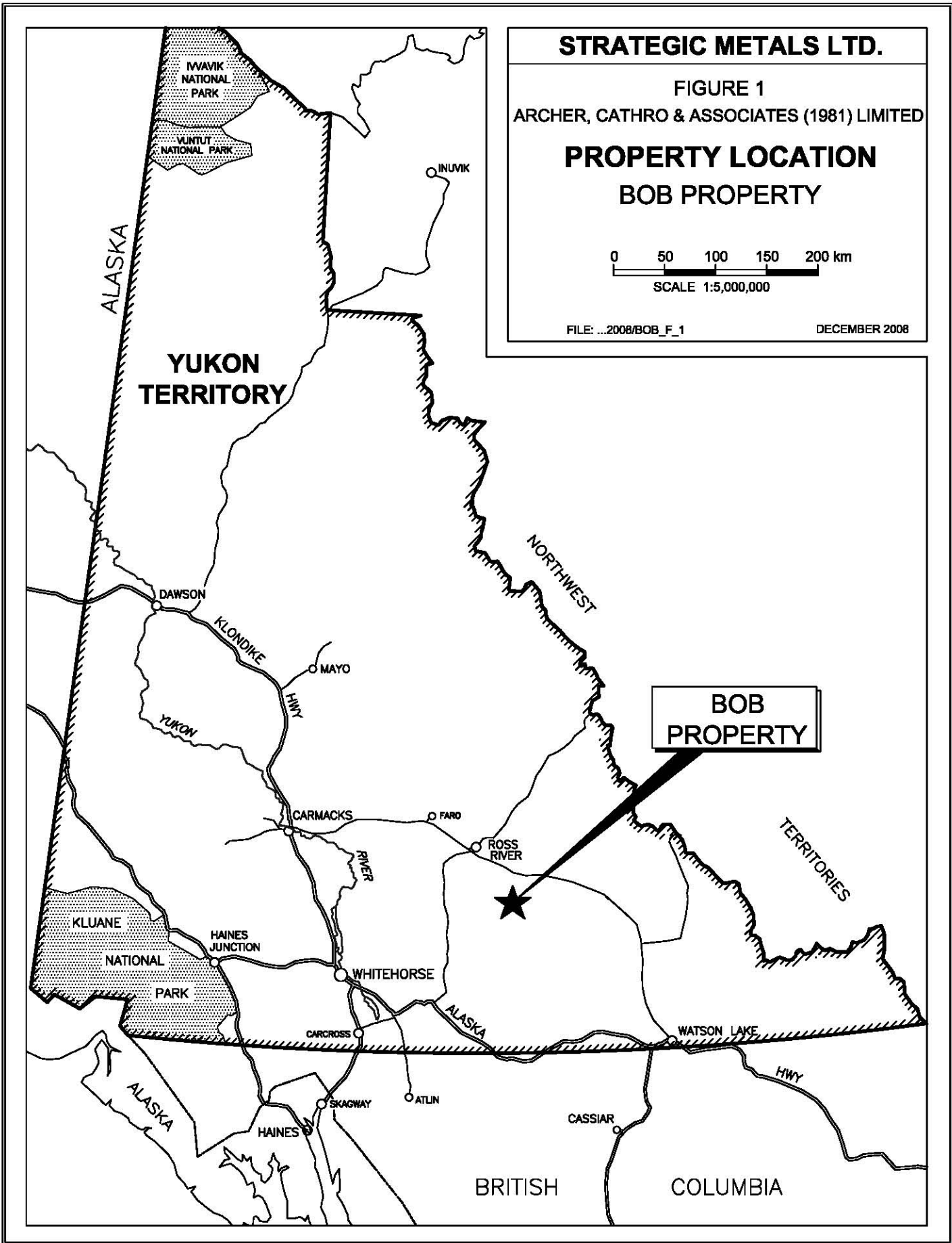
FIGURE 1  
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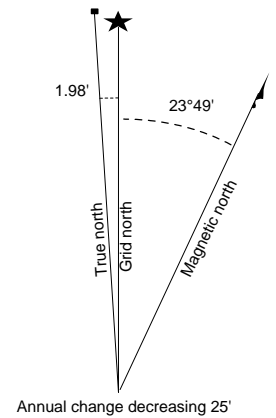
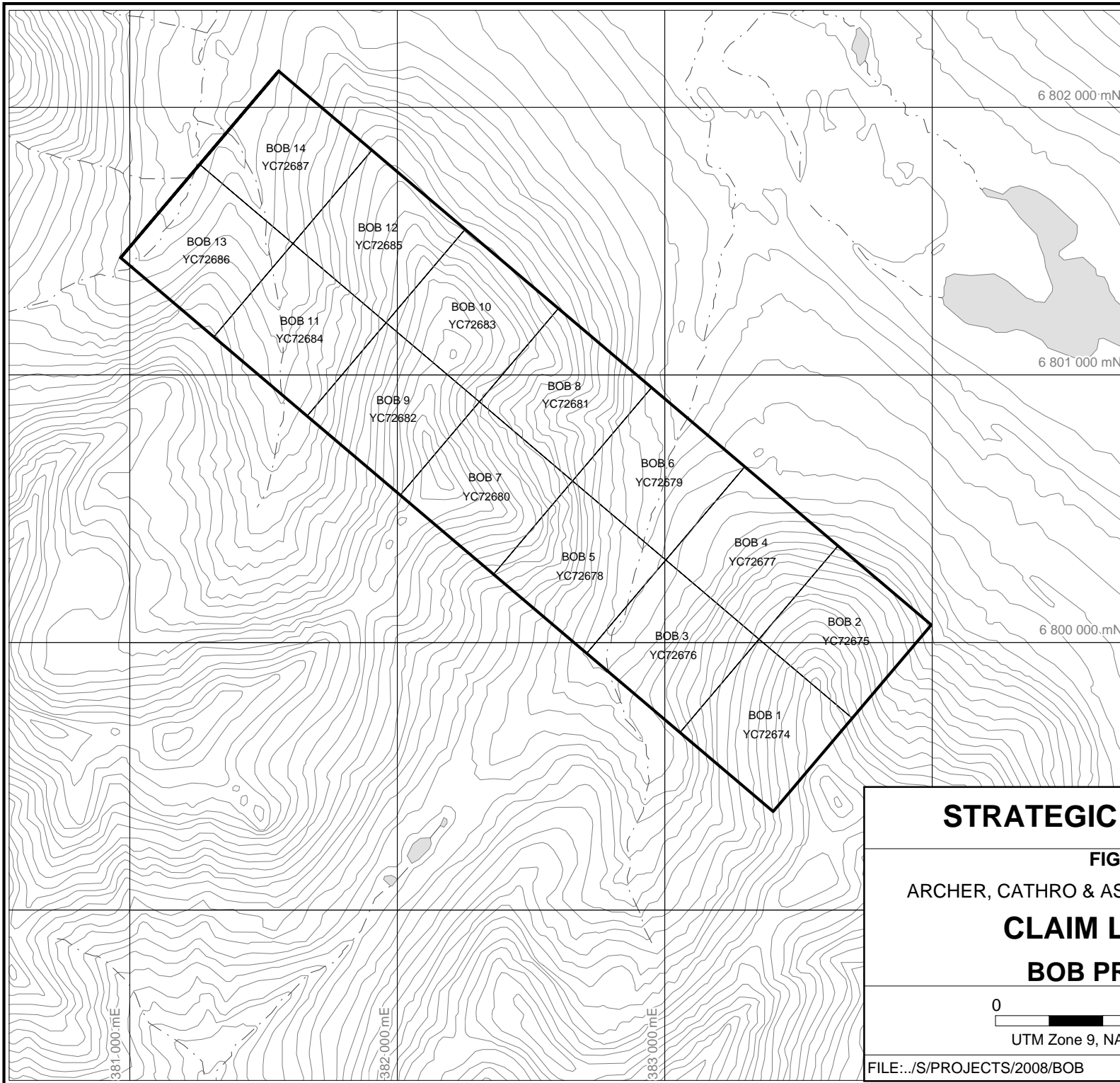
**PROPERTY LOCATION  
BOB PROPERTY**




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DECEMBER 2008





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FIGURE 2	
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED	
<b>CLAIM LOCATION</b>	
<b>BOB PROPERTY</b>	
	
UTM Zone 9, NAD83, NTS 105G/06	
FILE:../S/PROJECTS/2008/BOB	DATE: DECEMBER 2008

creek draining the property returned very strongly anomalous values of 2,400 ppm lead and 8,500 ppm zinc (Friske et al, 1987).

Cominco restaked the area in 1989 as the Val claims. In 1990, those claims were tested by horizontal loop electromagnetic (HLEM) and magnetic surveys. Several HLEM conductors were reported but magnetic data produced only weak response that was attributed to changes in rock type (MacRobbie, 1990).

In 1997, Cominco completed two diamond drill holes (213.3 m), which explored beneath soil anomalies and ferricrete deposits. No data was reported from hole 1 and no assays were given for hole 2. Geological comments concerning hole 2 suggest it was drilled approximately parallel to bedding (MacRobbie, 1998).

Strategic Metals staked the Bob claims in fall 2007.

### **GEOMORPHOLOGY**

The Bob property is located in the St. Cyr Range of the Pelly Mountains. All creeks draining the property flow into the Hoole River and ultimately into the Arctic Ocean via the Pelly and Yukon rivers.

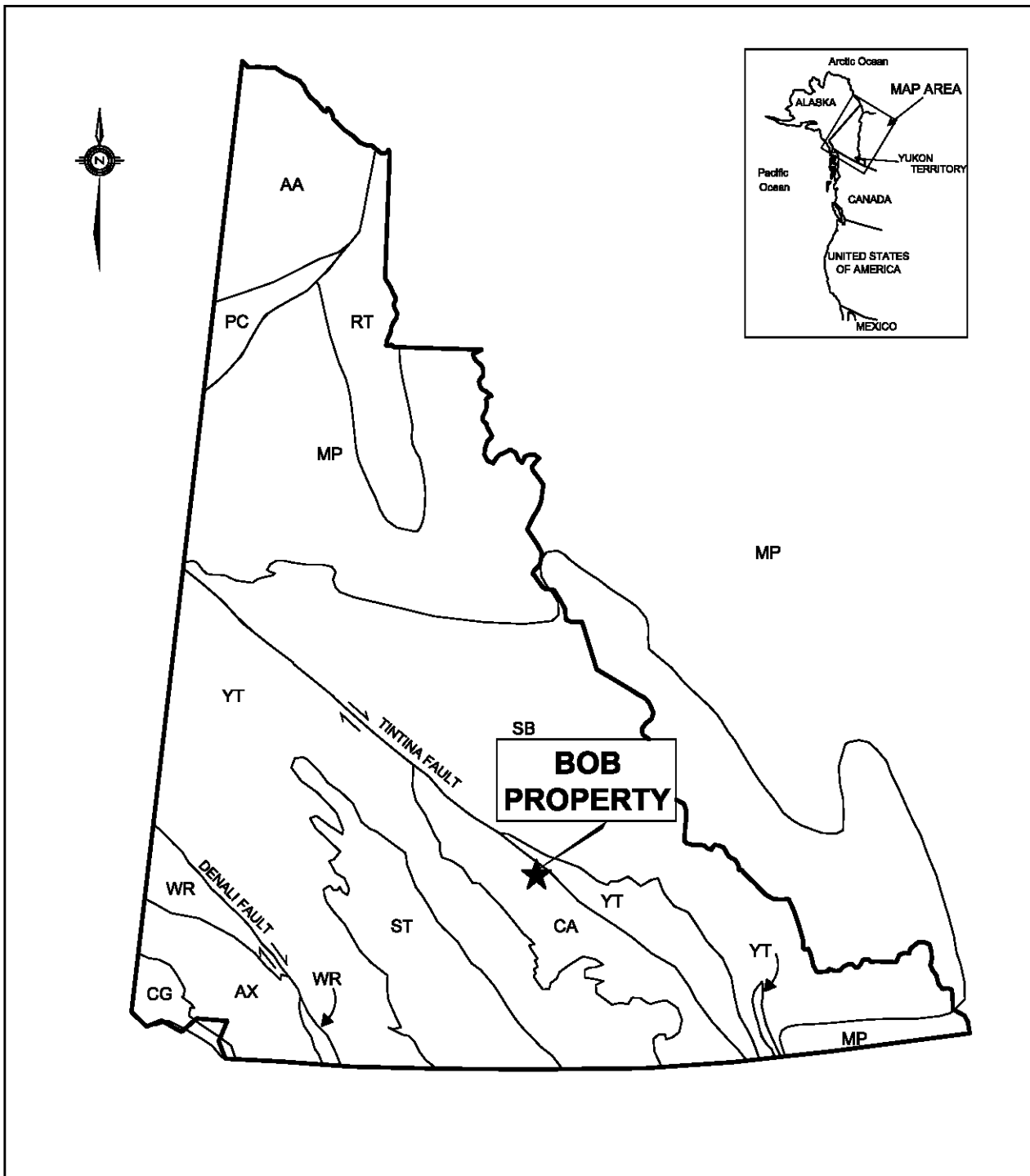
The claims overlie rugged topography with peaks rising to 1980 m from a valley elevation of 1200 m. Lower elevations are vegetated with spruce forests, thick buckbrush and slide alder surrounded by moss. Higher elevations exhibit talus slopes with intermittent grass and alpine heather. Outcrop is mostly restricted to ridge crests and steep slopes. Tree line is at 1430 m.

### **REGIONAL GEOLOGY**

The Bob property is located within Cassiar Platform, two kilometres southwest of the Tintina Fault (Figure 3). The Tintina Fault is a northwest trending transcurrent fault that produced approximately 425 km of dextral strike-slip offset between 58 and 67 million years ago (Mortensen, 2004). It juxtaposes intrusive rocks of Yukon-Tanana Terrane to the northeast against sedimentary rocks of Cassiar Platform to the southwest (Figure 3). A series of sub-parallel splay faults have dismembered units of Cassiar Platform (Figure 4). Four main lithological units are recognized in the Bob area (Gordey and Makepeace, 1999). These units are described in the following table.

Table I- Regional Lithological Units (*After Gordey and Makepeace, 1999*)

TERRANE	UNIT	AGE	SUBUNIT	DESCRIPTION
Yukon-Tanana	Pelly Gneiss Suite	Late Devonian to Mississippian	DMqPE	Resistant, medium grey weathering, porphyritic (pink potassium feldspar) biotite quartz monzonite



**ANCESTRAL NORTH AMERICA**

- MP** Mackenzie Platform
- SB** Selwyn Basin
- RT** Richardson Trough

**TERRANES**

**Displaced Continental Margin**

- AA** Arctic Alaska
- CA** Cassiar
- PC** Porcupine

**Pericratonic Terranes**

- YT** Yukon-Tanana / Slide Mountain

**ACCRETED TERRANES**

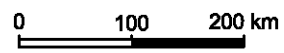
- ST** Siskindia / Cache Creek
- AX** Alexander
- WR** Wrangellia
- CG** Chugach

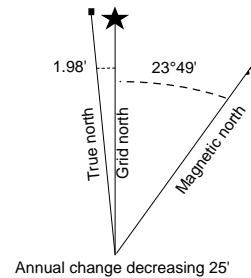
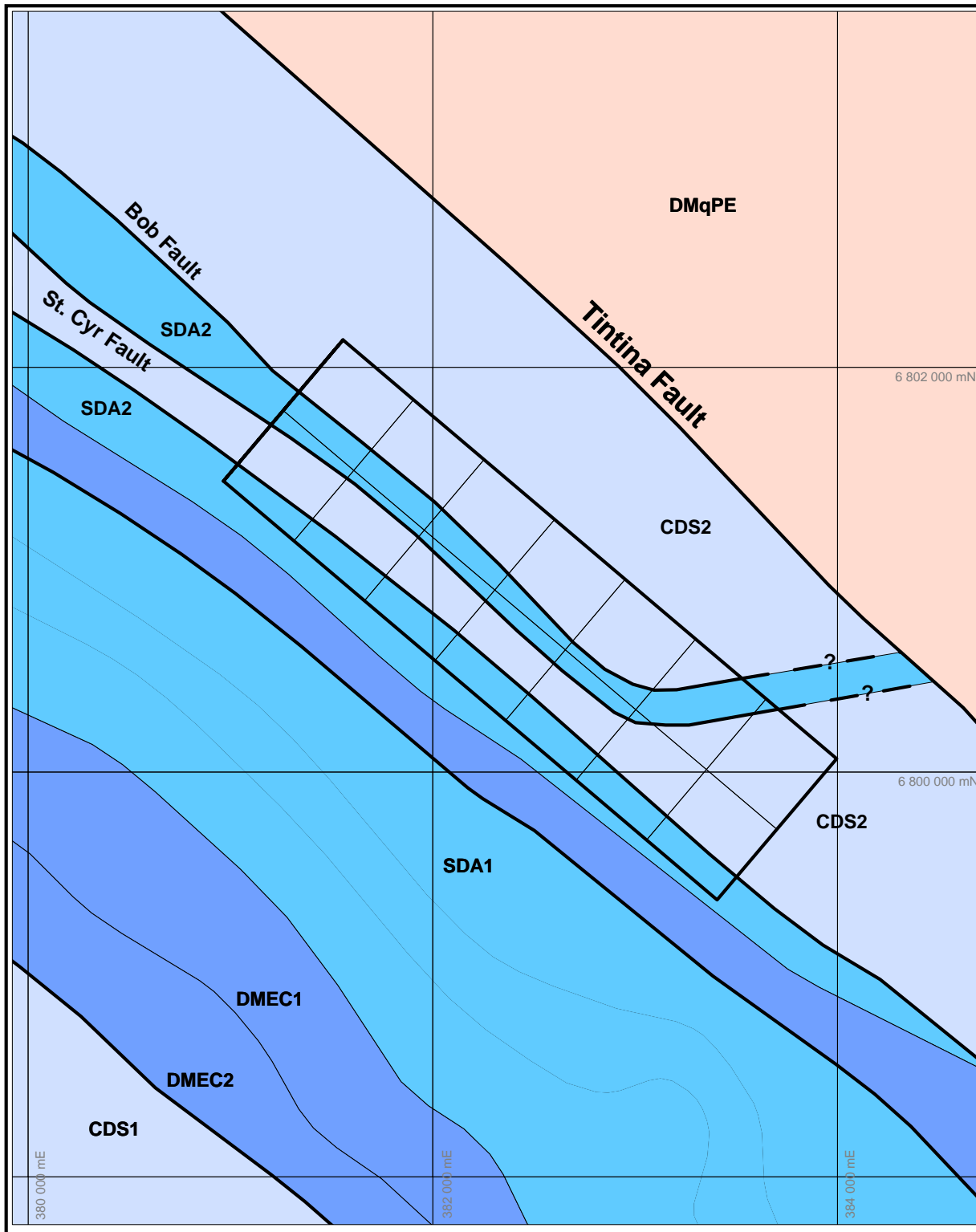
**STRATEGIC METALS LTD.**

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

FIGURE 3

**TECTONIC SETTING  
BOB PROPERTY**





- DMqPE** Pelly Gneiss Suite - medium grey weathering biotite quartz monzonite.
- DMEC1** Earn Group - thin bedded siliceous slate with chert pebble conglomerate and rare lenses of intermediate to felsic clastic rocks.
- DMEC2** Earn Group - apple green to dark grey, bedded chert and cherty tuff with local nodular and bedded barite.
- SDA1** Askin Group - thin bedded to platy dolomitic siltstone, fine grained sandstone and minor silty dolomite.
- SDA2** Askin Group - buff weathering, thin to thick bedded dolomite, silty and sandy dolomite and limestone.
- CDS1** St. Cyr Group - medium grey interlaminated calcareous shale and silty limestone.
- CDS2** St. Cyr Group - medium to dark grey, thin bedded calcareous shale, siltstone and argillaceous limestone.

after Gordey and Makepeace (1999).

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FIGURE 4

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

## GEOLOGY

## BOB PROPERTY



UTM Zone 9, NAD83, NTS 105G/06

Cassiar Platform	Earn Group	Upper Devonian to Lower Mississippian	DMEC1	Dark grey, recessive weathering, thin bedded, black siliceous slate with chert pebble conglomerate and rare lenses of intermediate to felsic volcanoclastic rocks
			DMEC2	Rusty orange weathering, resistant, apple green and dark grey, thin bedded chert and cherty tuff; local nodular and bedded barite
Cassiar Platform	Askin Group	Middle Silurian to Middle Devonian	SDA1	Tan, medium grey and locally maroon weathering, light grey, thin bedded to platy dolomitic siltstone, fine grained dolomitic sandstone and minor silty dolomite
			SDA2	Medium grey to buff weathering, medium-to-thick bedded dolomite, silty and sandy dolomite, limestone, and medium-to-thick bedded orthoquartzite
Cassiar Platform	St. Cyr Group	Cambrian to Devonian or Younger	CDS1	Orange to brown weathering, recessive, medium grey interlaminated calcareous shale and silty limestone or calcareous siltstone; proportion of carbonate to clastic material varies widely; includes slaty and phyllitic equivalents
			CDS2	Orange-brown weathering, recessive, thin bedded, medium to dark grey, calcareous shale, siltstone and argillaceous limestone; includes slate and phyllitic slate

			CDS3	Black, recessive weathering, calcareous graphitic “sooty” slate and silty shale; includes thin beds of dark grey graphitic, very fine grained quartzite and black “sooty” crinoidal limestone
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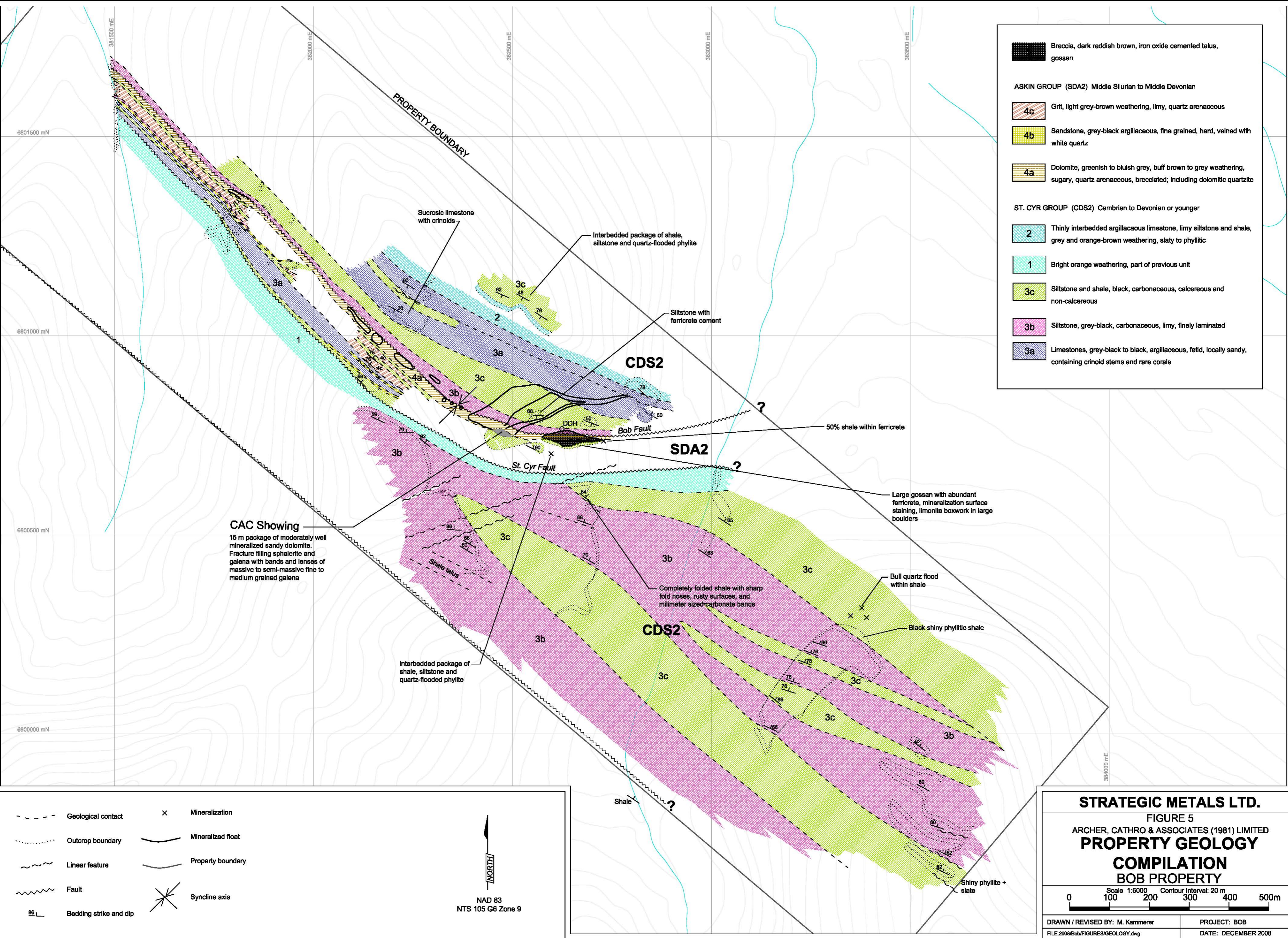
### **PROPERTY GEOLOGY**

The 1977 Cominco mapping used property specific subunit descriptions that can mostly be correlated to the regional lithologies as shown in Table II. Cominco’s subunits were used in 2008 for consistency. Mapping in 2008 was performed at 1:10,000 scale and focussed on areas not previously mapped by Cominco. Figure 5 is a compilation of data from both mapping programs.

Table II- Correlation of Regional and Property Lithological Subunits

REGIONAL SUBUNIT	PROPERTY SUBUNIT	DESCRIPTION
not applicable	5	Dark reddish brown, iron oxide cement talus, breccia and ferricrete
SDA2	4c	Grey, light brown weathering, limey quartz arenite
	4b	Grey-black argillaceous, fine grained, hard white quartz sandstone
	4a	Greenish to bluish grey, buff to grey weathering arenaceous dolomite, quartzite and grit
CDS2	3c	Black carbonaceous, calcareous and non-calcareous siltstone and shale
	3b	Grey to black, carbonaceous, limey and finely laminated siltstone
	3a	Grey to black, argillaceous, fetid, locally sandy limestone with crinoid stems and rare corals
	2	Thinly bedded argillaceous limestone, limey siltstone, and shale plus grey-orange brown weathering platy phyllite
	1	Bright orange weathering siltstone

The exposures on the property are limited to subunits of the St. Cyr (CDS2) and Askin (SDA2) groups. Cominco’s mapping shows stratigraphy that is dismembered by three generally northwest trending faults. The St. Cyr and Bob faults are the only named faults on the property (Figure 5). They are mapped as paralleling the regional structural fabric in the northwestern part of the property, then veering sharply east toward the Tintina Fault in the central part of the claim block. This interpretation appears to be at odds with geophysical data (see Airborne Geophysics).



**Legend**

- Breccia, dark reddish brown, iron oxide cemented talus, gossan
- ASKIN GROUP (SDA2) Middle Silurian to Middle Devonian**
  - 4c Grit, light grey-brown weathering, limy, quartz arenaceous
  - 4b Sandstone, grey-black argillaceous, fine grained, hard, veined with white quartz
  - 4a Dolomite, greenish to bluish grey, buff brown to grey weathering, sugary, quartz arenaceous, brecciated; including dolomitic quartzite
- ST. CYR GROUP (CDS2) Cambrian to Devonian or younger**
  - 2 Thinly interbedded argillaceous limestone, limy siltstone and shale, grey and orange-brown weathering, slaty to phyllitic
  - 1 Bright orange weathering, part of previous unit
  - 3c Siltstone and shale, black, carbonaceous, calcereous and non-calcereous
  - 3b Siltstone, grey-black, carbonaceous, limy, finely laminated
  - 3a Limestones, grey-black to black, argillaceous, fetid, locally sandy, containing crinoid stems and rare corals

**CAC Showing**  
 15 m package of moderately well mineralized sandy dolomite. Fracture filling sphalerite and galena with bands and lenses of massive to semi-massive fine to medium grained galena

**Geological Symbols**

- Geological contact
- Outcrop boundary
- Linear feature
- Fault
- Bedding strike and dip
- Mineralization
- Mineralized float
- Property boundary
- Syncline axis

**North Arrow**  
 NORTH  
 NAD 83  
 NTS 105 G6 Zone 9

**STRATEGIC METALS LTD.**  
**FIGURE 5**  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**PROPERTY GEOLOGY**  
**COMPILATION**  
**BOB PROPERTY**

Scale 1:6000 Contour Interval: 20 m  
 0 100 200 300 400 500m

DRAWN / REVISED BY: M. Kammerer PROJECT: BOB  
 FILE:2008/BOB/FIGURES/GEOLOGY.dwg DATE: DECEMBER 2008

The stratigraphic section south of the St. Cyr Fault is composed of three subunits of CDS2 (1, 3b and 3c). Subunit 1 forms a 30 to 60 m thick horizon immediately adjacent to the fault. It is overlain by subunit 3b, which is overlain by and interdigitated with subunit 3c.

Rocks immediately north of the St. Cyr Fault form an 80 to 120 m wide sliver that is bounded to the north by the Bob Fault. This sliver is composed of subunits belonging to CDS2 and SDA2. It abuts to the northeast against another package comprised exclusively of CDS2 subunits. A 150 m by 40 m zone of mixed iron-oxide cemented breccia and ferricrete (subunit 5) occurs along the Bob Fault near where it is interpreted to veer to the east.

Bedding orientations suggest that the Bob Fault has displaced stratigraphy near the axis of a northwest trending syncline. Beds south of that fault strike  $125^\circ$  and dip  $55^\circ$  to  $65^\circ$  NE while beds north of the fault strike  $110^\circ$  and dip  $48^\circ$  to  $76^\circ$  SE. The direction and magnitude of displacement is not known for any of the faults on the property.

### **MINERALIZATION**

Most of the known mineralization on the property is at the CAC Showing, which lies in the sliver between the St. Cyr and Bob faults. Mineralized exposures are confined to a 15 m thick package of subunit 4a. The CAC Showing is dominantly lead-zinc with accessory silver. Primary sulphide minerals (galena, sphalerite and pyrite) are often weathered to anglesite and limonite. Galena commonly occurs as finely disseminated grains and fracture- and breccia- fillings. In a few specimens, one centimetre thick wavy bands of galena surround quartz boudins. Sphalerite is medium to dark brown and occurs as discrete grains or clusters of grains, which generally follow foliation. The abundance of sphalerite increases with the presence of quartz boudins.

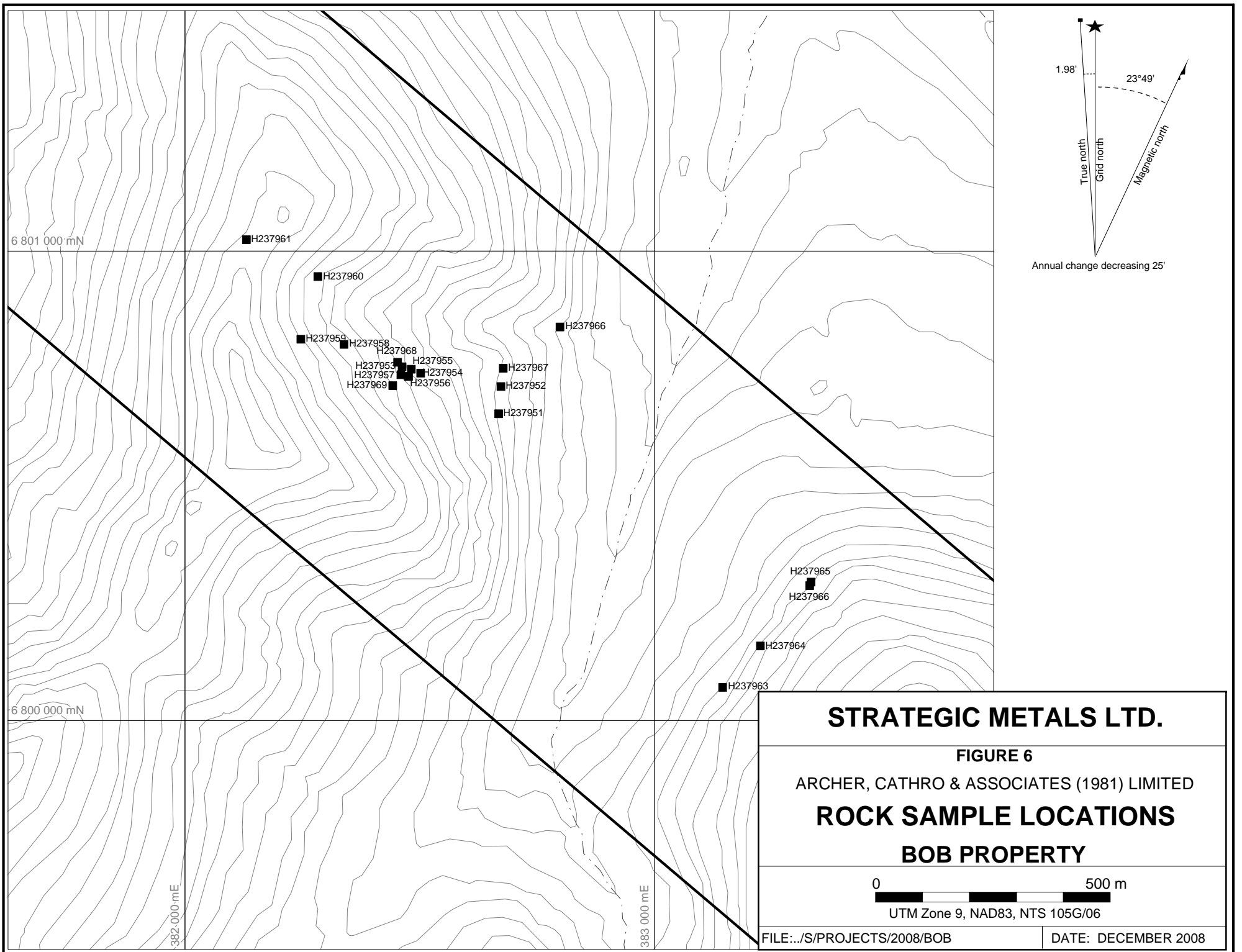
The iron-oxide cement and ferricrete that comprise subunit 5 were likely precipitated from groundwater, which passed through an oxidizing, sulphide-rich body that is blind to surface. The iron-oxide deposits lie about 100 m downhill from the CAC Showing.

### **ROCK GEOCHEMISTRY**

In 2008, nineteen rock samples were collected from the Bob property. Rock sample descriptions can be found in Appendix II, sample handling and analytical procedures are described in Appendix III, and Certificates of Analysis appear in Appendix IV. Figure 6 shows rock sample locations while Figures 7, 8 and 9 thematically illustrate lead, zinc and silver results.

Most of the rock samples were taken in the vicinity of the CAC Showing. Of the 19 samples collected in 2008, eleven were float samples that returned less than 1,500 ppm lead, 1,500 ppm zinc and 10 ppm silver. The other eight samples yielded more encouraging results, as described in the following paragraphs.

Five of the well mineralized samples were collected from outcrop and float at the CAC Showing. The first outcrop sample was taken from a 25 cm diameter area containing millimetre thick galena and sphalerite stringers and hairline fracture fillings. It assayed 2.04% lead, 3.19% zinc, and 26.7 ppm silver. The second outcrop sample was a one metre chip across an area hosting up



6 801 000 mN

■ H237961

■ H237960

■ H237959

■ H237958

■ H237968

■ H237955

■ H237953

■ H237954

■ H237957

■ H237956

■ H237967

■ H237952

■ H237951

■ H237966

H237965

■ H237966

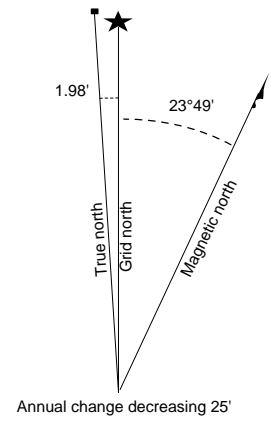
■ H237964

■ H237963

6 800 000 mN

382.000 mE

383.000 mE



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**FIGURE 6**

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**ROCK SAMPLE LOCATIONS**

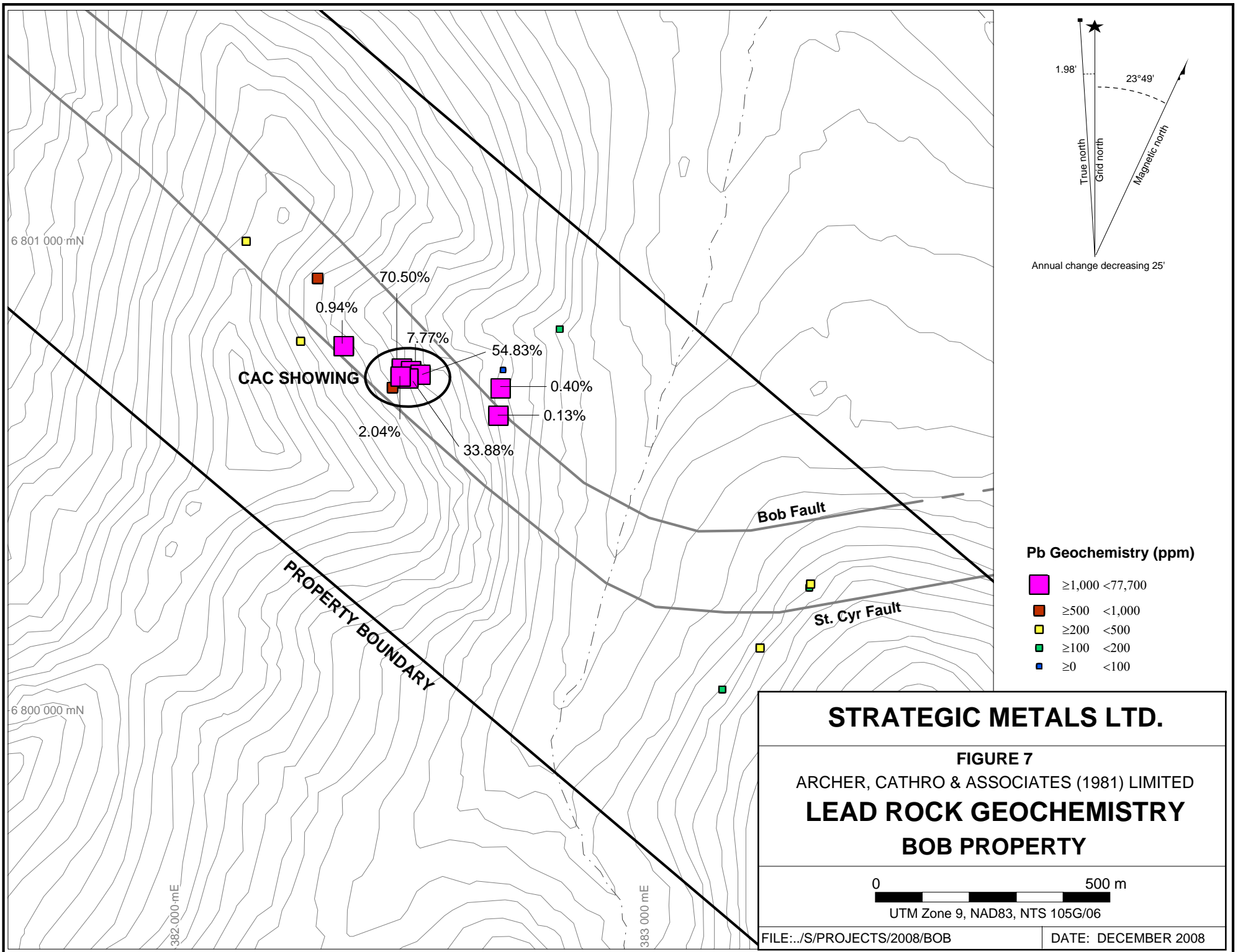
**BOB PROPERTY**



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DATE: DECEMBER 2008

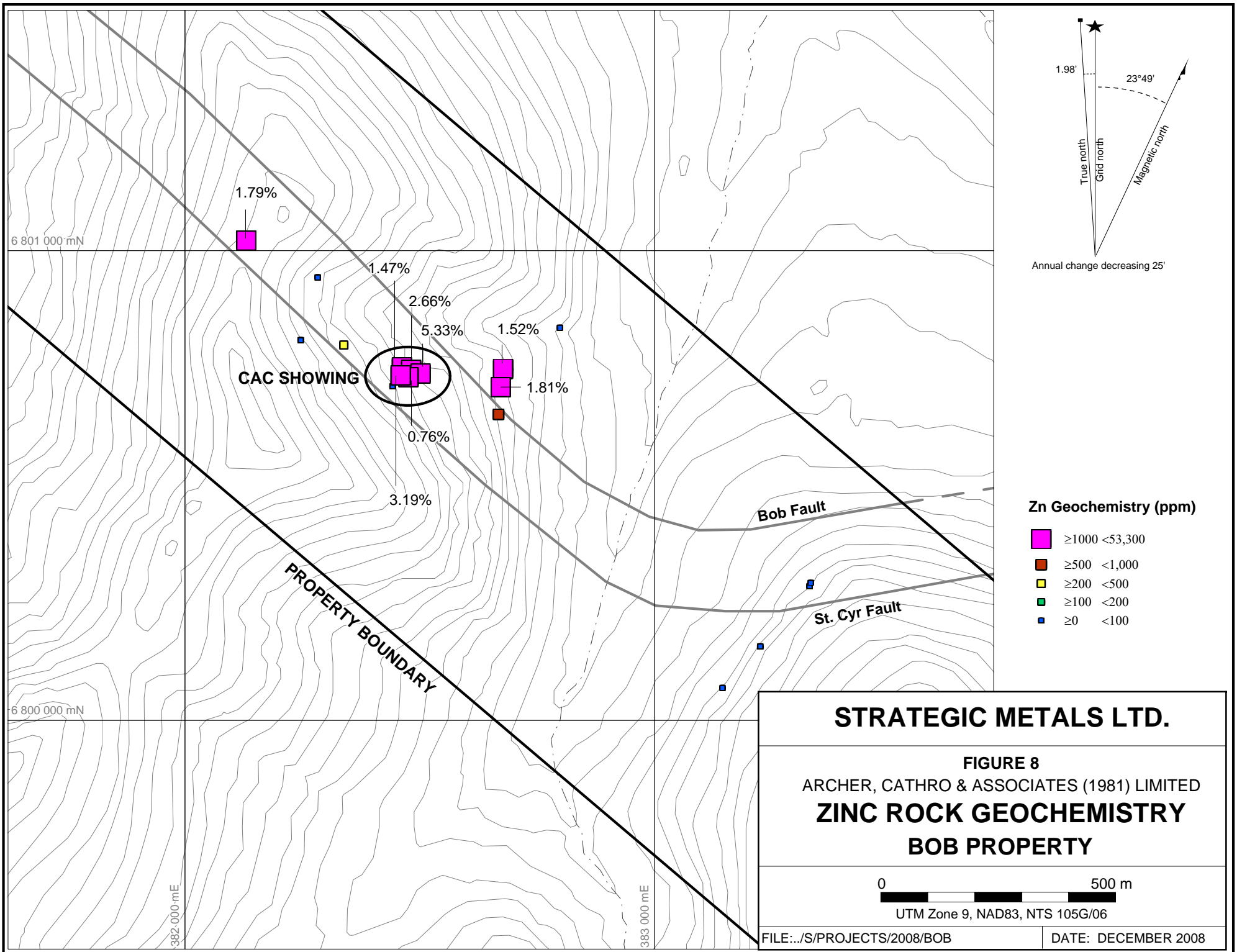


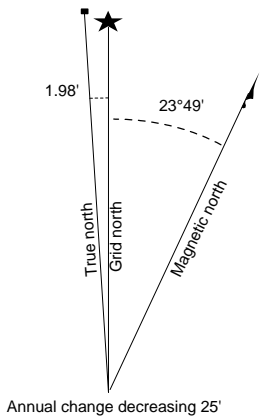
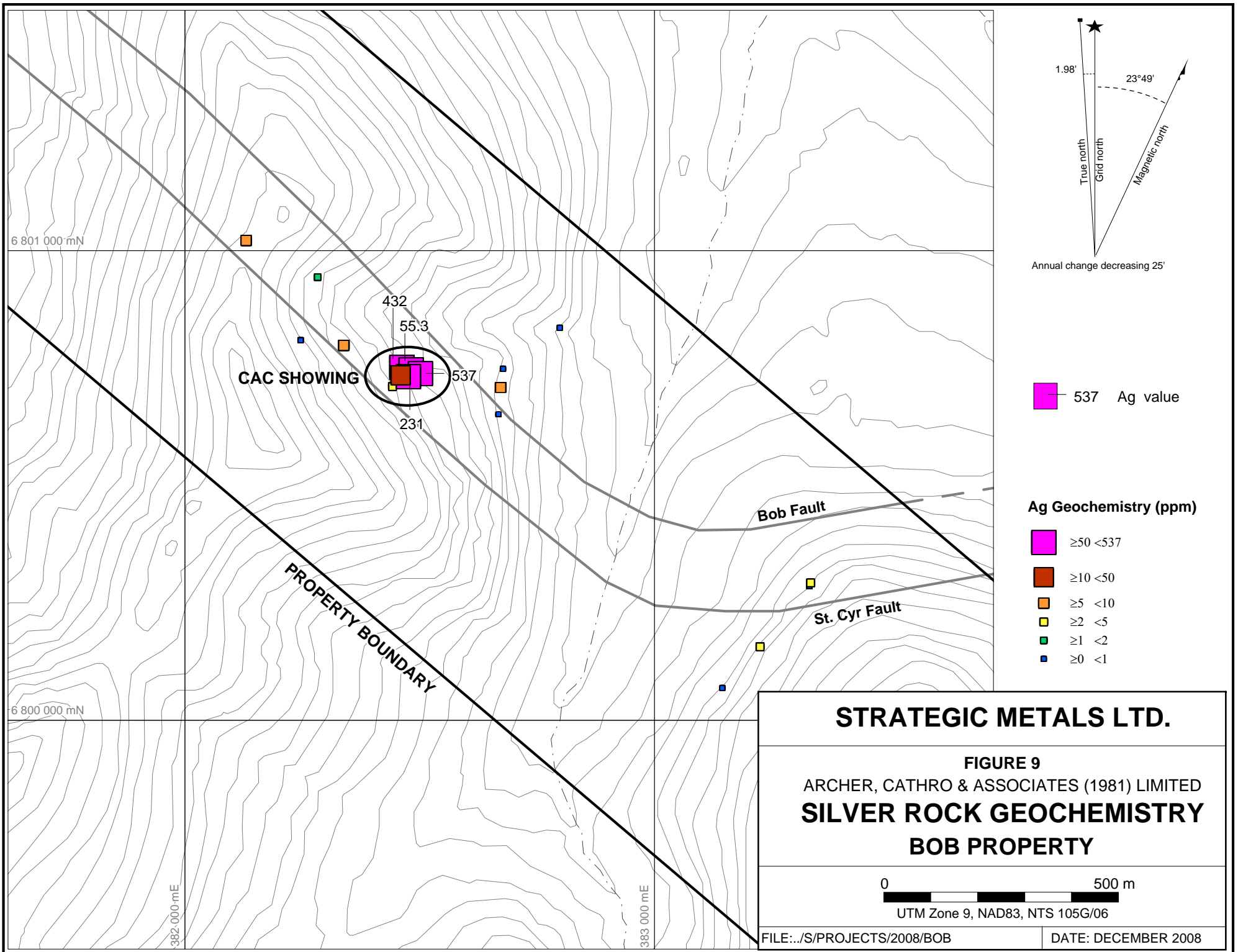
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**FIGURE 7**  
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**LEAD ROCK GEOCHEMISTRY**  
**BOB PROPERTY**



UTM Zone 9, NAD83, NTS 105G/06



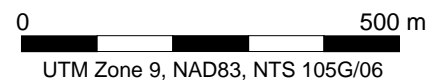


537 Ag value

- Ag Geochemistry (ppm)**
- ≥50 <537
  - ≥10 <50
  - ≥5 <10
  - ≥2 <5
  - ≥1 <2
  - ≥0 <1

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**FIGURE 9**  
**ARCHER, CATHRO & ASSOCIATES (1981) LIMITED**  
**SILVER ROCK GEOCHEMISTRY**  
**BOB PROPERTY**



to 20 cm wide bands of semi-massive galena, anglesite and limonite. It returned 7.77% lead, 2.66% zinc, and 55.3 ppm silver. The final outcrop sample was taken across a 15 cm wide fracture filled with massive galena, anglesite and limonite. It yielded 33.88% lead, 5.33% zinc, and 537 ppm silver. One float sample was a composite grab sample consisting of seven pieces of galena from a three metre diameter area. The galena is coated with brown and white anglesite and contains a few small boudins of chert-like quartz. This sample assayed 70.50% lead, 1.47% zinc, 432 ppm silver and 940 ppb gold. The other float sample comprises a 12 by 26 cm piece of boxwork limonite and sandy dolomite, hosting a series of parallel 2 mm to 1 cm wide massive galena bands. This sample returned 54.83% lead, 0.76% zinc and 231 ppm silver.

Two samples were taken from iron-oxide rich subunit 5. One of these samples was a 20 cm chip of manganese-stained ferricrete that yielded 4,000 ppm lead and 1.81% zinc. The other sample was from a nearby outcrop of manganese-stained, orange-yellow-brown oxidized shale with no visible mineralization, which returned 1,265 ppm lead.

The final sample was a composite grab sample composed of three shale fragments with limonite banding, minor quartz stringers and trace sulphides. This sample was collected about 100 m northwest of the CAC Showing. It yielded 0.94% lead, 1,335 ppm zinc and 8.3 ppm silver.

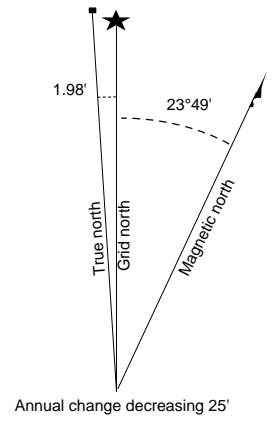
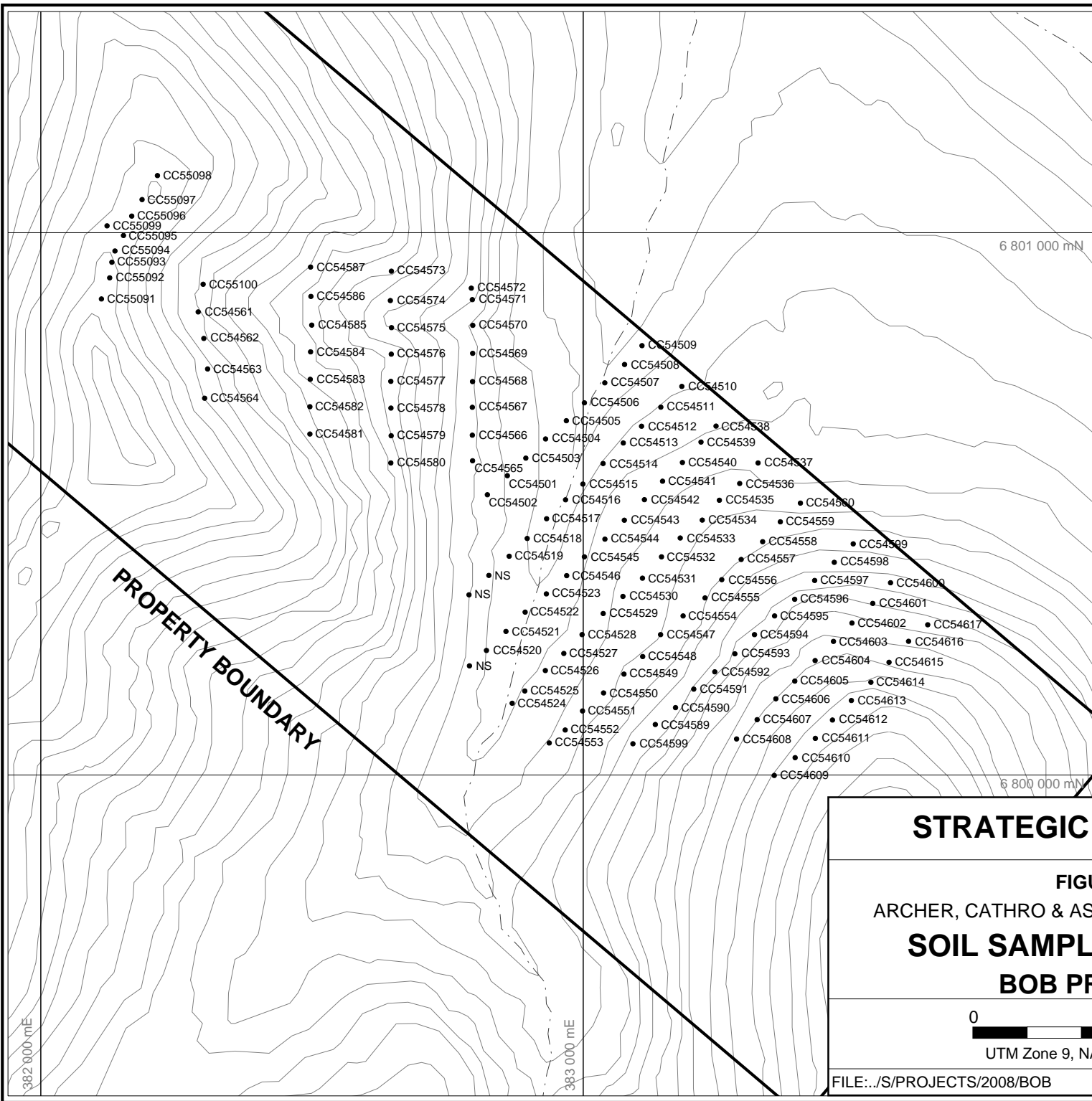
### SOIL GEOCHEMISTRY

In 2008, 127 soil samples were collected from the property. The soil sampling program was designed to confirm the location of a linear soil anomaly outlined by Cominco and to test for a possible extension to the southeast. The Cominco anomaly has been named Bob 1 for the purposes of this report, while a second weaker anomaly, which was discovered to the southeast, has been named Bob 2. Sample handling and analytical procedures used in 2008 are described in Appendix III and Certificates of Analysis can be found in Appendix IV. Anomalous thresholds used to describe soil values are listed in Table III. Figure 10 shows 2008 soil sample locations while Figures 11, 12 and 13 illustrate thematic data for lead, zinc and silver, which were compiled from Cominco's assessment reports and the 2008 results.

Table III- Anomalous Thresholds

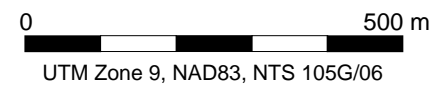
ELEMENT	WEAK (ppm)	MODERATE (ppm)	STRONG (ppm)	PEAK (ppm)
Lead	>50 ≤500	>500 ≤1000	>1000	26,300
Zinc	>200 ≤1000	>1000 ≤2000	>2000	10,400
Silver	>1 ≤2	>2 ≤5	>5	10.8

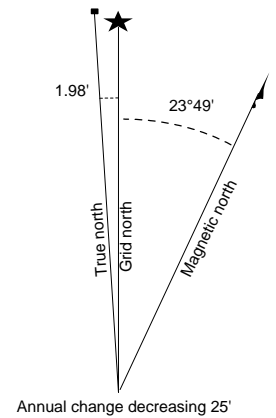
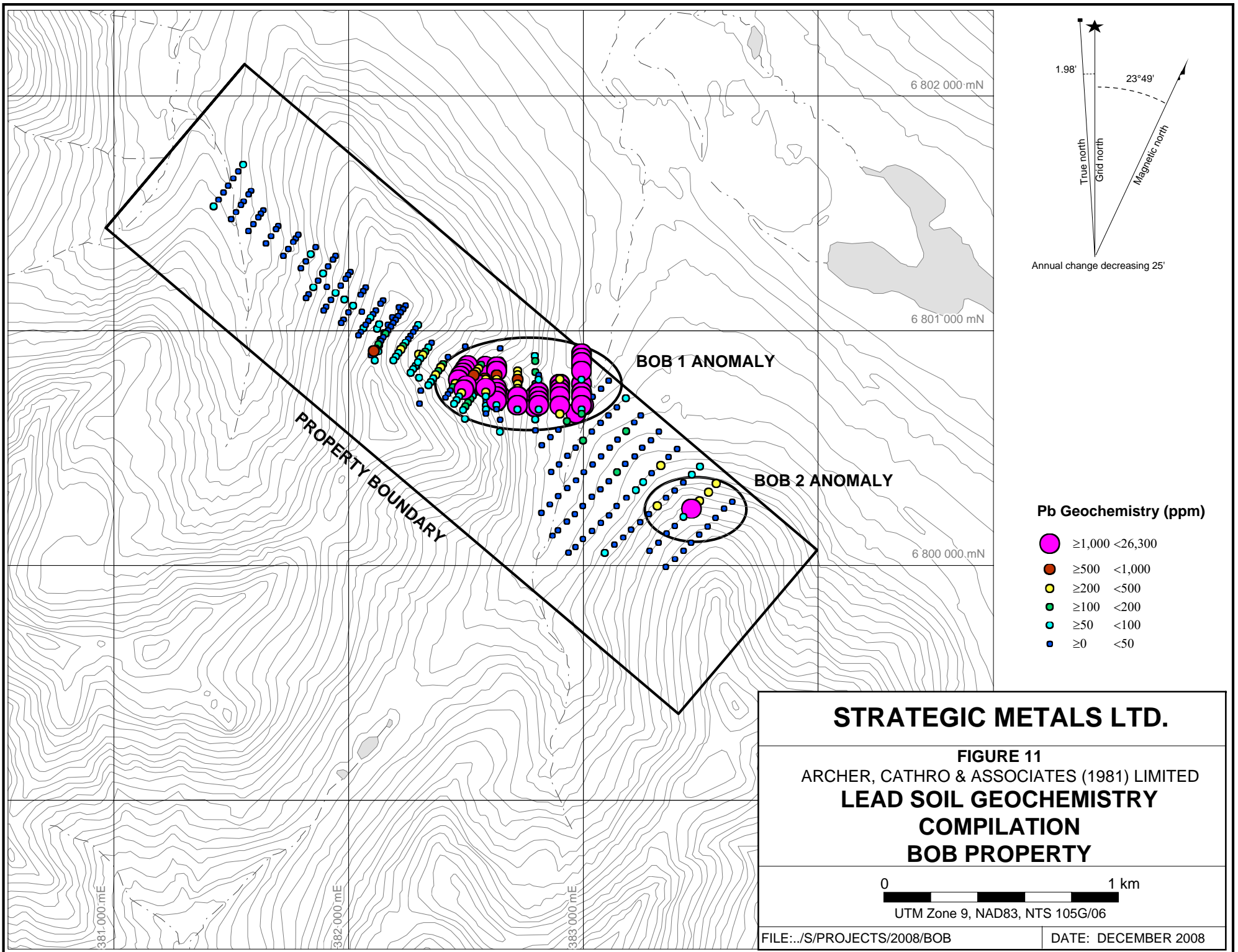
A total of 43 samples were collected within Bob 1 in 2008. These samples were taken at 50 m spacings on lines positioned approximately 200 m apart. Many of the samples returned elevated values including six that are strongly anomalous for lead (1,555 to 5,600 ppm), twelve that are strongly anomalous for zinc (2,590 to 9,870 ppm) and eight that are moderately to strongly anomalous for silver (2.0 to 10.8 ppm). The Bob 1 anomaly is confined to the sliver bounded by the St. Cyr and Bob faults.



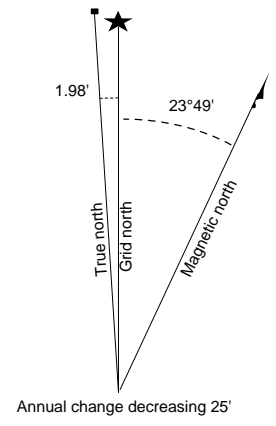
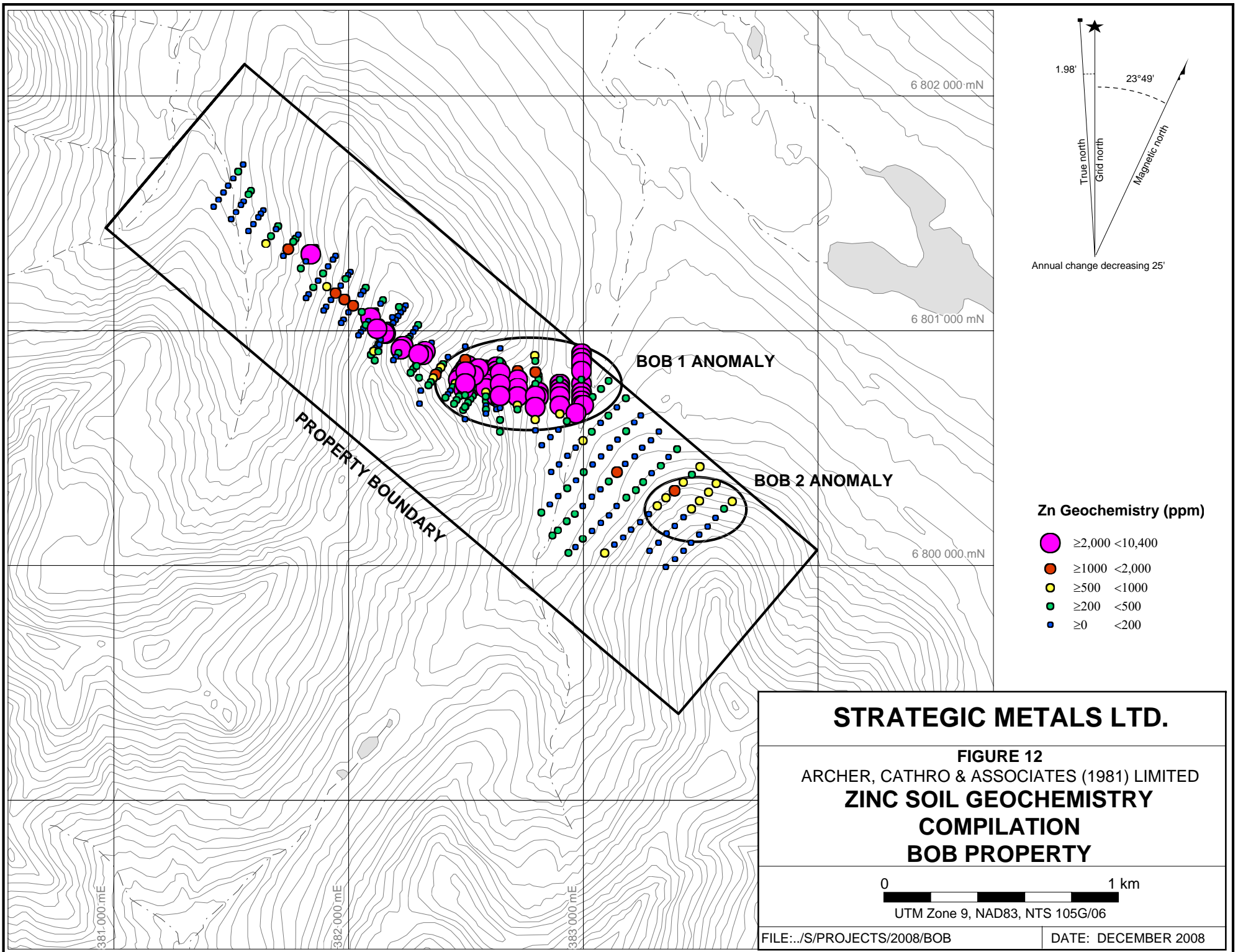
**STRATEGIC METALS LTD.**

**FIGURE 10**  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**SOIL SAMPLE LOCATIONS**  
**BOB PROPERTY**

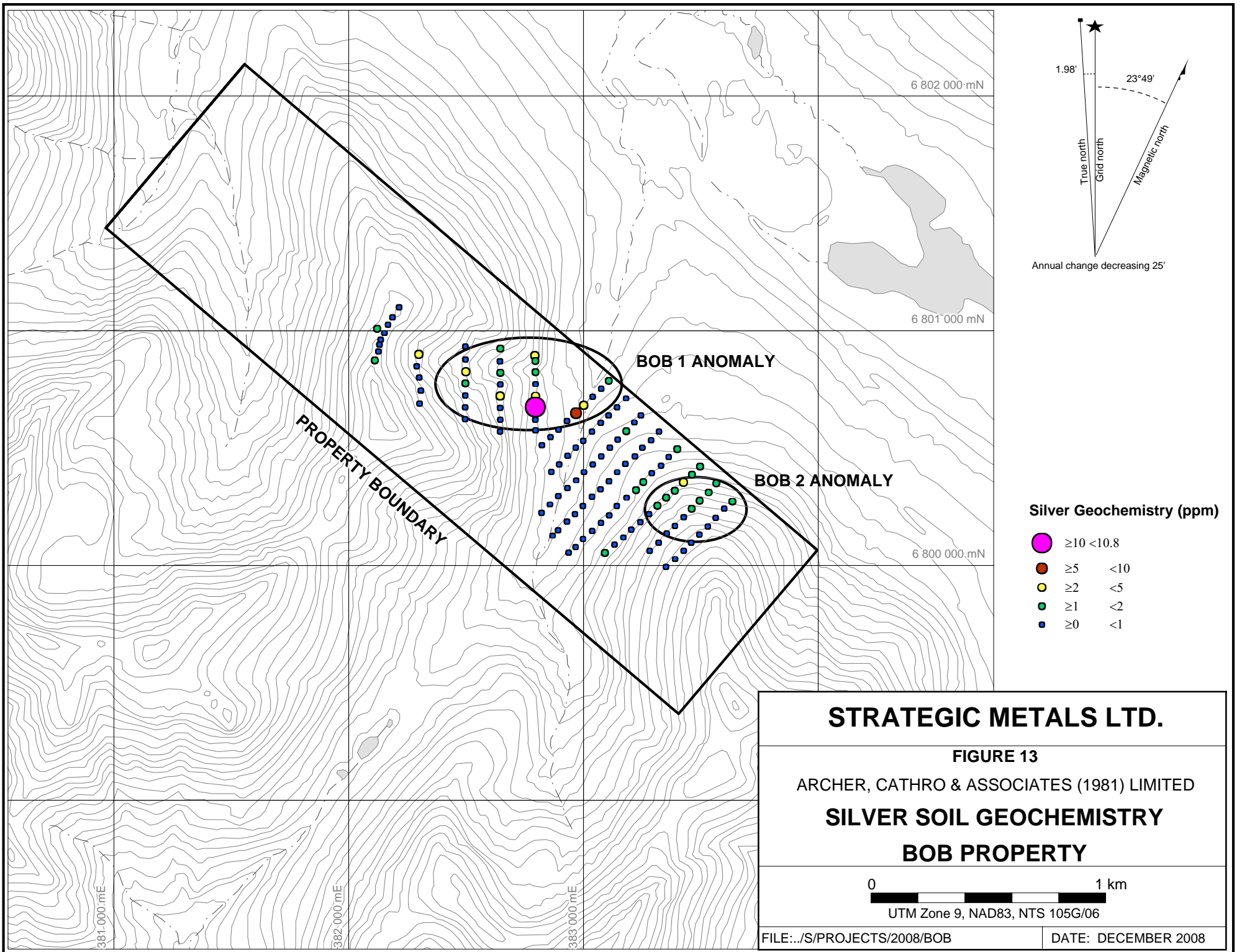




- Pb Geochemistry (ppm)**
- $\geq 1,000$  < 26,300
  - $\geq 500$  < 1,000
  - $\geq 200$  < 500
  - $\geq 100$  < 200
  - $\geq 50$  < 100
  - $\geq 0$  < 50



- Zn Geochemistry (ppm)**
- $\geq 2,000$  <10,400
  - $\geq 1000$  <2,000
  - $\geq 500$  <1000
  - $\geq 200$  <500
  - $\geq 0$  <200



The other 84 soil samples were collected from a grid located southeast of Bob 1. This area was not sampled by Cominco. A small cluster of weakly to moderately anomalous lead and zinc values in the northeastern part of this grid comprises Bob 2. Five soil samples from this anomaly yielded weak lead values (201 to 429 ppm) and one sample returned a strongly anomalous value of 1,460 ppm lead. Eleven samples within this zone yielded weak to moderate zinc values between 529 and 1,160 ppm.

### **AIRBORNE GEOPHYSICS**

Helicopter-borne VTEM and magnetic surveys were conducted on July 20, 2008 by Geotech Ltd. of Aurora, Ontario using an Astar B3 helicopter operated by TRK Helicopters. Survey equipment and techniques are described in a report contained in Appendix V. Key geophysical data is compiled with anomalous lead-in-soil results on Figure 14 and with anomalous zinc-in-soil results on Figure 15.

The geophysical data have not yet been fully interpreted; however, preliminary analysis of magnetic data shows a positive correlation between elevated magnetism and unit CDS2. The strongest magnetic response from the survey area occurs between the northeastern property boundary and the Tintina Fault, where there is a thick section of unit CDS2. Magnetic response over unit SDA2 is relatively subdued.

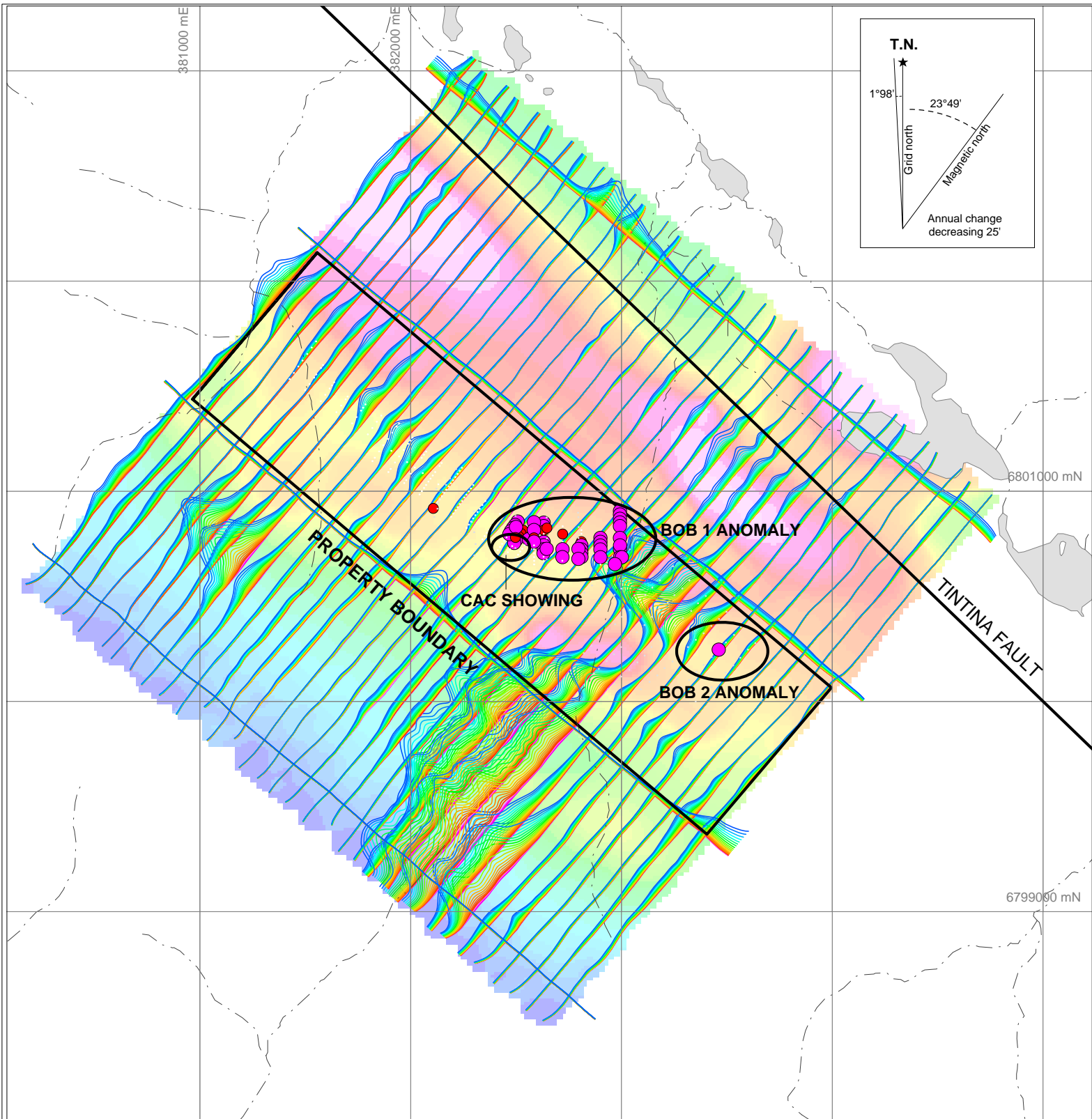
Electromagnetic response is strongest southwest of the property; however, a well defined conductor was identified in the southeastern part of the claim block. This cluster is supported by two high zinc values and one high lead value. Terrain in the vicinity of this conductor is heavily vegetated and there are no outcrops. The presence of a conductor that coincides with some geochemically anomalous soil sites suggests that the St. Cyr and Bob faults may not veer to the east and that the mineralized trend could continue to the southeast. A slightly weaker but broader conductor lies along strike from the CAC Showing in the northwestern part of the property. This conductor coincides with an 850 m long string of anomalous zinc samples.

### **DISCUSSION AND CONCLUSIONS**

The Bob property covers a poorly exposed lead-zinc occurrence hosted in a fault-bound sliver of sediments.

A nearby zone of transported iron-oxide and an associated, strong lead-zinc soil anomaly are not adequately explained by the known mineralization. VTEM and magnetic surveys did not produce anomalous results directly over the known showing but did identify conductors along strike. Soil geochemical response in the vicinity of the conductors is only moderate, which may be in part due to poor exposure.

Future work is definitely warranted on the Bob property. The VTEM and magnetic data should be fully interpreted and, if warranted, diamond drilling should test the CAC Showing, Bob 1 soil anomaly and the most prospective geophysical targets.

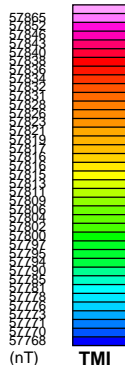


**LEAD (ppm)**

- $\geq 1,000$  < 26,300
- $\geq 500$  < 1,000

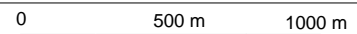
Profiles scale 1 mm = 0.5 pV/A/m<sup>4</sup>  
 Linear between +/- 10 (pV/A/m<sup>4</sup>)  
 logarithmic above 10 (pV/A/m<sup>4</sup>)

- 0.234 ms
- 0.281 ms
- 0.339 ms
- 0.406 ms
- 0.484 ms
- 0.573 ms
- 0.682 ms
- 0.818 ms
- 0.974 ms
- 1.151 ms
- 1.370 ms
- 1.641 ms
- 1.953 ms
- 2.307 ms
- 2.745 ms
- 3.286 ms
- 3.911 ms
- 4.620 ms
- 5.495 ms
- 6.578 ms
- 7.828 ms
- 9.245 ms



**STRATEGIC METALS LTD.**

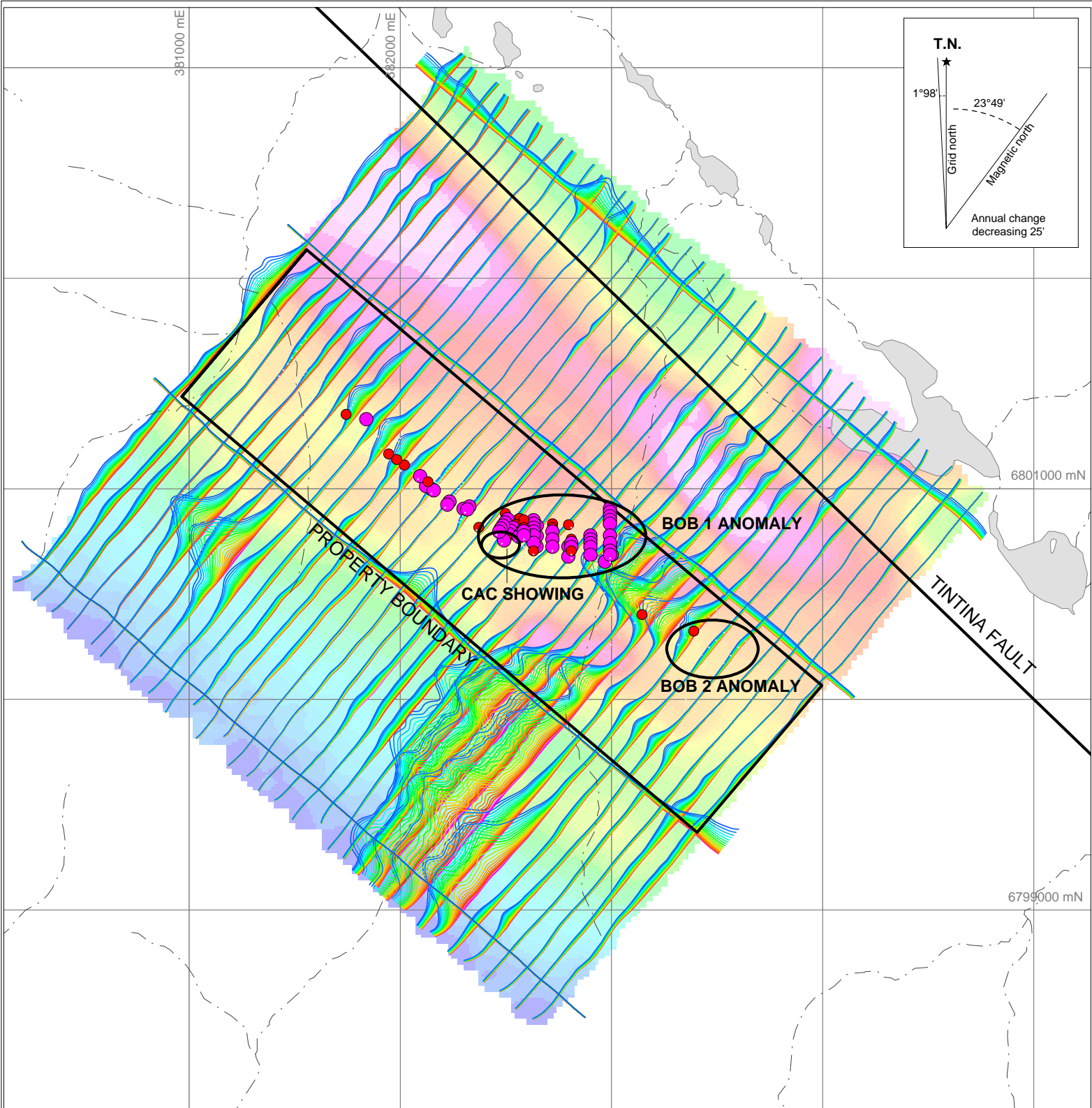
FIGURE 14  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**GEOPHYSICAL AND LEAD  
 GEOCHEMICAL COMPILATION**  
 BOB PROPERTY



UTM ZONE 9, NAD 83, NTS 105G/06 SCALE: 1:25,000

FILE: ...P:/2008/BOB/Figures/GEOP

DECEMBER 2008



**ZINC (ppm)**

- $\geq 2,000$  < 10,400
- $\geq 1,000$  < 2,000

Profiles scale 1 mm = 0.5 pV/A/m<sup>4</sup>  
 Linear between +/- 10 (pV/A/m<sup>4</sup>)  
 logarithmic above 10 (pV/A/m<sup>4</sup>)

- 0.234 ms
- 0.281 ms
- 0.339 ms
- 0.406 ms
- 0.484 ms
- 0.573 ms
- 0.682 ms
- 0.818 ms
- 0.974 ms
- 1.151 ms
- 1.370 ms
- 1.641 ms
- 1.953 ms
- 2.307 ms
- 2.745 ms
- 3.286 ms
- 3.911 ms
- 4.620 ms
- 5.495 ms
- 6.578 ms
- 7.828 ms
- 9.245 ms



**STRATEGIC METALS LTD.**

FIGURE 15  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**GEOPHYSICAL AND ZINC  
 GEOCHEMICAL COMPILATION**  
 BOB PROPERTY

0      500 m      1000 m

UTM ZONE 9, NAD 83, NTS 105G/06    SCALE: 1:25,000

FILE: ...P:/2008/BOB/Figures/GEOP      DECEMBER 2008

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

Heather Smith B.Sc. Geology, GIT

**REFERENCES**

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**APPENDIX I**  
**STATEMENT OF QUALIFICATIONS**

## **STATEMENT OF QUALIFICATIONS**

I, Heather Smith, geologist, with business addresses in Vancouver, British Columbia and Whitehorse, Yukon Territory and residential address at #604-175 West 1 Street, North Vancouver, British Columbia, V7M 3N9 do hereby certify that:

1. I graduated from the University of British Columbia in 2006 with a B. Sc. in Geological Sciences.
2. From 2004 to present, I have been actively engaged in mineral exploration in the Yukon Territory, British Columbia and Northwest Territories.
3. I am a Geoscientist in Training (GIT) with the Association of Professional Engineers and Geoscientists of British Columbia (Member Number 150000).
4. I have personally participated in the fieldwork reported herein and have interpreted all data resulting from this work.

Heather Smith, B.Sc. Geology, GIT

**APPENDIX II**  
**ROCK SAMPLE DESCRIPTIONS**

---

**Rock Sample Descriptions**Project: BOBProperty: BOB

---

Sample Number: H237951    Grid East: 382660 E    Grid North: 6800659 N    Type: CHIP    Dimension: 6mx1m  
UTM: 382660 E    UTM: 6800659 N    Sample Width: 50cm    Abundance:  
Elevation: m

Comments: 6m horizontal by 1m vertical-covered by talus downslope-outcrop. No dominant orientation. Chip sample 50cm wide across marron-manganese stained, slightly limonitic OR-BR-YW oxidized slate. Very fine grained, black. No visible sulphides but distince secondary surface oxidation. Note, if this sample 'runs' then this is a perfect trenching target for 2009.

---

Sample Number: H237952    Grid East: 382665 E    Grid North: 6800736 N    Type: ROCK    Dimension: 4mx6m  
UTM: 382665 E    UTM: 6800736 N    Sample Width: 20cm    Abundance: Large area, described in 1977 work  
Elevation: m

Comments: Within gossanous-ferrocrete cemented zone. 20cm sample off of a continuous outcrop. Visible mineralization is weak pyrite with abundant manganese stain. Rare angular shale inclusion clasts. Heavy.

---

Sample Number: H237953    Grid East: 382473 E    Grid North: 6800762 N    Type: GRAB    Dimension:  
UTM: 382473 E    UTM: 6800762 N    Sample Width: 7 pieces    Abundance: moderate  
Elevation: m

Comments: Grab sample over 3 m. Seven fist size by 3 cm thick pieces of BR-WH anglesite coated massive GN. GN occurs in bands that are up to 1 cm thick. Chert like swirls are associated with the GN and can sometimes be seen as clasts or inclusions.

---

Sample Number: H237954    Grid East: 382486 E    Grid North: 6800757 N    Type: ROCK    Dimension: 15cm wide by 1.5' long  
UTM: 382486 E    UTM: 6800757 N    Sample Width: 15cm    Abundance:  
Elevation: m

Comments: Three metres upslope from the grab sample, 15 cm wide Massive Galena band with anglesite, pyrite and limonite. The GN sits within a fracture (?) zone in sandy dolomite. GN bearing structrue has an orientation of 060/60.

---

Sample Number: H237955    Grid East: 383481 E    Grid North: 6800763 N    Type: CHIP    Dimension:  
UTM: 383481 E    UTM: 6800763 N    Sample Width: 1m    Abundance: moderate  
Elevation: m

Comments: Chip sample across 1 m of mineralized sandy dolomite. This is stratigraphically the lowest exposure of the outcrop. The sample goes from sandy dolomite with sphalerite fracture fillings, into a 20cm zone of massive GN and anglesite with minor limonite, the to 50 cm of sandy dolomite with rare GN blebs. The last 20 cm of the sample is SP and GN rich sandy dolomite. Excellent site for future trenching and channel sampling.

---

Sample Number: H237956    Grid East: 382476 E    Grid North: 6800751 N    Type: FLOAT    Dimension:  
UTM: 382476 E    UTM: 6800751 N    Sample Width: 12"x6"x4"    Abundance:  
Elevation: m

Comments: Float sample of boxwork-limonite with 2mm to 1cm massive GN band.

---

---

**Rock Sample Descriptions**Project: BOBProperty: BOB

---

Sample Number: H237957    Grid East: 382461 E    Grid North: 6800750 N    Type: ROCK    Dimension:  
UTM: 382461 E    UTM: 6800750 N    Sample Width: 12"x8"x8"    Abundance:  
Elevation: m

Comments: Rock sample from the edge of the sandy dolomite outcrop. Adjacent to this is talus/soil slope. Sample of sandy dolomite with mm size GN and SP stringers and Fx fillings.

---

Sample Number: H237958    Grid East: 382315 E    Grid North: 6800797 N    Type: FLOAT-GRAE    Dimension:  
UTM: 382315 E    UTM: 6800797 N    Sample Width:    Abundance:  
Elevation: m

Comments: Float sample consisting of three pieces of shale with <3cm limonite areas. Likely with tan/brown sphalerite (?), moderate to heavy. Minor quartz within shale. Shiny, phyllitic surfaces and abundant limonite bands.

---

Sample Number: H237959    Grid East: 382309 E    Grid North: 6800819 N    Type: FLOAT    Dimension:  
UTM: 382309 E    UTM: 6800819 N    Sample Width: 6"8"4"    Abundance:  
Elevation: m

Comments: Float sample of well foliated black shale/slate with carbonate fractures, limonite and sphalerite <2 cm.

---

Sample Number: H237960    Grid East: 382229 E    Grid North: 6800962 N    Type: FLOAT    Dimension:  
UTM: 382229 E    UTM: 6800962 N    Sample Width: 4"4"6"    Abundance:  
Elevation: m

Comments: Float sample of fine grained shale with maroon tarnished sulphides. Heavy in weight. Thought to represent SEDEX type mineralization?

---

Sample Number: H237961    Grid East: 382121 E    Grid North: 6801028 N    Type: FLOAT    Dimension:  
UTM: 382121 E    UTM: 6801028 N    Sample Width: 2"5"    Abundance:  
Elevation: m

Comments: Limonite boxwork float within talus of sandy dolomite.

---

Sample Number: H237962    Grid East: 383143 E    Grid North: 6800075 N    Type: FLOAT    Dimension: 8"6"5"  
UTM: 383143 E    UTM: 6800075 N    Sample Width:    Abundance:  
Elevation: m

Comments: Sample of waxy phyllite-shale with OR, limonite fractures and lenses. Two centimetre QZ veins with no visible mineralization. Sample taken to represent the outcrop in this area.

---

Rock Sample Descriptions		Project: BOB	Property: BOB
Sample Number: H237963	Grid East: E UTM: 383222 E Elevation: m	Grid North: N UTM: 6800162 N	Type: FLOAT Dimension: 6"10"4" Abundance:
Comments: Float sample of phyllitic-shale with QZ lenses. Three centimetre blebby earthy hematite with speckles of disseminate PY within the hematite.			
Sample Number: H237964	Grid East: E UTM: 383335 E Elevation: m	Grid North: N UTM: 6800268 N	Type: FLOAT Dimension: 24"8"14" Abundance: next to o/c 2m wide x 8m long
Comments: Float sample of QZ flooded, brecciated shale with abundant limonitic fractures and dark BR-BK punky areas. Gold potential?			
Sample Number: H237965	Grid East: E UTM: 383330 E Elevation: m	Grid North: N UTM: 6800292 N	Type: FLOAT Dimension: 6"4"2" Abundance:
Comments: WH QZ vein with abundant GY bands. Moderate, blebby-disseminated CP> PY. Unusual mineralization for the area, however, there is abundant QZ flooding within the shale in this area-likely the result of faulting.			
Sample Number: H237966	Grid East: E UTM: 382784 E Elevation: m	Grid North: N UTM: 6800832 N	Type: FLOAT Dimension: 10"8"12" Abundance: Rare
Comments: Float sample from creek. BR weathering sandy dolomite with SP and PY on fracture surfaces.			
Sample Number: H237967	Grid East: E UTM: 382679 E Elevation: m	Grid North: N UTM: 6800755 N	Type: FLOAT Dimension: 8"6"2" Abundance: Abundant on slope
Comments: Float sample from subcrop of ferrocrete-cemented shale. Abundant on vegetation covered slope.			
Sample Number: H237968	Grid East: E UTM: 382454 E Elevation: m	Grid North: N UTM: 6800761 N	Type: OUTCROP Dimension: From 7m thick package of sandy dolomite Abundance:
Comments: Sample taken over 8" of outcrop. Sandy dolomite with SP lined fractures. QZ flooding and slight brecciation in some zones.			
Sample Number: H237969	Grid East: E UTM: 382462 E Elevation: m	Grid North: N UTM: 6800742 N	Type: FLOAT Dimension: 20"18"14" Abundance:
Comments: Float sample of punky BR sandstone/sandy dolomite with boxwork limonite and trace SP.			

**APPENDIX III**  
**SAMPLE HANDLING AND ANALYTICAL PROCEDURES**

## **SAMPLE HANDLING AND ANALYTICAL PROCEDURES**

All rock and soil samples collected during the 2008 program were sorted into rice bags and sealed with a plastic zap strap on the Bob property. Samples were sent to the staging area on the Robert Campbell Highway via Bell 206B helicopter owned by Trans North Helicopters on September 9.

All samples were shipped via Greyhound Courier Express to ALS Chemex in North Vancouver, British Columbia.

### **Rock Geochemical Samples**

All rock sample sites in 2008 were marked with orange flagging tape labelled with the sample number. The location of each sample was determined using a handheld GPS unit. All samples sent for shipment were double bagged with pre-numbered sample tags placed in the bags.

The rock samples were submitted to ALS Chemex in North Vancouver, British Columbia where they were dried and fine crushed to -2 mm. A 250 g split was then pulverized to 75 micron and a portion of this material was digested in aqua regia before being analyzed for 34 elements by the inductively coupled plasma-atomic emission spectroscopy technique (ME-ICP41). All rock samples were then analyzed for gold using fire assay technique (AU-ICP21).

### **Soil Geochemical Samples**

All soil geochemical samples collected on the property were located by means of compass and hipchain surveys with frequent checks using handheld GPS units. Sample locations were marked with orange flagging tape and labelled with sample number and grid coordinate, where applicable. Soil samples were collected using mattocks and were placed into individual pre-numbered kraft paper bags.

The soil samples were sent to ALS Chemex, where they were dried and screened to minus 180 microns. One split of the screened fraction were dissolved in aqua regia and analyzed for 34 elements by ME-ICP41. A second split was fire assayed for gold using AU-ICP21.

**APPENDIX IV**  
**CERTIFICATES OF ANALYSIS**



# ALS Chemex

**EXCELLENCE IN ANALYTICAL CHEMISTRY**

ALS Canada Ltd.

212 Brooksbank Avenue  
North Vancouver BC V7J 2C1

Phone: 604 984 0221 Fax: 604 984 0218 www.alschemex.com

To: STRATEGIC METALS LTD.  
C/O ARCHER, CATHRO & ASSOCIATES (1981)  
LIMITED  
1016-510 W HASTINGS ST  
VANCOUVER BC V6B 1L8

Page: 1  
Finalized Date: 6-NOV-2008  
Account: MTT

## CERTIFICATE VA08148495

Project: BOB

P.O. No.:

This report is for 3 Rock samples submitted to our lab in Vancouver, BC, Canada on 14-OCT-2008.

The following have access to data associated with this certificate:

AL ARCHER  
VANCOUVER OFFICE

DOUG EATON  
BILL WENGZYNOWSKI

JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
FND-02	Find Sample for Addn Analysis


## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
Pb-VOL70	Pb by Titration

To: STRATEGIC METALS LTD.  
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VANCOUVER BC V6B 1L8

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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Project: BOB

Page: 2 - A

Total # Pages: 2 (A)

Finalized Date: 6-NOV-2008

Account: MTT

## CERTIFICATE OF ANALYSIS VA08148495

Sample Description	Method Analyte Units LOR	Pb-VOL70 Pb % 0.01
H237953 H237954 H237956		70.50 54.83 33.88



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Page: 1  
Finalized Date: 9-OCT-2008  
Account: MTT

## CERTIFICATE VA08129712

Project: BOB

P.O. No.:

This report is for 19 Rock samples submitted to our lab in Vancouver, BC, Canada on 12-SEP-2008.

The following have access to data associated with this certificate:

AL ARCHER  
VANCOUVER OFFICE

DOUG EATON  
BILL WENGZYNOWSKI

JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
SPL-21	Split sample - riffle splitter
CRU-31	Fine crushing - 70% <2mm
LOG-22	Sample login - Rcd w/o BarCode

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
Pb-OG46	Ore Grade Pb - Aqua Regia	VARIABLE
Zn-OG46	Ore Grade Zn - Aqua Regia	VARIABLE
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES
Ag-OG46	Ore Grade Ag - Aqua Regia	VARIABLE
ME-OG46	Ore Grade Elements - AquaRegia	ICP-AES

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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



# ALS Chemex

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Project: BOB

Page: 2 - A

Total # pages: 2 (A - C)

Finalized Date: 9-OCT-2008

Account: MTT

## CERTIFICATE OF ANALYSIS VA08129712

Sample Description	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm
Method Analyte Units LOR	0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01	10
H237951	0.91	0.6	0.50	145	<10	420	<0.5	<2	0.11	3.2	1	22	52	10.30	<10
H237952	1.12	8.6	0.24	85	<10	450	<0.5	5	0.24	9.8	<1	<1	21	43.7	<10
H237953	1.30	>100	0.07	139	<10	20	<0.5	<2	0.06	39.0	19	1	40	4.03	<10
H237954	0.88	>100	0.03	387	<10	30	<0.5	<2	1.92	147.5	82	1	72	6.37	10
H237955	1.26	55.3	0.08	111	<10	40	<0.5	2	11.90	35.8	26	<1	23	9.98	<10
H237956	0.77	>100	0.12	335	<10	50	<0.5	2	0.13	5.9	10	<1	152	26.2	<10
H237957	0.88	26.7	0.04	62	<10	90	<0.5	2	12.25	46.1	11	<1	37	8.85	<10
H237958	0.69	8.3	0.21	43	<10	170	<0.5	<2	13.30	1.7	10	2	21	7.39	<10
H237959	0.80	0.5	0.50	9	<10	90	<0.5	<2	6.61	0.6	9	5	46	3.82	<10
H237960	0.87	1.2	0.13	49	<10	170	<0.5	<2	0.14	0.8	2	10	14	5.67	<10
H237961	0.30	6.7	0.38	314	<10	170	<0.5	6	0.10	4.9	3	13	41	44.4	<10
H237962	1.13	<0.2	0.13	7	<10	40	<0.5	<2	15.6	<0.5	3	2	5	1.94	<10
H237963	0.49	0.2	0.07	24	<10	10	<0.5	<2	0.71	<0.5	2	7	12	0.97	<10
H237964	1.51	2.5	0.05	4930	<10	270	<0.5	7	0.28	<0.5	23	8	41	1.35	<10
H237965	0.51	2.0	0.03	1320	<10	120	<0.5	5	0.03	<0.5	42	13	1270	0.89	<10
H237966	1.04	0.3	0.15	36	<10	60	<0.5	2	16.3	<0.5	<1	2	8	6.66	<10
H237967	0.70	0.6	0.21	381	<10	140	<0.5	3	0.23	6.6	14	2	22	26.3	<10
H237968	0.45	<0.2	0.04	20	<10	410	<0.5	2	17.9	1.5	<1	1	2	4.14	<10
H237969	1.01	2.3	0.05	33	<10	40	<0.5	<2	0.08	<0.5	<1	2	17	11.05	<10



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Project: BOB

Page: 2 - B

Total # pages: 2 (A - C)

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## CERTIFICATE OF ANALYSIS VA08129712

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm
		1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2	1	1	20
H237951		1	0.29	10	0.03	50	36	0.02	18	1250	1265	0.42	54	2	372	<20
H237952		4	0.03	<10	0.13	1175	2	0.01	32	90	4000	0.25	21	1	24	<20
H237953		10	0.02	<10	0.01	175	5	<0.01	4	90	>10000	>10.0	736	<1	43	<20
H237954		16	<0.01	<10	0.83	1085	8	<0.01	37	100	>10000	>10.0	752	<1	44	<20
H237955		11	0.01	<10	5.02	7010	<1	<0.01	5	40	>10000	7.02	100	<1	89	<20
H237956		8	<0.01	<10	0.06	411	3	<0.01	3	120	>10000	4.32	300	1	126	<20
H237957		11	0.01	<10	5.34	6910	<1	<0.01	1	120	>10000	4.93	43	<1	99	<20
H237958		1	0.05	10	0.73	1145	<1	0.02	22	190	9440	0.36	11	6	254	<20
H237959		<1	0.10	10	1.28	564	<1	0.02	16	330	386	0.11	4	3	157	<20
H237960		<1	0.04	10	0.02	239	5	0.01	9	960	852	0.04	5	1	25	<20
H237961		3	0.02	10	0.08	3600	9	0.01	121	1040	257	0.14	59	1	15	<20
H237962		<1	0.05	<10	0.56	649	<1	0.01	7	150	199	<0.01	<2	2	852	<20
H237963		<1	0.02	<10	0.04	107	<1	0.01	4	250	110	0.03	3	<1	21	<20
H237964		<1	0.03	<10	0.01	26	<1	0.01	7	70	483	0.06	15	<1	22	<20
H237965		<1	0.01	<10	0.01	23	<1	<0.01	44	40	275	0.48	55	<1	6	<20
H237966		<1	0.02	10	6.69	7920	2	0.01	2	190	100	1.5	3	1	142	<20
H237967		<1	0.06	10	0.05	1705	18	<0.01	63	570	73	0.05	5	1	25	<20
H237968		<1	0.01	<10	9.04	5000	<1	0.02	2	50	54	<0.01	<2	<1	198	<20
H237969		1	0.01	<10	0.03	133	1	<0.01	2	40	871	0.04	14	<1	6	<20



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## CERTIFICATE OF ANALYSIS VA08129712

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Ag-OG46	Pb-OG46	Zn-OG46	Au-ICP21
	Analyte	Ti	Ti	U	V	W	Zn	Ag	Pb	Zn	Au
Units	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm
LOR	0.01	10	10	1	10	2	1	0.01	0.01	0.001	
H237951	<0.01	<10	<10	66	<10	2370					0.006
H237952	<0.01	10	20	25	10	>10000				1.81	0.007
H237953	<0.01	10	<10	6	20	>10000	432	>20.0		1.47	0.094
H237954	<0.01	<10	<10	9	20	>10000	537	>20.0		5.33	0.304
H237955	<0.01	10	<10	11	10	>10000		7.77		2.66	0.055
H237956	<0.01	10	<10	32	<10	7590	231	>20.0			0.124
H237957	<0.01	<10	<10	9	<10	>10000		2.04		3.19	0.025
H237958	<0.01	<10	<10	5	<10	1335					0.004
H237959	<0.01	<10	<10	6	<10	416					0.001
H237960	<0.01	<10	<10	57	<10	293					0.001
H237961	<0.01	10	<10	72	10	>10000				1.79	0.011
H237962	<0.01	<10	<10	1	<10	91					0.003
H237963	<0.01	<10	<10	1	<10	245					0.001
H237964	<0.01	<10	<10	5	<10	26					0.074
H237965	<0.01	<10	<10	1	<10	93					0.021
H237966	<0.01	<10	10	25	<10	462					0.002
H237967	<0.01	10	<10	25	10	>10000				1.52	0.002
H237968	<0.01	<10	10	11	<10	1075					0.001
H237969	<0.01	<10	<10	9	<10	426					0.005



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## CERTIFICATE VA08129711

Project: BOB

P.O. No.:

This report is for 127 Soil samples submitted to our lab in Vancouver, BC, Canada on 12-SEP-2008.

The following have access to data associated with this certificate:

AL ARCHER  
VANCOUVER OFFICE

DOUG EATON  
BILL WENZYNOWSKI

JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

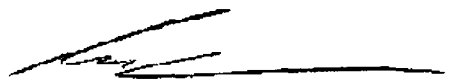
## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES

To: STRATEGIC METALS LTD.  
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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## CERTIFICATE OF ANALYSIS VA08129711

Sample Description	Method	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Recvd Wt.	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga
Units		kg	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm
LOR		0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01	10
CC54501		0.18	<0.2	0.40	10	<10	50	<0.5	<2	0.51	0.6	8	4	13	2.62	<10
CC54502		0.20	<0.2	0.32	24	<10	40	<0.5	<2	3.04	0.8	18	4	32	3.56	<10
CC54503		0.18	<0.2	0.64	20	<10	50	<0.5	<2	0.56	<0.5	9	9	12	3.83	<10
CC54504		0.24	0.6	0.73	37	<10	150	<0.5	<2	0.47	1.3	14	10	43	4.39	<10
CC54505		0.18	7.3	0.60	83	<10	880	0.5	<2	1.68	19.5	11	9	52	14.0	10
CC54506		0.22	4.1	0.65	72	<10	940	<0.5	<2	5.84	18.1	15	8	36	12.15	<10
CC54507		0.22	0.7	0.63	33	<10	220	<0.5	<2	0.47	1.6	9	11	32	3.25	<10
CC54508		0.22	<0.2	0.65	28	<10	100	<0.5	<2	0.16	1.0	10	12	21	3.44	<10
CC54509		0.26	1.0	0.59	47	<10	160	<0.5	<2	0.37	2.6	15	9	45	4.08	<10
CC54510		0.24	0.2	0.86	45	<10	200	0.5	<2	0.18	1.2	14	12	35	4.03	<10
CC54511		0.22	0.4	0.43	10	<10	110	<0.5	<2	0.08	<0.5	2	6	7	1.38	<10
CC54512		0.16	<0.2	0.40	17	<10	90	<0.5	<2	0.13	1.3	22	5	31	5.12	<10
CC54513		0.18	<0.2	0.34	11	<10	60	<0.5	<2	0.02	<0.5	2	5	6	0.97	<10
CC54514		0.24	0.2	0.50	41	<10	110	<0.5	<2	0.10	0.9	5	10	29	2.89	<10
CC54515		0.24	0.9	0.47	80	<10	190	<0.5	<2	0.47	3.4	25	8	64	6.16	<10
CC54516		0.22	0.6	0.51	20	<10	60	<0.5	<2	0.23	0.6	9	7	24	2.74	<10
CC54517		0.20	0.3	0.24	7	<10	40	<0.5	<2	0.05	<0.5	2	3	4	0.84	<10
CC54518		0.28	0.3	0.76	26	<10	130	<0.5	<2	1.02	1.2	13	12	29	3.47	<10
CC54519		0.16	<0.2	0.42	35	<10	60	<0.5	<2	0.48	0.5	12	4	19	3.82	<10
CC54520		0.26	0.4	0.51	48	<10	180	<0.5	<2	0.30	1.2	8	12	28	2.88	<10
CC54521		0.16	<0.2	0.43	31	<10	100	<0.5	<2	0.12	<0.5	3	8	16	2.00	<10
CC54522		0.18	<0.2	0.22	13	<10	30	<0.5	<2	0.04	<0.5	2	4	5	0.94	<10
CC54523		0.22	0.9	0.59	30	<10	140	<0.5	<2	0.78	1.4	8	10	33	3.16	<10
CC54524		0.18	0.7	0.61	32	<10	140	<0.5	<2	0.22	0.9	10	11	28	2.61	<10
CC54525		0.30	0.5	0.59	50	<10	160	<0.5	<2	0.06	0.6	5	14	39	3.05	<10
CC54526		0.18	0.2	0.60	27	<10	160	<0.5	<2	0.34	2.0	8	11	22	2.73	<10
CC54527		0.28	0.7	0.64	63	<10	550	0.7	<2	0.24	6.0	13	10	63	3.04	<10
CC54528		0.30	0.3	0.69	21	<10	150	<0.5	<2	0.30	1.1	6	9	19	2.22	<10
CC54529		0.22	0.2	0.36	6	<10	80	<0.5	<2	0.24	<0.5	1	4	3	0.97	<10
CC54530		0.24	0.5	0.37	16	<10	80	<0.5	<2	0.16	<0.5	3	7	8	1.59	<10
CC54531		0.20	0.8	0.52	53	<10	130	0.5	<2	0.84	2.6	15	7	56	4.04	<10
CC54532		0.26	0.7	0.41	73	<10	200	0.6	<2	0.44	3.6	22	9	72	5.35	<10
CC54533		0.20	0.4	0.53	10	<10	150	<0.5	<2	0.27	0.5	3	8	6	1.55	<10
CC54534		0.16	<0.2	0.51	14	<10	50	<0.5	<2	0.02	<0.5	4	9	9	2.13	<10
CC54535		0.16	<0.2	0.33	5	<10	40	<0.5	<2	0.01	<0.5	2	4	4	0.69	<10
CC54536		0.16	<0.2	0.38	17	<10	60	<0.5	<2	0.03	<0.5	4	6	11	1.88	<10
CC54537		0.22	<0.2	0.37	8	<10	50	<0.5	<2	0.01	<0.5	2	4	8	0.85	<10
CC54538		0.16	0.2	0.22	<2	<10	30	<0.5	<2	0.01	<0.5	1	3	1	0.23	<10
CC54539		0.18	0.3	0.32	9	<10	40	<0.5	<2	0.01	<0.5	3	5	9	1.17	<10
CC54540		0.22	1.2	0.89	36	<10	350	0.7	3	0.61	1.1	15	13	32	4.25	<10



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## CERTIFICATE OF ANALYSIS VA08129711

Sample Description	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Hg ppm 1	K % 0.01	La ppm 10	Mg % 0.01	Mn ppm 5	Mo ppm 1	Na % 0.01	Ni ppm 1	P ppm 10	Pb ppm 2	S % 0.01	Sb ppm 2	Sc ppm 1	Sr ppm 1	Th ppm 20
CC54501	<1	0.02	10	0.06	331	<1	0.02	14	590	33	0.02	2	2	22	<20
CC54502	<1	0.03	10	0.15	378	<1	0.02	37	720	16	0.04	5	3	91	<20
CC54503	<1	0.03	10	0.24	367	2	0.02	18	980	48	0.04	<2	3	23	<20
CC54504	<1	0.07	20	0.32	442	6	0.02	50	1400	124	0.04	5	4	30	<20
CC54505	4	0.03	10	0.64	3540	13	0.02	52	900	4160	0.30	20	3	64	<20
CC54506	2	0.02	10	2.94	3550	7	0.03	64	820	3270	0.23	15	2	108	<20
CC54507	<1	0.07	20	0.25	195	8	0.02	55	990	45	0.04	6	3	26	<20
CC54508	<1	0.04	10	0.18	392	8	0.02	40	1150	23	0.04	4	1	10	<20
CC54509	<1	0.06	20	0.15	471	11	0.02	72	1510	28	0.04	7	3	21	<20
CC54510	<1	0.06	20	0.23	400	9	0.02	57	630	57	0.03	8	2	16	<20
CC54511	<1	0.03	10	0.06	84	4	0.02	13	420	10	0.03	2	1	9	<20
CC54512	<1	0.02	20	0.06	1135	6	0.02	42	1420	22	0.03	7	3	8	<20
CC54513	<1	0.03	10	0.04	44	5	0.02	11	510	7	0.03	<2	<1	3	<20
CC54514	<1	0.07	10	0.10	149	12	0.02	52	1320	21	0.03	5	1	7	<20
CC54515	<1	0.05	20	0.17	607	11	0.02	77	1370	101	0.08	9	3	42	<20
CC54516	<1	0.03	10	0.13	295	5	0.03	34	860	15	0.05	4	2	18	<20
CC54517	<1	0.02	10	0.02	66	2	0.02	5	380	8	0.03	<2	<1	5	<20
CC54518	<1	0.06	20	0.37	550	4	0.02	40	1160	24	0.03	4	2	31	<20
CC54519	<1	0.02	10	0.05	325	2	0.02	26	700	24	0.05	4	2	23	<20
CC54520	<1	0.08	20	0.08	181	10	0.02	57	1090	21	0.03	6	2	16	<20
CC54521	<1	0.06	10	0.07	70	9	0.01	33	900	17	0.03	6	1	9	<20
CC54522	<1	0.03	10	0.02	59	7	0.01	13	570	12	0.03	<2	<1	4	<20
CC54523	<1	0.05	20	0.29	228	5	0.02	43	1330	19	0.07	3	3	46	<20
CC54524	<1	0.05	10	0.16	458	9	0.02	40	1080	19	0.04	3	1	15	<20
CC54525	<1	0.06	10	0.06	101	7	0.01	53	860	17	0.04	4	1	12	<20
CC54526	<1	0.06	10	0.15	441	7	0.02	46	1070	19	0.05	4	2	17	<20
CC54527	<1	0.10	20	0.11	266	14	0.01	110	930	18	0.04	8	4	16	<20
CC54528	<1	0.05	10	0.21	156	6	0.02	41	470	15	0.03	3	2	20	<20
CC54529	<1	0.02	10	0.05	20	3	0.02	3	870	7	0.02	<2	<1	11	<20
CC54530	<1	0.04	10	0.07	89	7	0.02	19	790	11	0.03	3	1	10	<20
CC54531	<1	0.04	10	0.11	452	13	0.02	69	1750	41	0.06	7	3	40	<20
CC54532	<1	0.05	20	0.08	538	18	0.02	91	1720	159	0.06	9	3	32	<20
CC54533	<1	0.03	10	0.09	131	5	0.02	14	450	13	0.04	<2	1	19	<20
CC54534	<1	0.03	10	0.10	140	6	0.02	16	630	15	0.03	3	<1	4	<20
CC54535	<1	0.02	20	0.03	31	3	0.02	5	340	5	0.02	<2	<1	2	<20
CC54536	<1	0.03	10	0.05	91	5	0.02	18	600	16	0.03	4	<1	4	<20
CC54537	<1	0.02	10	0.02	20	4	0.02	9	430	6	0.03	<2	<1	3	<20
CC54538	<1	0.03	10	0.01	18	2	0.02	2	210	3	0.02	<2	<1	2	<20
CC54539	<1	0.03	10	0.03	45	2	<0.01	14	430	18	0.01	3	<1	3	<20
CC54540	<1	0.05	20	0.25	1290	8	<0.01	58	1200	124	0.05	13	3	42	<20



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Finalized Date: 4-OCT-2008

Account: MTT

## CERTIFICATE OF ANALYSIS VA08129711

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Ti %	Ti ppm	U ppm	V ppm	W ppm	Zn ppm
		0.01	10	10	1	10	2
CC54501		0.01	<10	<10	9	<10	106
CC54502		<0.01	<10	<10	5	<10	104
CC54503		0.01	<10	<10	12	<10	188
CC54504		<0.01	<10	<10	27	<10	380
CC54505		<0.01	<10	<10	51	20	8770
CC54506		0.01	<10	<10	40	30	8910
CC54507		0.01	<10	<10	32	<10	372
CC54508		0.01	<10	<10	31	<10	243
CC54509		0.01	<10	<10	29	<10	381
CC54510		0.01	<10	<10	34	<10	380
CC54511		0.01	<10	<10	20	<10	76
CC54512		<0.01	<10	<10	10	<10	263
CC54513		0.01	<10	<10	20	<10	51
CC54514		0.01	<10	<10	45	<10	238
CC54515		<0.01	<10	<10	29	<10	899
CC54516		0.01	<10	<10	15	<10	149
CC54517		0.01	<10	<10	10	<10	37
CC54518		0.01	<10	<10	27	<10	165
CC54519		<0.01	<10	<10	7	<10	126
CC54520		0.01	<10	<10	48	<10	293
CC54521		<0.01	<10	<10	37	<10	173
CC54522		0.01	<10	<10	25	<10	81
CC54523		0.01	<10	<10	24	<10	234
CC54524		0.01	<10	<10	28	<10	202
CC54525		<0.01	<10	<10	35	<10	226
CC54526		0.01	<10	<10	27	<10	373
CC54527		<0.01	<10	<10	47	<10	486
CC54528		0.01	<10	<10	32	<10	177
CC54529		<0.01	<10	<10	16	<10	40
CC54530		0.01	<10	<10	24	<10	91
CC54531		<0.01	<10	<10	34	<10	345
CC54532		<0.01	<10	<10	55	<10	1160
CC54533		0.01	<10	<10	22	<10	123
CC54534		0.01	<10	<10	27	<10	93
CC54535		0.01	<10	<10	11	<10	25
CC54536		0.01	<10	<10	22	<10	92
CC54537		0.01	<10	<10	17	<10	50
CC54538		0.01	<10	<10	9	<10	12
CC54539		0.01	<10	<10	19	<10	73
CC54540		0.01	<10	<10	24	<10	287



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Account: MTT

## CERTIFICATE OF ANALYSIS VA08129711

Sample Description	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	
	0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01	10	
CC54541	0.22	<0.2	0.63	23	<10	80	<0.5	<2	0.03	<0.5	6	9	15	2.73	<10	
CC54542	0.16	0.3	0.43	8	<10	80	<0.5	<2	0.03	<0.5	2	5	5	0.82	<10	
CC54543	0.20	0.2	0.41	27	<10	160	<0.5	<2	0.27	0.6	5	7	11	2.07	<10	
CC54544	0.26	0.2	0.47	30	<10	60	<0.5	2	0.12	<0.5	7	8	26	3.40	<10	
CC54545	0.34	0.3	0.67	40	<10	170	<0.5	2	0.25	0.8	13	10	23	3.62	<10	
CC54546	0.24	0.6	0.50	29	<10	70	<0.5	<2	0.04	<0.5	5	9	18	2.61	<10	
CC54547	0.22	0.2	0.67	37	<10	50	0.5	2	0.27	0.5	14	8	25	3.97	<10	
CC54548	0.26	0.3	0.91	23	<10	60	0.5	<2	0.50	<0.5	13	10	29	3.96	<10	
CC54549	0.22	<0.2	1.08	12	<10	30	0.5	2	1.76	<0.5	18	13	29	3.58	<10	
CC54550	0.18	<0.2	0.44	45	<10	40	<0.5	<2	1.39	<0.5	18	6	29	3.92	<10	
CC54551	0.30	0.6	0.74	34	<10	160	<0.5	<2	0.71	0.8	9	11	31	3.11	<10	
CC54552	0.24	0.4	0.41	21	<10	100	<0.5	<2	0.25	<0.5	3	5	17	1.49	<10	
CC54553	0.18	0.6	0.81	29	<10	130	<0.5	2	0.32	1.1	10	10	32	3.09	<10	
CC54554	0.20	0.4	0.60	45	<10	70	0.5	<2	0.50	0.6	15	8	35	3.96	<10	
CC54555	0.22	1.0	0.38	59	<10	210	0.5	<2	1.73	2.5	21	8	73	4.38	<10	
CC54556	0.26	1.2	0.52	61	<10	290	0.6	3	0.68	1.3	19	9	71	4.36	<10	
CC54557	0.18	0.3	0.48	16	<10	140	<0.5	<2	0.58	1.2	8	11	18	2.57	<10	
CC54558	0.22	0.6	0.56	53	<10	110	0.6	<2	0.20	2.7	14	10	45	4.33	<10	
CC54559	0.28	0.4	0.65	21	<10	160	0.5	<2	0.25	0.7	8	7	23	2.85	<10	
CC54560	0.22	1.5	0.64	30	<10	90	<0.5	2	0.28	2.6	14	8	49	3.79	<10	
CC54561	0.22	0.5	0.44	25	<10	90	0.5	3	0.24	0.7	18	10	38	4.82	<10	
CC54562	0.26	0.6	0.61	28	<10	150	0.5	2	0.27	1.1	17	15	39	4.61	<10	
CC54563	0.22	<0.2	0.58	32	<10	100	<0.5	2	1.54	<0.5	19	6	31	3.64	<10	
CC54564	0.22	<0.2	0.88	20	<10	60	<0.5	<2	1.18	<0.5	21	10	29	3.40	<10	
CC54565	0.30	<0.2	0.35	33	<10	60	<0.5	2	0.88	<0.5	21	3	33	4.18	<10	
CC54566	0.20	0.9	0.37	39	<10	110	0.5	2	0.43	1.6	18	5	48	4.77	<10	
CC54567	0.28	10.8	0.55	96	<10	370	<0.5	5	4.25	21.6	10	15	53	17.7	<10	
CC54568	0.26	4.8	0.31	54	<10	570	<0.5	2	8.49	19.1	10	4	18	10.50	<10	
CC54569	0.24	0.8	0.34	37	<10	60	<0.5	2	0.17	<0.5	5	6	13	2.67	<10	
CC54570	0.28	1.1	0.40	79	<10	140	0.5	<2	0.83	3.4	17	7	58	4.82	<10	
CC54571	0.20	1.5	0.41	53	<10	110	0.6	2	1.95	1.3	25	6	56	4.68	<10	
CC54572	0.24	2.6	0.44	89	<10	240	0.7	3	2.85	7.2	16	9	86	4.18	<10	
CC54573	0.20	1.3	0.20	45	<10	40	<0.5	<2	7.09	1.3	19	4	49	3.76	<10	
CC54574	0.22	<0.2	0.35	20	<10	60	<0.5	3	0.07	<0.5	7	9	14	3.19	<10	
CC54575	0.22	1.4	0.28	84	<10	440	<0.5	2	3.49	6.9	17	8	44	6.42	<10	
CC54576	0.28	0.5	0.16	29	<10	290	<0.5	<2	3.52	8.6	5	7	17	4.82	<10	
CC54577	0.20	2.5	0.21	40	<10	400	<0.5	3	10.85	17.6	2	4	17	9.70	<10	
CC54578	0.28	<0.2	0.36	21	<10	80	<0.5	2	0.34	<0.5	19	4	32	4.25	<10	
CC54579	0.22	0.2	0.40	36	<10	70	0.5	<2	0.50	0.5	23	6	46	4.87	<10	
CC54580	0.20	<0.2	0.43	27	<10	50	0.5	<2	0.59	<0.5	20	5	45	5.21	<10	



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## CERTIFICATE OF ANALYSIS VA08129711

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th
	Units LOR	ppm 1	% 0.01	ppm 10	% 0.01	ppm 5	ppm 1	% 0.01	ppm 1	ppm 10	ppm 2	% 0.01	ppm 2	ppm 1	ppm 1	ppm 20
CC54541	<1	0.03	10	0.08	244	6	<0.01	24	800	25	0.01	3	1	5	<20	
CC54542	<1	0.03	10	0.04	26	3	0.01	8	360	8	0.01	2	<1	4	<20	
CC54543	<1	0.03	10	0.05	189	6	<0.01	24	700	13	0.01	2	1	16	<20	
CC54544	<1	0.04	10	0.08	159	9	<0.01	42	860	23	0.01	4	1	7	<20	
CC54545	<1	0.05	10	0.16	592	10	<0.01	46	1240	30	0.03	6	2	14	<20	
CC54546	<1	0.04	10	0.14	116	6	<0.01	33	1020	18	0.02	3	1	5	<20	
CC54547	<1	0.04	20	0.19	260	4	0.01	40	930	24	0.04	5	4	14	<20	
CC54548	<1	0.03	20	0.35	244	1	0.01	36	760	19	0.03	5	4	22	<20	
CC54549	<1	0.03	30	0.71	366	1	0.01	38	570	13	0.02	<2	3	57	<20	
CC54550	<1	0.03	20	0.20	309	1	0.01	42	620	13	0.02	8	3	47	<20	
CC54551	<1	0.04	10	0.24	207	8	<0.01	53	1120	22	0.02	4	1	40	<20	
CC54552	<1	0.04	10	0.08	60	6	0.01	24	650	13	0.01	4	1	13	<20	
CC54553	<1	0.04	20	0.32	263	10	0.01	49	1480	22	0.04	6	2	17	<20	
CC54554	<1	0.03	20	0.22	273	8	0.01	57	990	27	0.04	7	3	20	<20	
CC54555	<1	0.05	20	0.37	646	16	0.01	86	1640	91	0.08	9	3	73	<20	
CC54556	<1	0.03	20	0.10	481	20	<0.01	101	1390	69	0.04	9	3	46	<20	
CC54557	1	0.02	10	0.13	267	5	<0.01	30	820	32	0.03	3	1	22	<20	
CC54558	<1	0.04	20	0.10	550	13	<0.01	76	1270	201	0.02	8	3	15	<20	
CC54559	<1	0.03	20	0.09	281	3	0.01	23	1320	28	0.02	2	3	13	<20	
CC54560	<1	0.03	20	0.13	432	6	0.01	56	1610	28	0.02	6	3	16	<20	
CC54561	<1	0.05	20	0.11	447	3	0.01	51	720	83	0.08	4	3	28	<20	
CC54562	<1	0.06	20	0.14	528	3	0.01	58	760	73	0.09	5	4	46	<20	
CC54563	<1	0.03	20	0.20	459	1	0.01	41	610	28	0.03	3	3	54	<20	
CC54564	<1	0.03	30	0.53	511	<1	0.01	39	720	22	0.02	4	3	55	<20	
CC54565	<1	0.03	20	0.11	428	<1	0.01	42	650	30	0.03	5	3	35	<20	
CC54566	<1	0.04	20	0.08	465	9	<0.01	61	1090	97	0.04	9	4	53	<20	
CC54567	4	0.02	10	2.16	5250	15	0.01	40	820	5600	0.25	20	3	70	<20	
CC54568	2	0.01	10	5.36	3570	8	0.01	33	410	2710	0.53	12	1	107	<20	
CC54569	<1	0.03	10	0.06	276	10	0.01	28	890	125	0.01	8	<1	12	<20	
CC54570	<1	0.06	20	0.11	899	18	0.01	88	1390	193	0.02	18	2	64	<20	
CC54571	1	0.03	20	0.10	494	3	0.01	63	1650	118	0.05	7	4	52	<20	
CC54572	1	0.07	10	0.39	413	18	0.01	77	2410	88	0.07	19	6	89	<20	
CC54573	<1	0.02	10	0.38	277	2	0.01	49	1240	17	0.03	5	3	114	<20	
CC54574	<1	0.03	10	0.04	609	4	0.01	24	970	376	0.02	4	1	7	<20	
CC54575	<1	0.02	10	1.78	1865	17	0.01	60	960	721	0.26	10	3	117	<20	
CC54576	<1	0.02	10	1.89	891	2	<0.01	21	830	187	0.15	4	2	194	<20	
CC54577	<1	0.01	10	6.71	3630	7	0.01	16	230	1555	0.65	10	1	107	<20	
CC54578	<1	0.02	20	0.11	565	1	0.01	40	590	37	0.02	3	3	18	<20	
CC54579	<1	0.03	20	0.13	430	2	0.01	56	940	49	0.03	5	3	26	<20	
CC54580	<1	0.04	10	0.13	429	1	0.01	49	750	60	0.05	3	4	22	<20	



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## CERTIFICATE OF ANALYSIS VA08129711

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Ti	Ti	U	V	W	Zn
		%	ppm	ppm	ppm	ppm	ppm
		0.01	10	10	1	10	2
CC54541		0.01	<10	<10	31	<10	144
CC54542		0.01	<10	<10	18	<10	46
CC54543		<0.01	<10	<10	20	<10	142
CC54544		<0.01	<10	<10	37	<10	144
CC54545		0.01	<10	<10	37	<10	291
CC54546		0.01	<10	<10	33	<10	180
CC54547		<0.01	<10	<10	10	<10	162
CC54548		<0.01	<10	<10	11	<10	121
CC54549		<0.01	<10	<10	6	<10	94
CC54550		<0.01	<10	<10	5	<10	110
CC54551		<0.01	<10	<10	46	<10	234
CC54552		<0.01	<10	<10	27	<10	150
CC54553		<0.01	<10	<10	33	<10	269
CC54554		<0.01	<10	<10	16	<10	204
CC54555		<0.01	<10	<10	44	<10	489
CC54556		<0.01	<10	<10	62	<10	465
CC54557		0.01	<10	<10	32	<10	192
CC54558		0.01	<10	<10	37	<10	421
CC54559		<0.01	<10	<10	25	<10	143
CC54560		0.01	<10	<10	24	<10	314
CC54561		<0.01	<10	<10	16	<10	289
CC54562		<0.01	<10	<10	22	<10	409
CC54563		<0.01	<10	<10	8	<10	132
CC54564		<0.01	<10	<10	6	<10	114
CC54565		<0.01	<10	<10	4	<10	137
CC54566		<0.01	<10	<10	26	<10	596
CC54567		<0.01	<10	<10	68	<10	9870
CC54568		<0.01	<10	10	35	<10	7360
CC54569		0.01	<10	<10	34	<10	361
CC54570		<0.01	<10	<10	52	<10	1100
CC54571		<0.01	<10	<10	18	<10	377
CC54572		<0.01	<10	<10	88	<10	679
CC54573		<0.01	<10	<10	8	<10	163
CC54574		0.01	<10	<10	28	<10	428
CC54575		<0.01	<10	<10	38	<10	2620
CC54576		<0.01	<10	<10	11	<10	2640
CC54577		<0.01	<10	<10	35	10	5340
CC54578		<0.01	<10	<10	6	<10	167
CC54579		<0.01	<10	<10	8	<10	201
CC54580		<0.01	<10	<10	6	<10	207



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## CERTIFICATE OF ANALYSIS VA08129711

Sample Description	Method	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Recvd Wt.	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga
Units		kg	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm
LOR																
		0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01	10
CC54581		0.22	<0.2	0.39	43	<10	80	0.5	<2	0.57	<0.5	22	4	38	4.75	<10
CC54582		0.20	0.2	0.48	30	<10	110	0.5	<2	0.56	<0.5	24	4	46	5.96	<10
CC54583		0.32	0.9	0.29	21	<10	80	<0.5	<2	0.19	0.6	10	4	31	3.82	<10
CC54584		0.24	1.7	0.13	65	<10	330	<0.5	2	9.98	9.4	5	7	13	8.99	<10
CC54585		0.22	2.5	0.47	37	<10	1170	<0.5	2	2.84	5.8	15	10	34	5.93	<10
CC54586		0.26	0.7	0.34	22	<10	80	<0.5	<2	1.72	1.7	5	12	19	3.71	<10
CC54587		0.22	0.4	0.30	48	<10	130	<0.5	<2	0.86	0.6	8	16	17	2.37	<10
CC54588		0.28	1.3	1.51	15	<10	90	<0.5	2	2.70	2.3	18	25	66	3.95	<10
CC54589		0.30	0.2	0.63	43	<10	60	0.5	<2	1.01	<0.5	25	11	41	4.41	<10
CC54590		0.22	<0.2	0.90	18	<10	40	0.5	<2	0.48	<0.5	21	14	34	3.89	<10
CC54591		0.30	<0.2	0.61	19	<10	40	<0.5	<2	0.57	<0.5	19	11	28	3.50	<10
CC54592		0.24	<0.2	0.58	28	<10	50	<0.5	<2	0.50	<0.5	19	10	27	3.50	<10
CC54593		0.20	0.3	0.72	33	<10	60	0.6	<2	0.42	0.5	18	11	37	4.70	<10
CC54594		0.22	1.2	0.37	114	<10	140	0.6	3	1.00	3.3	57	10	173	5.42	<10
CC54595		0.18	1.4	0.26	66	<10	160	0.5	<2	1.91	3.4	13	11	60	3.82	<10
CC54596		0.26	1.9	0.34	208	<10	240	1.2	<2	1.61	6.3	20	9	117	5.44	<10
CC54597		0.24	2.2	0.23	128	<10	210	0.6	<2	0.53	8.2	23	12	107	5.18	<10
CC54598		0.24	1.5	0.53	79	<10	190	0.5	<2	0.52	3.7	14	10	66	3.70	<10
CC54599		0.20	1.6	0.38	78	<10	160	0.6	<2	0.46	4.9	16	9	74	4.16	<10
CC54600		0.26	1.4	0.32	83	<10	160	0.6	<2	0.48	4.0	16	16	71	4.36	<10
CC54601		0.26	1.4	0.36	69	<10	240	0.6	2	0.36	5.6	15	9	70	3.87	<10
CC54602		0.22	1.8	0.39	64	<10	170	0.7	<2	0.41	7.0	14	9	62	4.06	<10
CC54603		0.22	1.5	0.40	94	<10	500	0.7	<2	1.05	3.4	21	11	109	5.41	<10
CC54604		0.18	0.5	0.60	31	<10	80	0.5	<2	0.69	0.7	20	9	50	4.12	<10
CC54605		0.22	0.4	0.63	22	<10	70	0.5	<2	0.76	<0.5	15	9	30	3.72	<10
CC54606		0.18	<0.2	0.83	16	<10	40	<0.5	<2	0.70	<0.5	13	11	23	3.67	<10
CC54607		0.24	<0.2	0.81	16	<10	30	<0.5	<2	0.47	<0.5	14	11	26	3.69	<10
CC54608		0.20	<0.2	0.49	22	<10	40	<0.5	<2	1.00	<0.5	16	7	28	3.44	<10
CC54609		0.16	<0.2	0.45	24	<10	40	<0.5	<2	0.76	<0.5	16	6	27	4.13	<10
CC54610		0.26	<0.2	1.22	10	<10	40	0.5	<2	0.85	<0.5	14	15	22	3.66	<10
CC54611		0.24	<0.2	0.68	16	<10	40	<0.5	<2	0.41	<0.5	16	8	27	3.51	<10
CC54612		0.28	<0.2	1.29	15	<10	50	0.6	<2	0.73	<0.5	15	16	27	4.15	<10
CC54613		0.24	<0.2	0.76	22	<10	70	0.5	<2	0.54	<0.5	18	10	29	4.61	<10
CC54614		0.28	<0.2	0.60	18	<10	60	0.5	<2	0.53	<0.5	15	8	25	4.20	<10
CC54615		0.24	0.3	0.35	26	<10	90	0.6	<2	0.84	0.7	22	6	48	4.29	<10
CC54616		0.24	0.6	0.35	43	<10	140	0.7	<2	1.55	1.8	22	8	57	4.25	<10
CC54617		0.22	1.2	0.29	99	<10	130	0.6	2	1.47	3.2	18	9	75	4.09	<10
CC55091		0.20	1.0	0.23	20	<10	90	<0.5	<2	1.49	3.3	11	5	38	3.44	<10
CC55092		0.24	0.5	0.50	13	<10	50	<0.5	<2	0.17	<0.5	5	7	13	2.82	<10
CC55093		0.20	0.3	0.49	19	<10	60	<0.5	<2	0.45	<0.5	6	12	9	3.25	<10



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	Analyte	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th
Units	ppm	%	ppm	%	ppm	ppm	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
LOR	1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2	1	1	20	
CC54581	<1	0.03	10	0.12	612	1	0.01	47	630	57	0.04	4	4	35	<20	
CC54582	<1	0.03	10	0.15	632	2	0.01	58	680	61	0.03	3	5	31	<20	
CC54583	<1	0.02	20	0.08	320	10	<0.01	29	520	218	0.02	10	2	24	<20	
CC54584	<1	<0.01	10	5.95	3470	4	0.01	29	560	576	0.66	8	2	112	<20	
CC54585	1	0.03	10	1.45	1480	4	0.01	37	700	2520	0.24	6	3	51	<20	
CC54586	<1	0.02	10	0.74	871	3	0.01	33	940	103	0.04	4	2	58	<20	
CC54587	<1	0.02	10	0.28	865	10	0.01	58	810	48	0.04	15	3	27	<20	
CC54588	<1	0.04	20	1.25	258	4	0.01	62	2540	22	0.04	2	3	97	<20	
CC54589	<1	0.03	20	0.35	479	2	0.01	60	740	19	0.03	5	3	39	<20	
CC54590	<1	0.03	30	0.52	416	2	0.01	47	690	16	0.03	3	3	22	<20	
CC54591	<1	0.03	30	0.28	469	2	0.01	41	710	14	0.02	3	3	24	<20	
CC54592	<1	0.03	20	0.25	450	2	0.01	41	630	14	0.02	3	3	20	<20	
CC54593	<1	0.04	20	0.29	482	3	0.01	48	760	23	0.03	4	4	15	<20	
CC54594	<1	0.05	20	0.10	834	8	0.01	94	2870	429	0.07	18	4	37	<20	
CC54595	<1	0.03	10	0.26	235	23	0.01	102	930	39	0.05	8	2	81	<20	
CC54596	<1	0.06	20	0.34	346	57	0.01	214	1310	44	0.37	25	5	57	<20	
CC54597	<1	0.06	20	0.10	496	44	0.01	173	1690	49	0.09	24	3	35	<20	
CC54598	<1	0.04	20	0.10	413	26	0.01	101	1410	67	0.07	16	2	28	<20	
CC54599	<1	0.04	20	0.07	323	29	0.01	116	1470	79	0.04	16	3	24	<20	
CC54600	<1	0.05	20	0.08	406	25	0.01	119	1550	227	0.03	15	3	40	<20	
CC54601	<1	0.04	20	0.08	417	24	0.01	111	1080	410	0.02	12	4	30	<20	
CC54602	<1	0.04	20	0.15	335	23	0.01	102	810	224	0.02	10	4	24	<20	
CC54603	<1	0.06	20	0.11	772	37	0.01	130	1780	1460	0.04	19	4	55	<20	
CC54604	<1	0.04	20	0.18	443	4	0.01	46	1150	53	0.04	3	4	25	<20	
CC54605	<1	0.03	20	0.18	483	3	0.01	40	910	21	0.05	3	3	28	<20	
CC54606	<1	0.03	30	0.33	334	1	0.01	34	820	20	0.05	2	3	26	<20	
CC54607	<1	0.03	20	0.43	266	1	<0.01	35	620	15	0.03	2	3	16	<20	
CC54608	<1	0.03	30	0.17	315	2	0.01	37	780	13	0.04	2	3	28	<20	
CC54609	<1	0.03	30	0.12	471	1	0.01	38	770	17	0.06	3	3	24	<20	
CC54610	<1	0.03	20	0.73	359	1	0.01	33	480	13	0.02	<2	3	31	<20	
CC54611	<1	0.03	40	0.28	359	1	0.01	36	730	15	0.02	<2	3	21	<20	
CC54612	<1	0.04	30	0.66	539	1	0.01	34	840	25	0.05	2	4	30	<20	
CC54613	<1	0.03	20	0.21	687	2	0.01	40	770	22	0.04	3	5	19	<20	
CC54614	<1	0.03	20	0.15	411	1	0.01	38	740	17	0.04	2	5	18	<20	
CC54615	<1	0.05	30	0.12	623	4	0.01	52	1640	21	0.01	4	4	29	<20	
CC54616	<1	0.06	30	0.14	653	12	0.01	78	1980	30	0.01	6	4	51	<20	
CC54617	<1	0.06	20	0.10	410	31	0.01	115	1530	30	0.01	13	3	48	<20	
CC55091	<1	0.03	10	0.07	308	7	0.01	46	1550	55	0.09	5	2	68	<20	
CC55092	<1	0.02	10	0.05	333	1	0.01	24	640	67	0.04	<2	2	10	<20	
CC55093	<1	0.02	10	0.08	565	1	<0.01	25	920	55	0.04	<2	2	26	<20	



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## CERTIFICATE OF ANALYSIS VA08129711

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Ti	Ti	U	V	W	Zn
		%	ppm	ppm	ppm	ppm	ppm
		0.01	10	10	1	10	2
CC54581		<0.01	<10	<10	5	<10	185
CC54582		<0.01	<10	<10	7	<10	263
CC54583		<0.01	<10	<10	16	<10	258
CC54584		<0.01	<10	<10	36	10	3480
CC54585		<0.01	<10	<10	20	<10	2590
CC54586		<0.01	<10	<10	25	<10	1140
CC54587		<0.01	<10	<10	38	<10	103
CC54588		<0.01	<10	<10	40	<10	239
CC54589		<0.01	<10	<10	8	<10	142
CC54590		<0.01	<10	<10	9	<10	124
CC54591		<0.01	<10	<10	5	<10	96
CC54592		<0.01	<10	<10	6	<10	102
CC54593		<0.01	<10	<10	10	<10	164
CC54594		<0.01	<10	<10	22	<10	912
CC54595		<0.01	<10	<10	45	<10	503
CC54596		<0.01	<10	<10	81	<10	1040
CC54597		<0.01	<10	<10	59	<10	757
CC54598		0.01	<10	<10	51	<10	482
CC54599		<0.01	<10	<10	45	<10	595
CC54600		<0.01	<10	<10	49	<10	529
CC54601		<0.01	<10	<10	53	<10	593
CC54602		<0.01	<10	<10	38	<10	577
CC54603		<0.01	<10	<10	109	<10	821
CC54604		<0.01	<10	<10	14	<10	193
CC54605		<0.01	<10	<10	12	<10	131
CC54606		<0.01	<10	<10	6	<10	91
CC54607		<0.01	<10	<10	8	<10	95
CC54608		<0.01	<10	<10	5	<10	99
CC54609		<0.01	<10	<10	5	<10	100
CC54610		<0.01	<10	<10	7	<10	85
CC54611		<0.01	<10	<10	5	<10	88
CC54612		<0.01	<10	<10	9	<10	91
CC54613		0.01	<10	<10	10	<10	110
CC54614		<0.01	<10	<10	8	<10	105
CC54615		<0.01	<10	<10	12	<10	190
CC54616		<0.01	<10	<10	41	<10	395
CC54617		<0.01	<10	<10	49	<10	675
CC55091		<0.01	<10	<10	19	<10	325
CC55092		0.01	<10	<10	14	<10	300
CC55093		0.01	<10	<10	18	<10	110



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Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm
		0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01	10
CC55094		0.28	0.6	0.34	24	<10	60	<0.5	<2	2.29	<0.5	4	10	11	3.81	<10
CC55095		0.26	0.8	0.39	61	<10	210	<0.5	4	9.95	4.2	3	7	12	9.17	<10
CC55096		0.20	<0.2	0.53	15	<10	50	<0.5	<2	0.08	<0.5	4	12	11	2.14	<10
CC55097		0.24	0.2	0.68	33	<10	170	<0.5	<2	0.38	<0.5	5	17	12	2.52	<10
CC55098		0.24	0.2	0.97	35	<10	60	<0.5	<2	0.13	0.5	7	24	24	2.77	<10
CC55099		0.26	1.0	0.43	32	<10	510	<0.5	3	6.91	11.7	3	9	19	8.55	<10
CC55100		0.26	2.0	0.16	84	<10	110	<0.5	3	8.06	9.9	3	7	17	12.15	<10



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Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th
	Units LOR	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
		1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2	1	1	20
CC55094		<1	0.02	20	0.04	1795	1	<0.01	29	2120	106	0.02	<2	3	89	<20
CC55095		<1	0.01	10	6.40	4870	6	0.01	47	710	144	0.04	11	1	337	<20
CC55096		<1	0.02	10	0.07	152	4	<0.01	22	940	22	0.03	2	<1	8	<20
CC55097		<1	0.02	10	0.08	603	3	0.01	59	600	44	0.04	5	2	32	<20
CC55098		<1	0.03	10	0.25	481	3	0.01	70	790	37	0.03	6	1	28	<20
CC55099		1	0.01	10	4.20	8960	3	0.01	35	770	81	0.09	8	2	164	<20
CC55100		<1	0.01	10	3.52	8860	6	0.01	26	660	366	0.35	10	2	166	<20



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Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Ti %	Ti ppm	U ppm	V ppm	W ppm	Zn ppm
		0.01	10	10	1	10	2
CC55094		<0.01	<10	<10	12	<10	63
CC55095		<0.01	<10	<10	46	10	5280
CC55096		0.01	<10	<10	34	<10	181
CC55097		0.01	<10	<10	29	<10	153
CC55098		0.03	<10	<10	33	<10	365
CC55099		0.01	<10	<10	59	20	7980
CC55100		<0.01	<10	<10	30	10	4610

**APPENDIX V**

**REPORT ON A HELICOPTER-BORNE VERSATILE TIME DOMAIN  
ELECTROMAGNETIC (VTEM) GEOPHYSICAL SURVEY**

**REPORT ON A HELICOPTER-BORNE  
VERSATILE TIME DOMAIN ELECTROMAGNETIC (VTEM)  
GEOPHYSICAL SURVEY**



**BOB Project  
Yukon, Canada**

**For:  
ARCHER CATHRO & ASSOCIATES LTD.**

**By**

**Geotech Ltd.  
245 Industrial Parkway North  
Aurora, Ont., CANADA, L4G 4C4  
Tel: 1.905.841.5004  
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[www.geotech.ca](http://www.geotech.ca)  
Email: [info@geotech.ca](mailto:info@geotech.ca)**

**Survey flown during July, 2008**

**Project 8077**

**November, 2008**

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# REPORT ON A HELICOPTER-BORNE VERSATILE TIME DOMAIN ELECTROMAGNETIC SURVEY

BOB Project  
Yukon, Canada

## **Executive Summary**

During July 20<sup>th</sup> to July 22<sup>nd</sup>, 2008 Geotech Ltd. carried out a helicopter-borne geophysical survey for Archer Cathro & Associates Ltd. over one (1) block of the Bob Project situated in the Yukon, Canada.

Principal geophysical sensors included a versatile time domain electromagnetic (VTEM) system, and a caesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 112 line-kilometres were flown.

The survey operations were based out of Ross River, Yukon. In-field data quality assurance and preliminary processing were carried out on a daily basis during the acquisition phase. Preliminary and final data processing, including generation of final digital data and map products were undertaken from the office of Geotech Ltd. in Aurora, Ontario.

The processed survey results are presented as electromagnetic stacked profiles, and as a colour grid of the B-field EM late time channels and total magnetic intensity.

Digital data includes all electromagnetic and magnetic products, plus ancillary data including the waveform.

The survey report describes the procedures for data acquisition, processing, final image presentation and the specifications for the digital data set. No formal interpretation is included.

# 1. INTRODUCTION

## 1.1 General Considerations

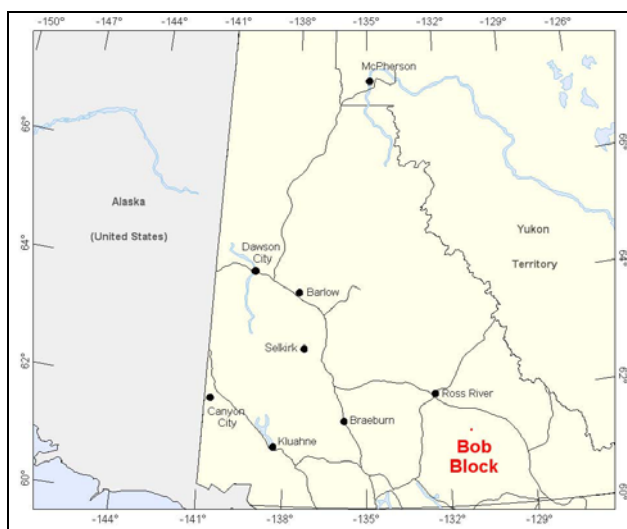
These services are the result of the Agreement made between Geotech Ltd. and Archer Cathro & Associates Ltd. to perform a helicopter-borne geophysical survey over the Bob property block located near Ross River, Yukon, Canada (Figure 1).

Matt Dumala acted on behalf of Archer Cathro & Associates Ltd. during the data acquisition and data processing phases of this project.

The geophysical surveys consisted of helicopter borne EM using the versatile time-domain electromagnetic (VTEM) system and aeromagnetics using a caesium magnetometer. A total of 112 line-km of geophysical data were acquired during the survey. The survey area is shown in Figure 2.

The crew was based out of Ross River, Yukon for the acquisition phase of the survey. Survey flying started on July 20<sup>th</sup> and was completed on July 22<sup>nd</sup>, 2008

Data quality control and quality assurance, and preliminary data processing were carried out on a daily basis during the acquisition phase of the project. Final data processing followed immediately after the end of the survey. Final reporting, data presentation and archiving were completed from the Aurora office of Geotech Ltd. in November, 2008.



**Figure 1 - Property Location**

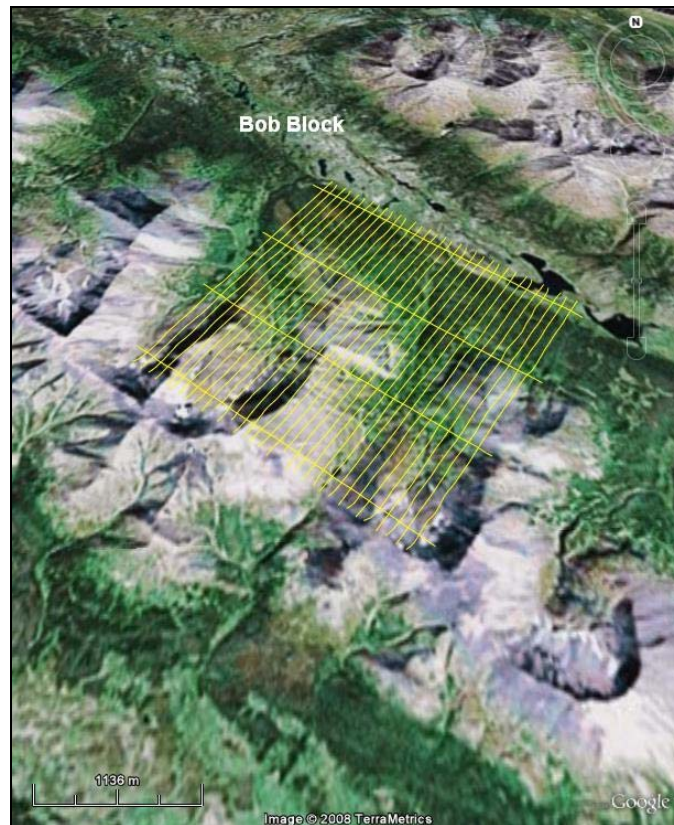
## 1.2 Survey Location and Specifications

The Bob block (61°19'18.83"N, 131°11'48.94"W) is located approximately 100 kilometres south-east of Ross River, Yukon, the base of operations for the survey.

The survey block was flown in a north-east (N 40° E) direction with a traverse line spacing of 100 metres, as depicted in Figure 2. Tie lines were flown perpendicular to the traverse lines at a spacing of 980 metres in the direction of N 130° E. For more detailed information on the flight spacing and direction see Table 1.

## 1.3 Topographic Relief and Cultural Features

Topographically, the property exhibits large relief, with elevations ranging from 1207 to 1861 metres above sea level (see Figure 2). There are many small rivers and streams that run throughout the block. There are no roads leading to the block, making it accessible only by air. The survey block is covered by NTS (National Topographic Survey) of Canada sheet 105G06.



**Figure 2 - Google Earth Image with Flight Paths**

## 2. DATA ACQUISITION

### 2.1 Survey Area

The survey block (see Location map, Figure 2) and general flight specifications are as follows:

**Table 1** - Survey blocks

Survey block	Line spacing (m)	Area (Km <sup>2</sup> )	Planned Line-km	Actual Line-km <sup>1</sup>	Flight direction	Line number
Bob	Traverse: 100	11	99	108	N 40°E	L3700 - 4020
	Tie: 980		13	14	N 130°E	T4100 - 4130
<b>TOTAL</b>		11	112	122		

Survey block boundaries co-ordinates are provided in Appendix B.

### 2.2 Survey Operations

Survey operations were based out of Ross River, Yukon from July 20<sup>th</sup> to July 22<sup>nd</sup>, 2008. The following table shows the timing of the flying.

**Table 2** - Survey schedule

Date	Flight #	Flown KM	Block	Crew location	Comments
20-July-08	48	48	BOB	Ross River, Yukon	Limited production – low ceiling and rain
21-July-08				Ross River, Yukon	No production – low ceiling, rain
22-July-08	49, 50	61	BOB	Ross River, Yukon	Production aborted – low ceiling, rain

<sup>1</sup>NOTE: Actual line-km represents the total line-km contained in the final databases. These line-km normally exceed the Planned line-km, as indicated in the survey NAV files.

## 2.3 Flight Specifications

The helicopter was maintained at a mean height of 72 metres above the ground with a nominal survey speed of 80 km/hour. This allowed for a nominal EM sensor terrain clearance of 41 metres and a magnetic sensor clearance of 63 metres. The data recording rates of the data acquisition was 0.1 second for electromagnetics, magnetometer and 0.2 second for altimeter and GPS. This translates to a geophysical reading about every 2 metres along flight track. Navigation was assisted by a CDGPS receiver and data acquisition system, which reports GPS co-ordinates as latitude/longitude and directs the pilot over a pre-programmed survey grid.

The operator was responsible for monitoring of the system integrity. He also maintained a detailed flight log during the survey, tracking the times of the flight as well as any unusual geophysical or topographic feature.

On return of the aircrew to the base camp the survey data was transferred from a compact flash card (PCMCIA) to the data processing computer. The data were then uploaded via ftp to the Geotech office in Aurora for daily quality assurance and quality control by qualified personnel, operating remotely.

## 2.4 Aircraft and Equipment

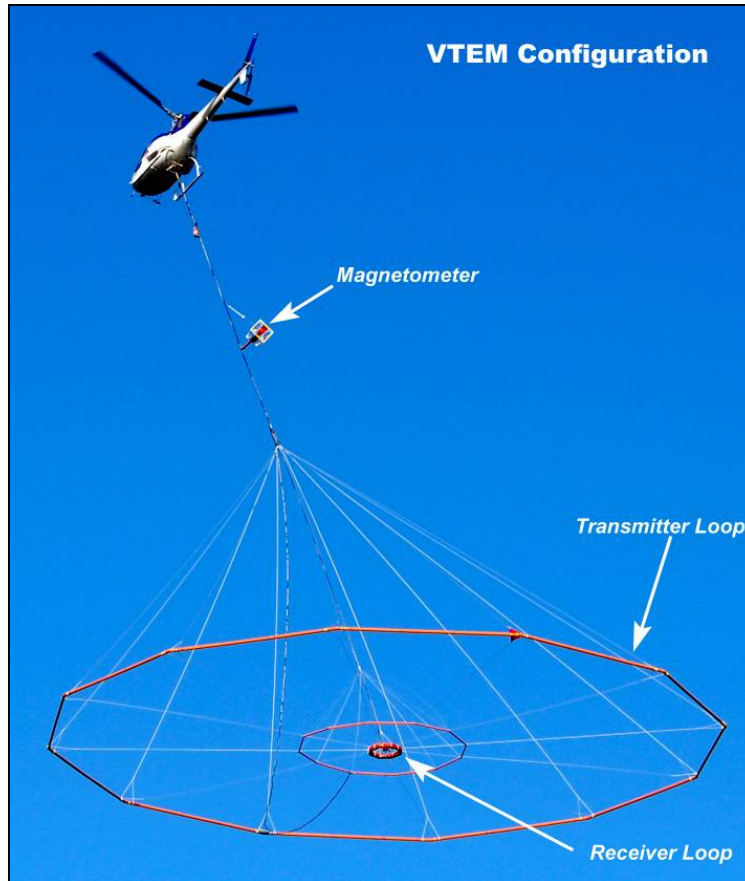
### 2.4.1 Survey Aircraft

The survey was flown using a Eurocopter Aerospatiale (Astar) 350 B3 helicopter, registration C-GTRK. The helicopter was operated by TRK Helicopters Ltd. Installation of the geophysical and ancillary equipment was carried out by Geotech Ltd.

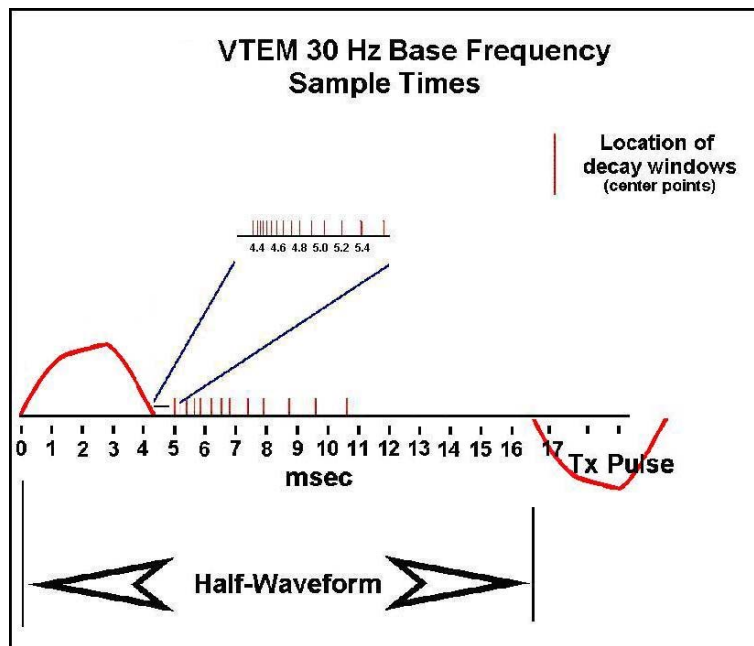
### 2.4.2 Electromagnetic System

The electromagnetic system was a Geotech Time Domain EM (VTEM) system. The configuration is as indicated in Figure 3 below.

Receiver and transmitter coils are concentric and Z-direction oriented. The coils were towed at a mean distance of 35 metres below the aircraft as shown in Figure 5. The receiver decay recording scheme is shown diagrammatically in Figure 4.



**Figure 3 - VTEM Configuration**



**Figure 4 – VTEM Short Pulse Waveform & Sample Times**

The VTEM decay sampling scheme is shown in Table 3 below. Twenty six measurement gates (ch 10-35) were used for the final data processing in the range from 120 ms to 9245 ms, as shown in Table 5.

**Table 3 – Decay Sampling Scheme**

<b>VTEM Decay Sampling scheme</b>				
<b>Array Index</b>	<b>( Microseconds )</b>			
	<b>Time Gate</b>	<b>Start</b>	<b>End</b>	<b>Width</b>
0	0			
1	10	10	21	11
2	21	16	26	11
3	31	26	37	11
4	42	37	47	11
5	52	47	57	10
6	62	57	68	11
7	73	68	78	11
8	83	78	91	13
9	99	91	110	19
10	120	110	131	21
11	141	131	154	24
12	167	154	183	29
13	198	183	216	34
14	234	216	258	42
15	281	258	310	53
16	339	310	373	63
17	406	373	445	73
18	484	445	529	84
19	573	529	628	99
20	682	628	750	123
21	818	750	896	146
22	974	896	1063	167
23	1151	1063	1261	198
24	1370	1261	1506	245
25	1641	1506	1797	292
26	1953	1797	2130	333
27	2307	2130	2526	396
28	2745	2526	3016	490
29	3286	3016	3599	583
30	3911	3599	4266	667
31	4620	4266	5058	792
32	5495	5058	6037	979
33	6578	6037	7203	1167
34	7828	7203	8537	1334
35	9245	8537	10120	1584

VTEM system parameters:

Transmitter Section

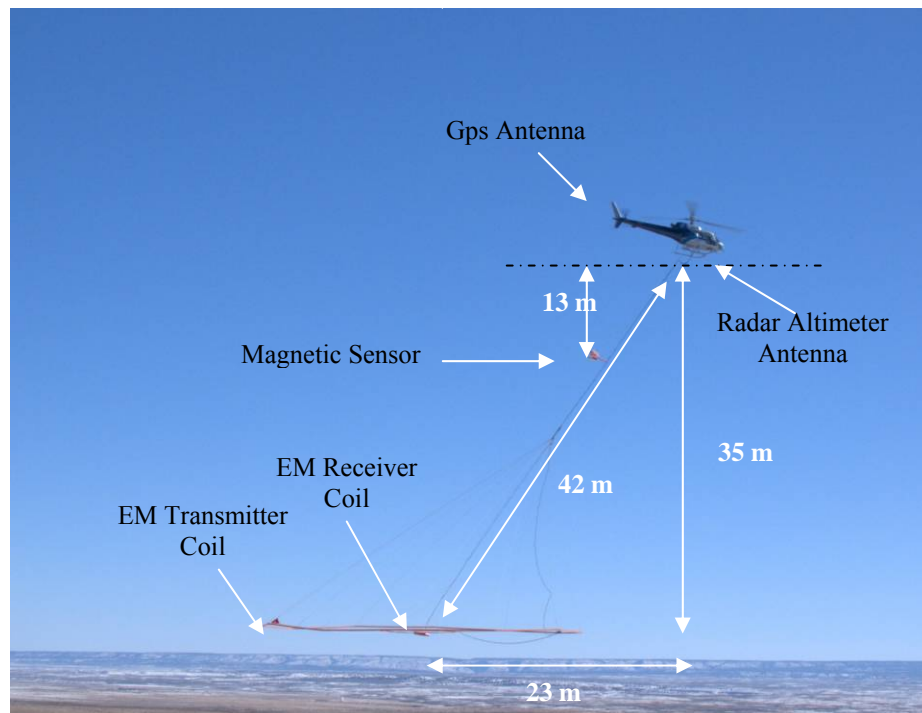
- Transmitter coil diameter: 26 m
- Number of turns: 4
- Transmitter base frequency: 30 Hz
- Peak current: 179 A
- Pulse width: 4.2 ms
- Pulse width: Duty cycle: 44%
- Peak dipole moment: 556,400 nIA
- Nominal terrain clearance: 39 m

Receiver Section

- Receiver coil diameter: 1.2 m
- Number of turns: 100.
- Effective coil area: 113.1 m<sup>2</sup>
- Wave form shape: trapezoid
- Power Line Monitor: 60 Hz

Magnetometer

- Nominal terrain clearance: 61 m



**Figure 5 - VTEM system configuration**

### 2.4.3 Airborne magnetometer

The magnetic sensor utilized for the survey was a Geometrics optically pumped caesium vapour magnetic field sensor, mounted in a separate bird, 13 metres below the helicopter, as shown in Figure 5. The sensitivity of the magnetic sensor is 0.02 nanoTesla (nT) at a sampling interval of 0.1 seconds. The magnetometer sends the measured magnetic field strength as nanoTesla to the data acquisition system via the RS-232 port.

### 2.4.4 Radar Altimeter

A Terra TRA 3000/TRI 40 radar altimeter was used to record terrain clearance. The antenna was mounted beneath the bubble of the helicopter cockpit (Figure 5).

### 2.4.5 GPS Navigation System

The navigation system used was a Geotech PC104 based navigation system utilizing a NovAtel's CDGPS (Canada-Wide Differential Global Positioning System Correction Service) enable OEM4-G2-3151W GPS receiver, Geotech navigate software, a full screen display with controls in front of the pilot to direct the flight and an NovAtel GPS antenna mounted on the helicopter tail (Figure 5). As many as 11 GPS and two CDGPS satellites may be monitored at any one time. The positional accuracy or circular error probability (CEP) is 1.8 m, with CDGPS active, it is 1.0 m. The co-ordinates of the block were set-up prior to the survey and the information was fed into the airborne navigation system.

### 2.4.6 Digital Acquisition System

A Geotech data acquisition system recorded the digital survey data on an internal compact flash card. Data is displayed on an LCD screen as traces to allow the operator to monitor the integrity of the system. The data type and sampling interval as provided in Table 4.

**Table 4** – Acquisition Sampling Rates

DATA TYPE	SAMPLING
TDEM	0.1 sec
Magnetometer	0.1 sec
GPS Position	0.2 sec
Radar Altimeter	0.2 sec

#### **2.4.7 Base Station**

A combined magnetometer/GPS base station was utilized on this project. A Geometrics Caesium vapour magnetometer was used as a magnetic sensor with a sensitivity of 0.001 nT. The base station was recording the magnetic field together with the GPS time at 1 Hz on a base station computer.

The base station magnetometer sensor was installed on the apron at the airport in Ross River, Yukon ( $61^{\circ}58'21.77''\text{N}$ ,  $132^{\circ}25'37.56''\text{W}$ ), away from electric transmission lines and moving ferrous objects such as motor vehicles. The base station data were backed-up to the data processing computer at the end of each survey day.

### 3. PERSONNEL

The following Geotech Ltd. personnel were involved in the project.

Field:

Project Manager:	Les Moschuk (office)
Data QC/QA:	Nick Venter (office)
Crew chief:	Ryan MacIver
System Operator:	Jason McKinnon

The survey pilot and the mechanical engineer were employed directly by the helicopter operator – Guardian Helicopters Inc.

Pilot:	Randy Marks
Mechanical Engineer:	Chris Ward

Office:

Preliminary Data Processing:	Nick Venter
Final Data Processing:	Neil Fiset
Mapping/Reporting:	Kyle Orlovski

Data acquisition phase was carried out under the supervision of Andrei Bagrianski, P. Geo, Surveys Manager. Processing phase was carried out under the supervision of Jean Legault, P. Geo, Manager of Processing and Interpretation. The overall contract management and customer relations were by Paolo Berardelli.

## 4. DATA PROCESSING AND PRESENTATION

Data compilation and processing were carried out by the application of Geosoft OASIS Montaj and programs proprietary to Geotech Ltd.

### 4.1 Flight Path

The flight path, recorded by the acquisition program as WGS 84 latitude/longitude, was converted into the NAD83 Datum, UTM Zone 9 North coordinate system in Oasis Montaj.

The flight path was drawn using linear interpolation between x, y positions from the navigation system. Positions are updated every second and expressed as UTM easting's (x) and UTM northing's (y).

### 4.2 Electromagnetic Data

A three stage digital filtering process was used to reject major spheric events and to reduce system noise. Local spheric activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major spheric events. The filter used was a 16 point non-linear filter.

The signal to noise ratio was further improved by the application of a low pass linear digital filter. This filter has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 1 second or 15 metres. This filter is a symmetrical 1 sec linear filter.

The results are presented as stacked profiles of EM voltages for the time gates, in linear - logarithmic scale for both B-field and dB/dt response. B-field time channel recorded at 1.641 milliseconds after the termination of the impulse is also presented as contour colour image.

Graphical representations of the VTEM transmitter current waveform and the output voltage of the receiver coil are shown in Appendix C.

Generalized modeling results of VTEM data, written by consultant Roger Barlow and Nasreddine Bournas, P. Geo., are shown in Appendix E.

### 4.3 Magnetic Data

The processing of the magnetic data involved the correction for diurnal variations by using the digitally recorded ground base station magnetic values. The base station magnetometer data was edited and merged into the Geosoft GDB database on a daily basis. The aeromagnetic data was corrected for diurnal variations by subtracting the observed magnetic base station deviations.

Tie line levelling was carried out by adjusting intersection points along traverse lines. A micro-levelling procedure was applied to remove persistent low-amplitude components of flight-line noise remaining in the data.

The corrected magnetic data was interpolated between survey lines using a random point gridding method to yield x-y grid values for a standard grid cell size of approximately 0.2 cm at the mapping scale. The Minimum Curvature algorithm was used to interpolate values onto a rectangular regular spaced grid.

## 5. DELIVERABLES

### 5.1 Survey Report

The survey report describes the data acquisition, processing, and final presentation of the survey results.

The survey report is provided in two paper copies and digitally in PDF format.

### 5.2 Maps

Final maps were produced at scale of 1:10,000. The coordinate/projection system used was NAD 83, UTM Zone 9 North. All maps show the flight path trace and topographic data; latitude and longitude are also noted on maps.

The preliminary and final results of the survey are presented as EM profiles, a late-time gate gridded EM channel, and color magnetic TMI contour maps. The following maps are presented on paper;

- VTEM B-field profiles, Time Gates 0.234 – 9.245 ms in linear - logarithmic scale over total magnetic intensity colour grid and.
- VTEM dB/dt profiles, Time Gates 0.234 – 9.245 ms in linear – logarithmic scale.
- VTEM B-field late time, Time Gate 1.641 ms colour image.
- Total magnetic intensity (TMI) colour image and contours.

### 5.3 Digital Data

- Two copies of the data and maps on DVD were prepared to accompany the report. Each DVD contains a digital file of the line data in GDB Geosoft Montaj format as well as the maps in Geosoft Montaj Map and PDF format.
- DVD structure.

There are two (2) main directories;

<b>Data</b>	contains databases, grids and maps, as described below.
<b>Report</b>	contains a copy of the report and appendices in PDF format.

Databases in Geosoft GDB format, containing the channels listed in Table 5.

**Table 5 – Geosoft GDB Data Format.**

<b>Channel Name</b>	<b>Description</b>
X:	X positional data (metres – NAD83, UTM zone 9 north)
Y:	Y positional data (metres – NAD83, UTM zone 9 north)
Z:	GPS antenna elevation (metres - ASL)
Lon:	Longitude data (degree – WGS84)
Lat:	Latitude data (degree – WGS84)
Radar:	Helicopter terrain clearance from radar altimeter (metres - AGL)
RadarB:	EM Bird terrain clearance from radar altimeter (metres - AGL)
DEM:	Digital elevation model (metres)
Gtime:	GPS time (seconds of the day)
Mag1:	Raw Total Magnetic field data (nT)
Basemag:	Magnetic diurnal variation data (nT)
Mag2:	Diurnal corrected Total Magnetic field data (nT)
Mag3:	Leveled Total Magnetic field data (nT)
SF[10]:	dB/dt 120 microsecond time channel $pV/(A*m^4)$
SF[11]:	dB/dt 141 microsecond time channel $pV/(A*m^4)$
SF[12]:	dB/dt 167 microsecond time channel $pV/(A*m^4)$
SF[13]:	dB/dt 198 microsecond time channel $pV/(A*m^4)$
SF[14]:	dB/dt 234 microsecond time channel $pV/(A*m^4)$
SF[15]:	dB/dt 281 microsecond time channel $pV/(A*m^4)$
SF[16]:	dB/dt 339 microsecond time channel $pV/(A*m^4)$
SF[17]:	dB/dt 406 microsecond time channel $pV/(A*m^4)$
SF[18]:	dB/dt 484 microsecond time channel $pV/(A*m^4)$
SF[19]:	dB/dt 573 microsecond time channel $pV/(A*m^4)$
SF[20]:	dB/dt 682 microsecond time channel $pV/(A*m^4)$
SF[21]:	dB/dt 818 microsecond time channel $pV/(A*m^4)$
SF[22]:	dB/dt 974 microsecond time channel $pV/(A*m^4)$
SF[23]:	dB/dt 1151 microsecond time channel $pV/(A*m^4)$
SF[24]:	dB/dt 1370 microsecond time channel $pV/(A*m^4)$
SF[25]:	dB/dt 1641 microsecond time channel $pV/(A*m^4)$
SF[26]:	dB/dt 1953 microsecond time channel $pV/(A*m^4)$
SF[27]:	dB/dt 2307 microsecond time channel $pV/(A*m^4)$
SF[28]:	dB/dt 2745 microsecond time channel $pV/(A*m^4)$
SF[29]:	dB/dt 3286 microsecond time channel $pV/(A*m^4)$
SF[30]:	dB/dt 3911 microsecond time channel $pV/(A*m^4)$
SF[31]:	dB/dt 4620 microsecond time channel $pV/(A*m^4)$
SF[32]:	dB/dt 5495 microsecond time channel $pV/(A*m^4)$
SF[33]:	dB/dt 6578 microsecond time channel $pV/(A*m^4)$
SF[34]:	dB/dt 7828 microsecond time channel $pV/(A*m^4)$

Channel Name	Description
SF[35]:	dB/dt 9245 microsecond time channel $\text{pV}/(\text{A}\cdot\text{m}^4)$
BF[10]:	B-field 120 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[11]:	B-field 141 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[12]:	B-field 167 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[13]:	B-field 198 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[14]:	B-field 234 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[15]:	B-field 281 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[16]:	B-field 339 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[17]:	B-field 406 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[18]:	B-field 484 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[19]:	B-field 573 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[20]:	B-field 682 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[21]:	B-field 818 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[22]:	B-field 974 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[23]:	B-field 1151 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[24]:	B-field 1370 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[25]:	B-field 1641 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[26]:	B-field 1953 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[27]:	B-field 2307 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[28]:	B-field 2745 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[29]:	B-field 3286 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[30]:	B-field 3911 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[31]:	B-field 4620 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[32]:	B-field 5495 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[33]:	B-field 6578 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[34]:	B-field 7828 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
BF[35]:	B-field 9245 microsecond time channel $(\text{pV}\cdot\text{ms})/(\text{A}\cdot\text{m}^4)$
PLM:	Power Line monitor (60Hz)
Distance:	Distance between observations (metres)

Electromagnetic B-field and dB/dt data is found in array channel format between indexes 10 – 35, as described above.

- Database of the VTEM Waveform “VTEM\_waveform.gdb” in Geosoft GDB format, containing the following channels:

Time: Sampling rate interval, 10.416 microseconds  
 Rx\_Volt: Output voltage of the receiver coil (Volt)  
 Tx\_Curr: Output current of the transmitter (Amp)

- Grids in Geosoft GRD format, as follows:

BF25\_Bob: B-Field Channel 25 (Time Gate 1.641 ms)  
 Mag3\_Bob: Total magnetic intensity (nT)

A Geosoft .GRD file has a .GI metadata file associated with it, containing grid projection information. A grid cell size of 25 metres was used.

- Maps at 1:10,000 in Geosoft MAP format, as follows:

8077\_Bfield\_Bob: B-field profiles, Time Gates 0.234 – 9.245 ms in linear logarithmic scale over TMI.  
 8077\_dBdt\_Bob: dB/dt profiles, Time Gates 0.234 – 9.245 ms in linear logarithmic scale.  
 8077\_BF\_Bob: B-field Time Gate 1.641 ms colour image.  
 8077\_TMI\_Bob: Total magnetic intensity colour image and contours.

Maps are also presented in PDF and MapInfo format.

1:50,000 topographic vectors were taken from the NRCAN Geogratis database at; <http://geogratis.gc.ca/geogratis/en/index.html>.

- Google Earth files *8077\_Bob\_flightpath.kml* showing the flight path of each block. Free versions of Google Earth software from: <http://earth.google.com/download-earth.html>

## 6. CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Conclusions

A helicopter-borne versatile time domain electromagnetic (VTEM) geophysical survey has been completed over the Bob Project, in the Yukon Territory, Canada.

The total area coverage is 11 km<sup>2</sup>. Total survey line coverage is 112 line kilometres. The principal sensors included a Time Domain EM system and a magnetometer. Results have been presented as stacked profiles and contour colour images at a scale of 1:10,000. No formal interpretation is included in this report.

### 6.2 Recommendations

Based on the geophysical results obtained, a large number of interesting EM and magnetic anomaly groupings were identified across the property. We therefore recommend a detailed interpretation of the EM and magnetic data in conjunction with the known geology including EM anomaly picking, as well as 3D inversion and modelling techniques to further characterize the observed anomalies and to more accurately determine their parameters (depth, conductance, dip, etc.) prior to ground follow up and drill testing.

Respectfully submitted<sup>6</sup>,

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Kyle Orłowski  
**Geotech Ltd.**

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Jean Legault, P. Geo, P. Eng  
**Geotech Ltd.**

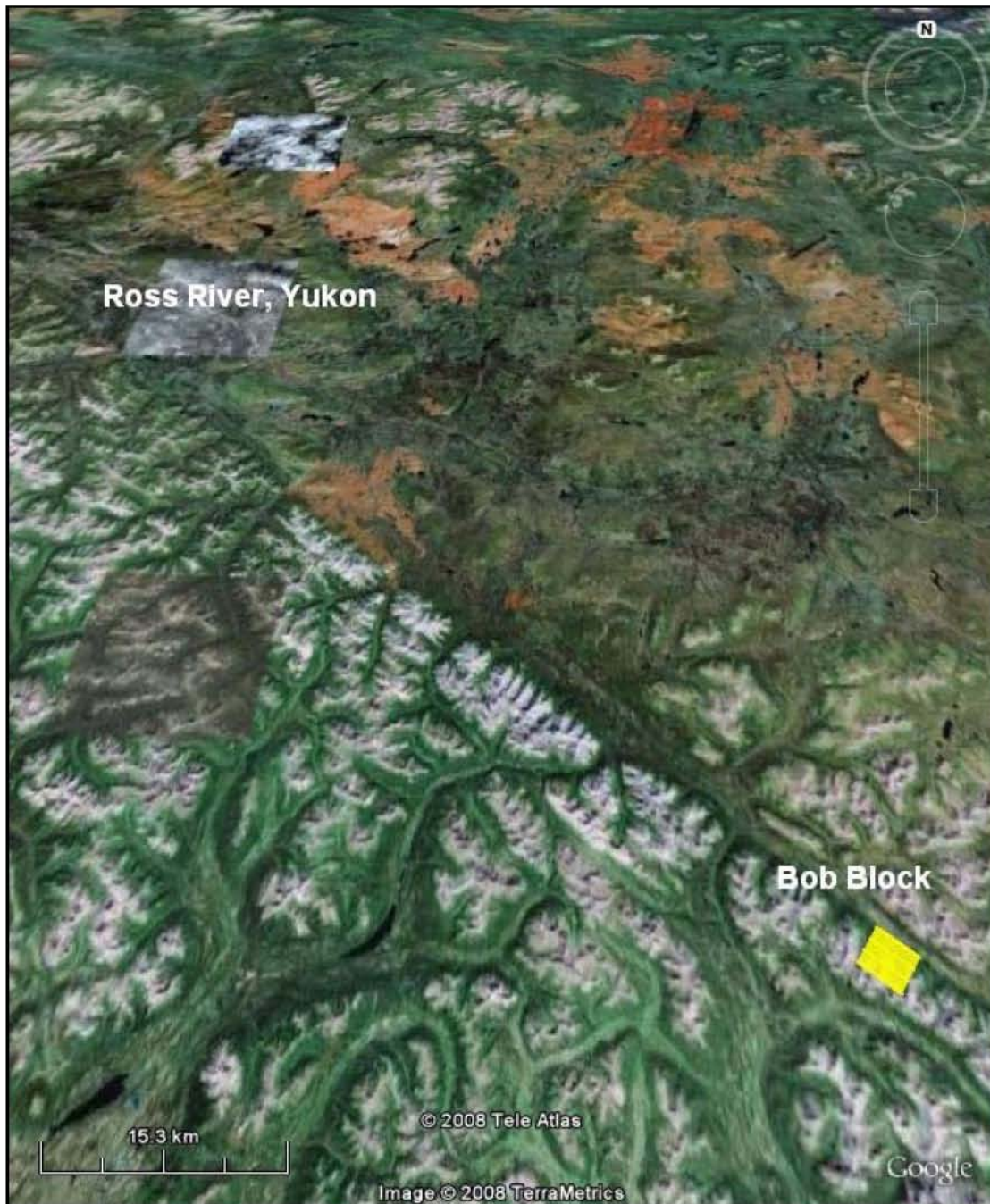
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Neil Fiset  
**Geotech Ltd.**

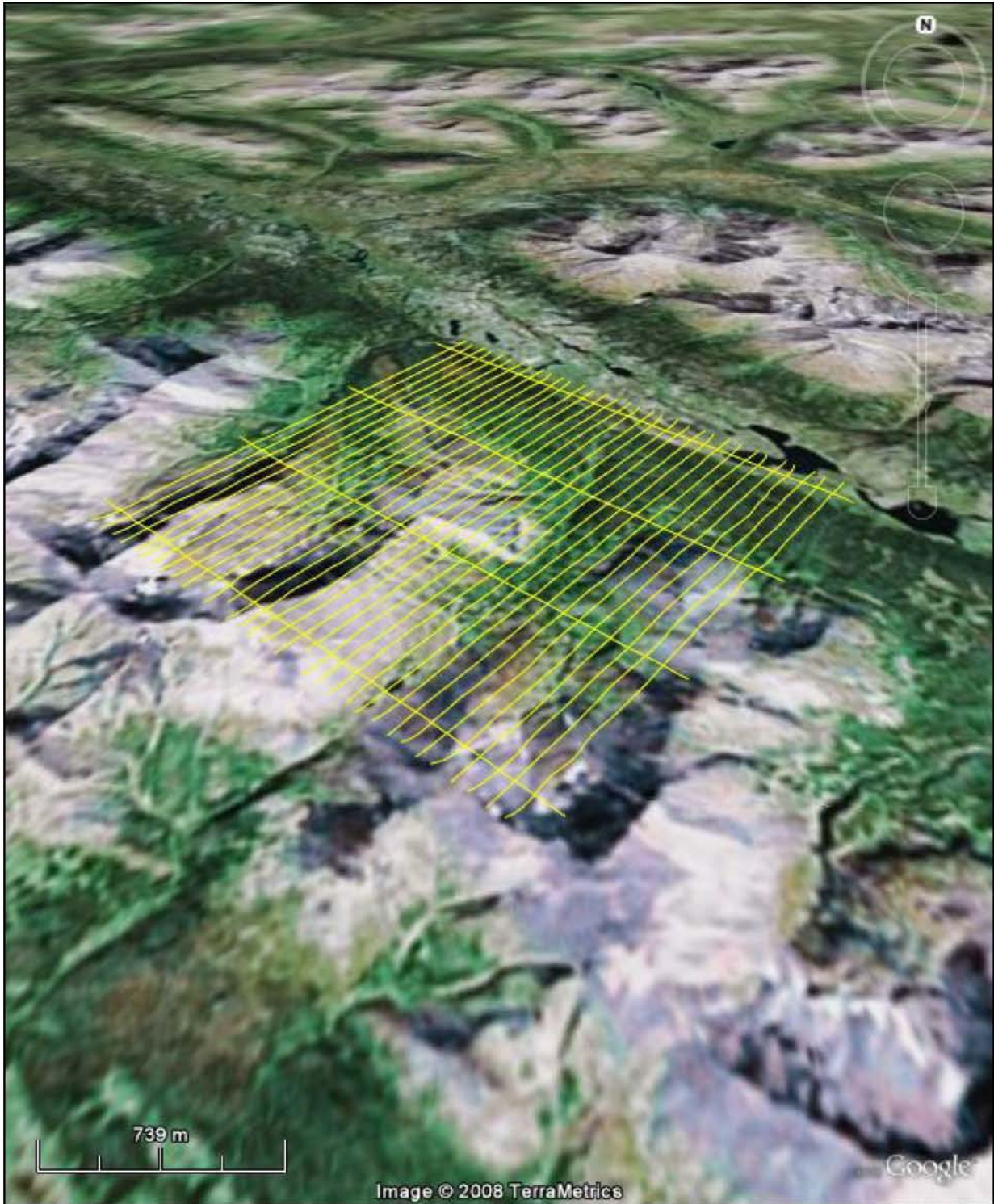
November 2008

<sup>6</sup>Final data processing and interpretation of the EM and magnetic data were carried out by Neil Fiset, from the office of Geotech Ltd. in Aurora, Ontario, under the supervision of Jean Legault, P. Geo, Manager of Data Processing and Interpretation.

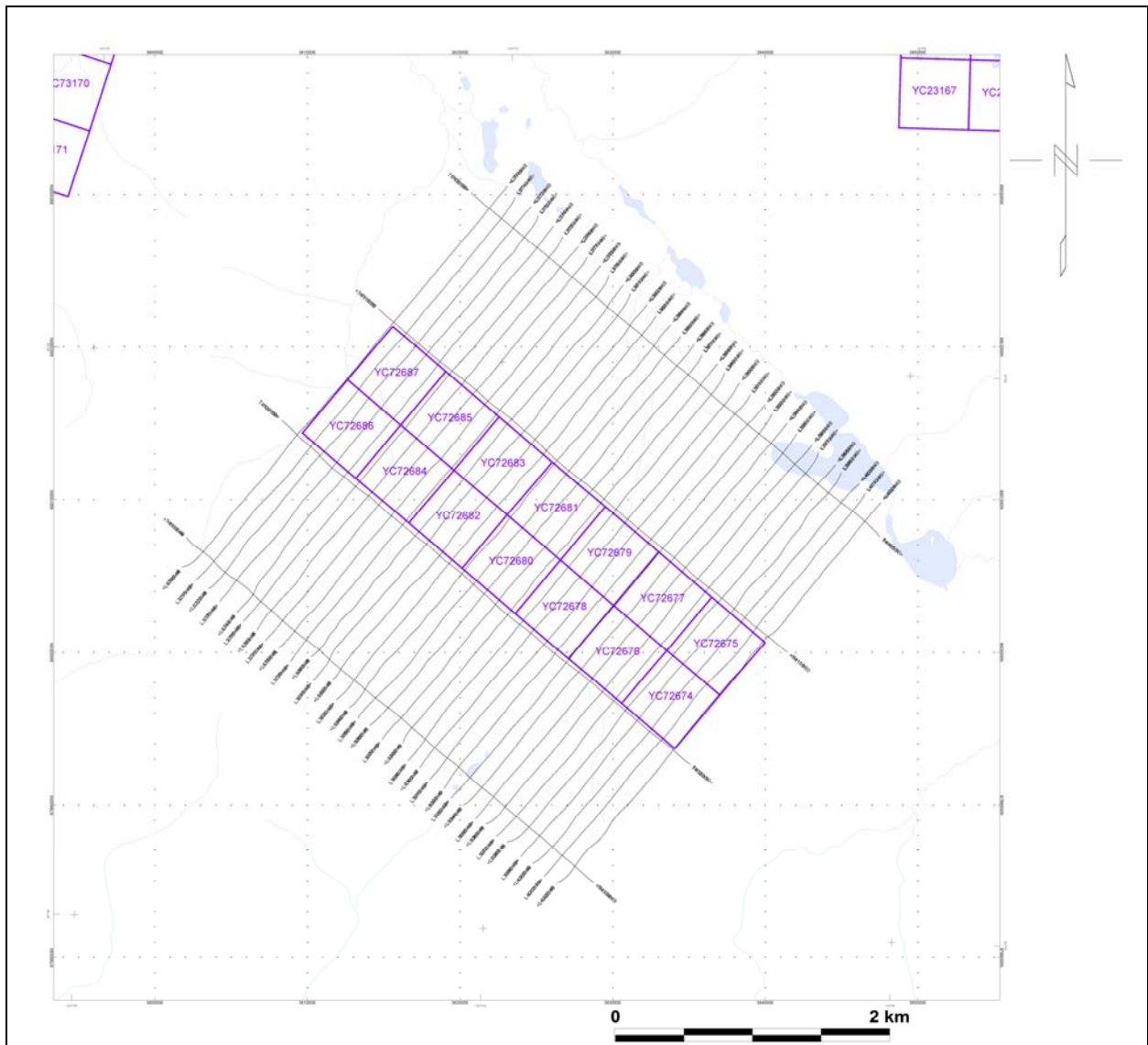
APPENDIX A  
SURVEY BLOCK LOCATION MAPS



Google Earth Image: Bob Project



**Google Earth Image: Bob Block**



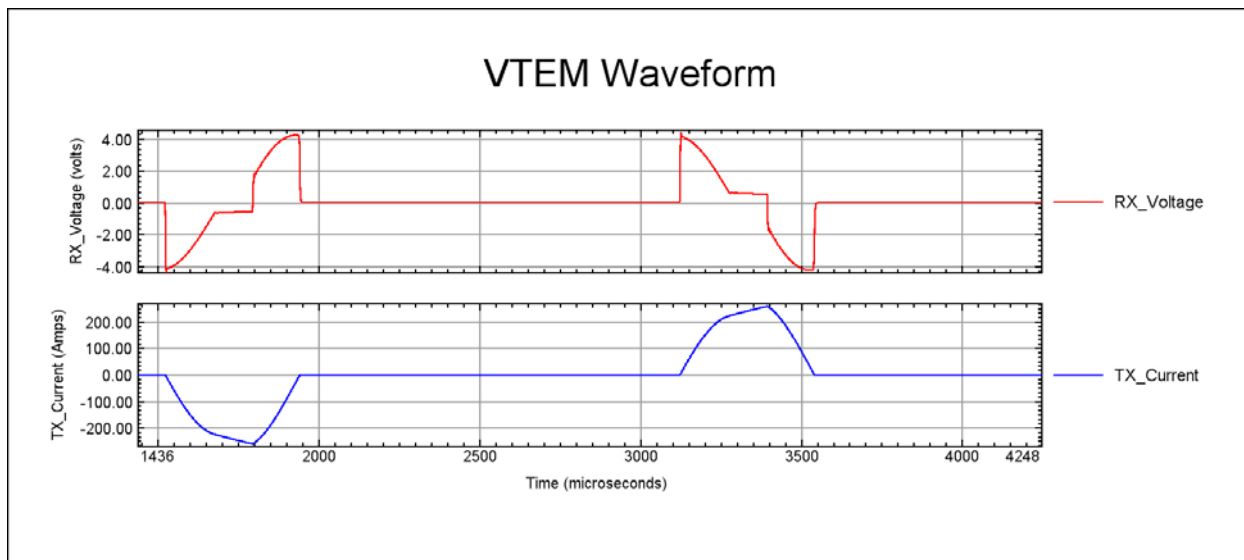
**Mining Claims Map: Bob Block**

## APPENDIX B

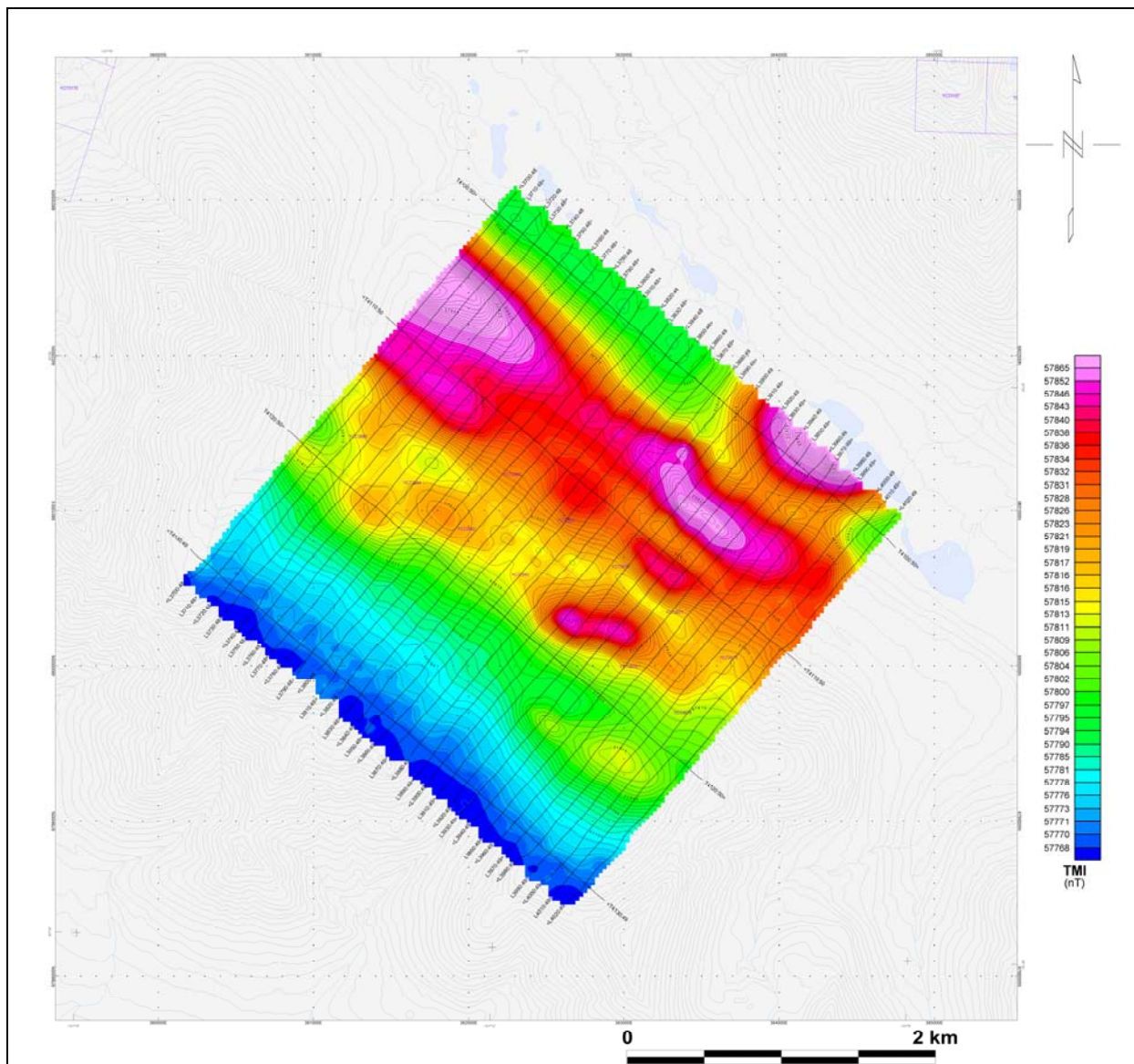
### SURVEY BLOCK COORDINATES (NAD83, UTM Zone 9 North)

Bob	
X	Y
380291	6800642
382211	6802940
384671	6800861
382741	6798563

**APPENDIX C**  
**VTEM WAVEFORM**

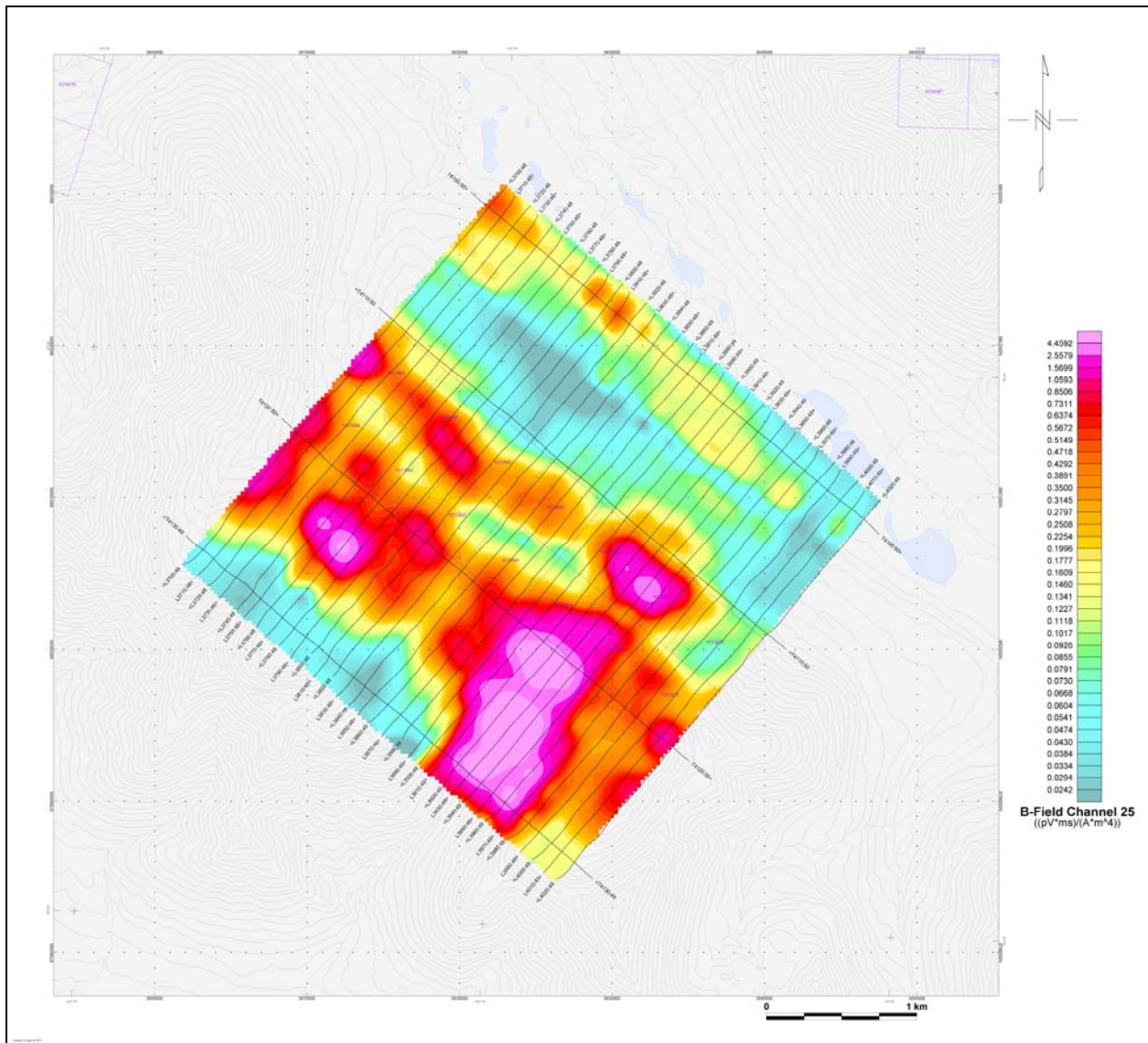


**APPENDIX D**  
**GEOPHYSICAL MAPS<sup>1</sup>**

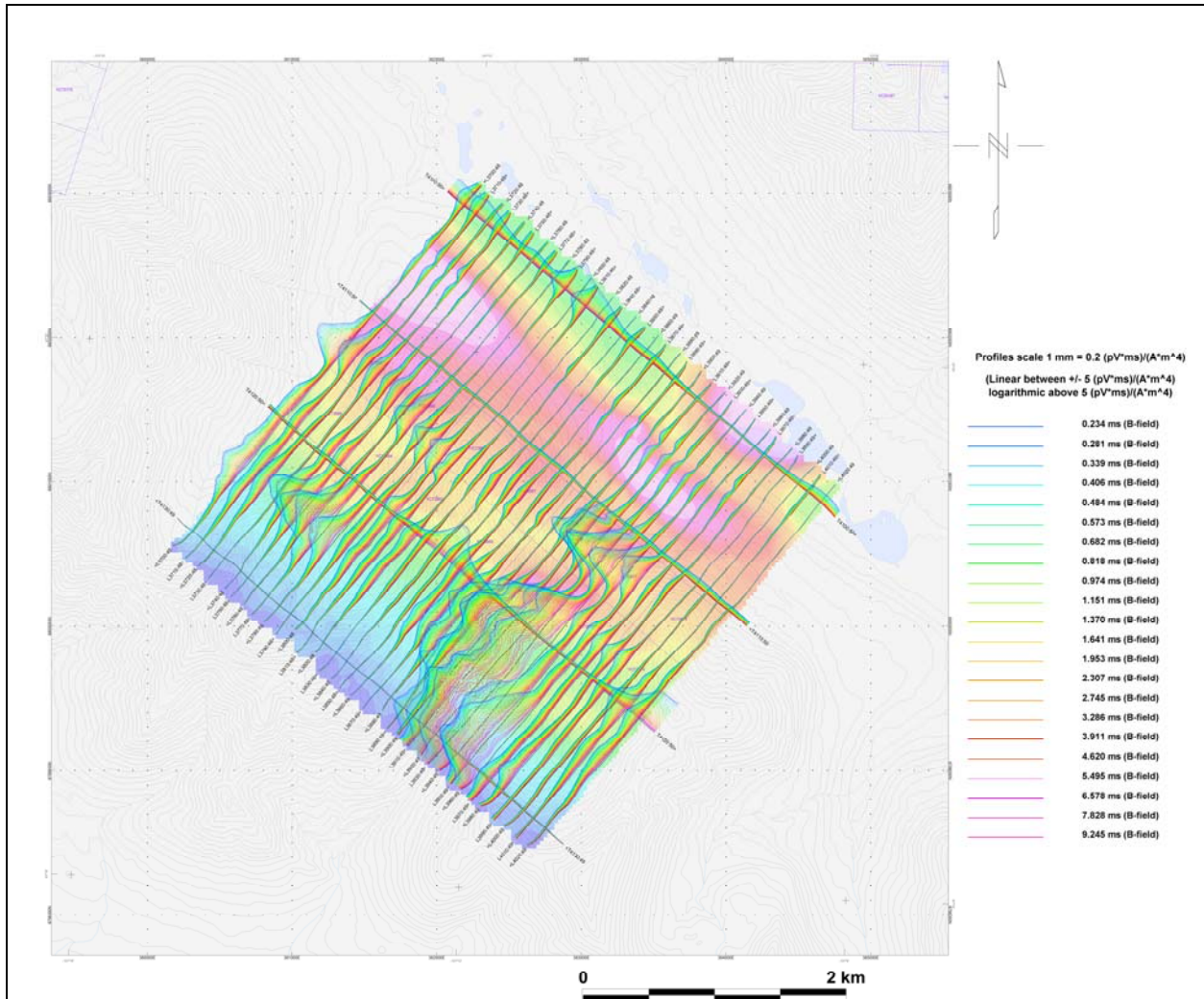


**Bob Property: Total Magnetic Intensity (TMI)**

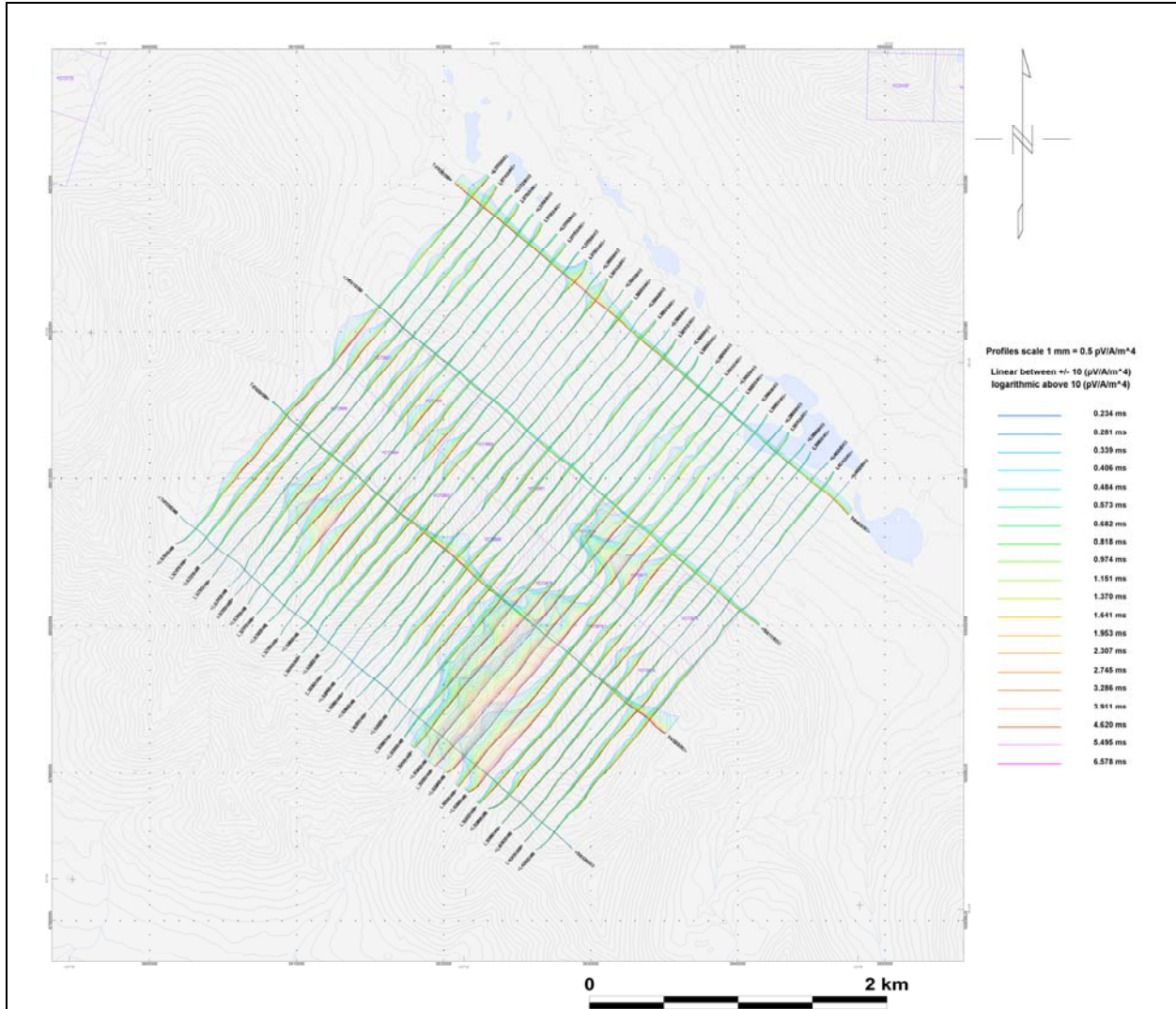
<sup>1</sup> Note: Present maps are a selection of the final geophysical maps. Full size geophysical maps are also available in PDF format on the final DVD.



**Bob Property: VTEM B-Field Contours  
- Time Gate 1.641 ms**



**Bob Property: VTEM B-Field Profiles  
 – Time Gates 0.234 to 9.245 ms, over TMI**



**Bob Property: VTEM dB/dt Profiles  
 - Time Gates 0.234 to 9.245 ms**

## APPENDIX E

### GENERALIZED MODELING RESULTS OF THE VTEM SYSTEM

#### Introduction

The VTEM system is based on a concentric or central loop design, whereby, the receiver is positioned at the centre of a 26.1 metres diameter transmitter loop that produces a dipole moment up to 384,000 nIA at peak current. The wave form is a bi-polar, modified square wave with a turn-on and turn-off at each end. With a base frequency of 30 Hz, the duration of each pulse is approximately 7.4 milliseconds followed by an off time where no primary field is present.

During turn-on and turn-off, a time varying field is produced (dB/dt) and an electro-motive force (emf) is created as a finite impulse response. A current ring around the transmitter loop moves outward and downward as time progresses. When conductive rocks and mineralization are encountered, a secondary field is created by mutual induction and measured by the receiver at the centre of the transmitter loop.

Measurements are made during the on and off-time, when only the secondary field (representing the conductive targets encountered in the ground) is present.

Efficient modeling of the results can be carried out on regularly shaped geometries, thus yielding close approximations to the parameters of the measured targets. The following is a description of a series of common models made for the purpose of promoting a general understanding of the measured results.

#### General Modeling Concepts

A set of models has been produced for the Geotech VTEM® system with explanation notes (see models C1 to C18). The reader is encouraged to review these models, so as to get a general understanding of the responses as they apply to survey results. While these models do not begin to cover all possibilities, they give a general perspective on the simple and most commonly encountered anomalies.

When producing these models, a few key points were observed and are worth noting as follows:

- For near vertical and vertical plate models, the top of the conductor is always located directly under the centre low point between the two shoulders in the classic **M** shaped response.

- As the plate is positioned at an increasing depth to the top, the shoulders of the **M** shaped response, have a greater separation distance.
- When faced with choosing between a flat lying plate and a prism model to represent the target (broad response) some ambiguity is present and caution should be exercised.
- With the concentric loop system and Z-component receiver coil, virtually all types of conductors and most geometries are most always well coupled and a response is generated (see model H). Only concentric loop systems can map this type of target.

The Maxwell <sup>TM</sup> modeling program (Fullagar and Reid, 2001) used to generate the following responses assumes a resistive half-space.

### **Variation of Plate Depth**

Geometries represented by plates of different strike length, depth extent, dip, plunge and depth below surface can be varied with characteristic parameters like conductance of the target, conductance of the host and conductivity/thickness and thickness of the overburden layer.

Diagrammatic models for a vertical plate are shown in Figures C-1 & C-2 and C-5 & C-6 at two different depths, all other parameters remaining constant. With this transmitter-receiver geometry, the classic **M** shaped response is generated. Figures C-1 and C-2 show a plate where the top is near surface. Here, amplitudes of the dual peaks are higher and symmetrical with the zero centre positioned directly above the plate. Most important is the separation distance of the peaks. This distance is small when the plate is near surface and widens with a linear relationship as the plate (depth to top) increases. Figures C-5 and C-6 show a much deeper plate where the separation distance of the peaks is much wider and the amplitudes of the channels have decreased.

### **Variation of Plate Dip**

As the plate dips and departs from the vertical position, the peaks become asymmetrical. Figures C-3 & C-4 and C-7 and C-8 show a near surface plate dipping 80° at two different depths. Note that the direction of dip is toward the high shoulder of the response and the top of the plate remains under the centre minimum.

As the dip increases, the aspect ratio (Min/Max) decreases and this aspect ratio can be used as an empirical guide to dip angles from near 90° to about 30°. The method is not sensitive enough where dips are less than about 30°. For example, for a plate dipping 45°, the minimum shoulder

starts to vanish. In Figures C-9 & C-10 and C-11 & C-12, a flat lying plate is shown, relatively near surface. Note that the twin peak anomaly has been replaced by a symmetrical shape with large, bell shaped, channel amplitudes which decay relative to the conductance of the plate.

In the special case where two plates are positioned to represent a synclinal structure. Note that the main characteristic is that the centre amplitudes are higher (approximately double) compared to the high shoulder of a single plate. This model is very representative of tightly folded formations where the conductors were once flat lying.

### **Variation of Prism Dip**

Finally, with thicker, prism models, another algorithm is required to represent current on the plate. A plate model is considered to be infinitely thin with respect to thickness and incapable of representing the current in the thickness dimension. A prism model is constructed to deal with this problem, thereby, representing the thickness of the body more accurately.

Figures C-13 & C-14 and C-15 & C-16 show the same prism at the same depths with variable dips. Aside from the expected differences asymmetry prism anomalies show a characteristic change from a double-peaked anomaly to single peak signatures.

## I. THIN PLATE

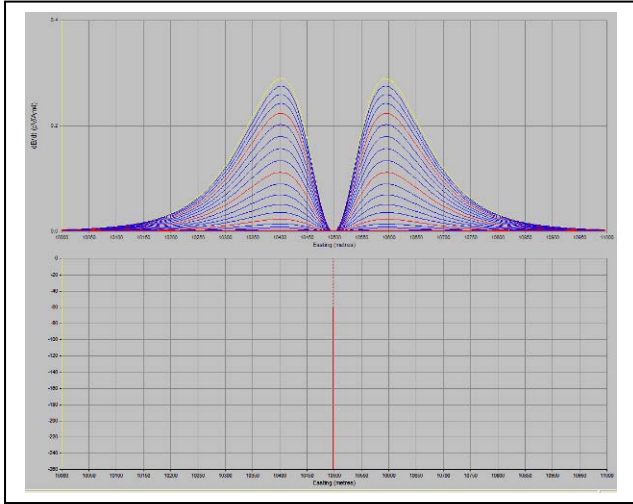


Figure C-1: dB/dt response of a shallow vertical thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

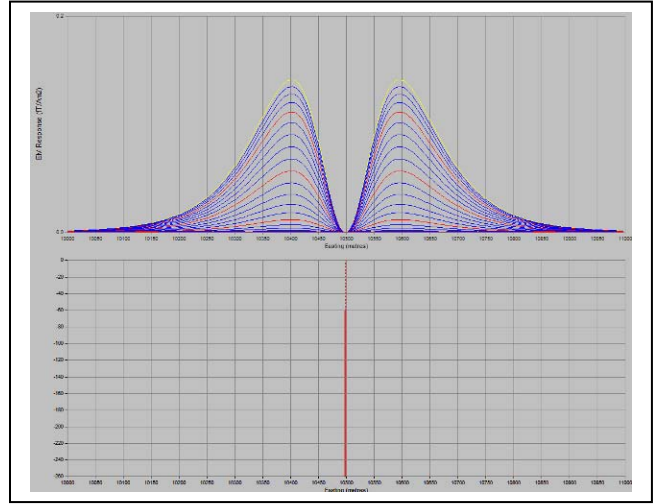


Figure C-2: B-field response of a shallow vertical thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

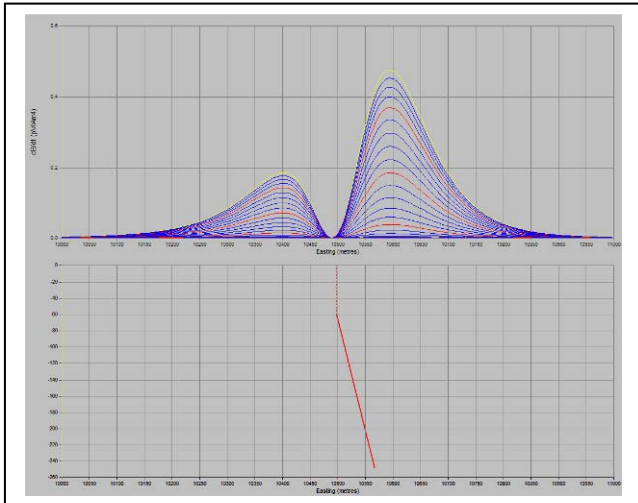


Figure C-3: dB/dt response of a shallow skewed thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

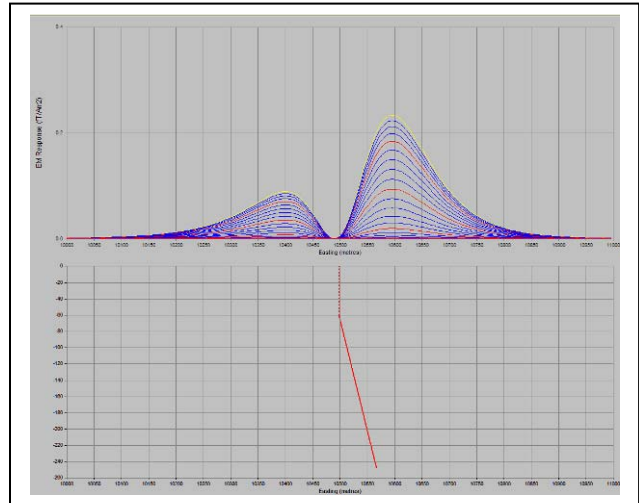


Figure C-4: B-field response of a shallow skewed thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

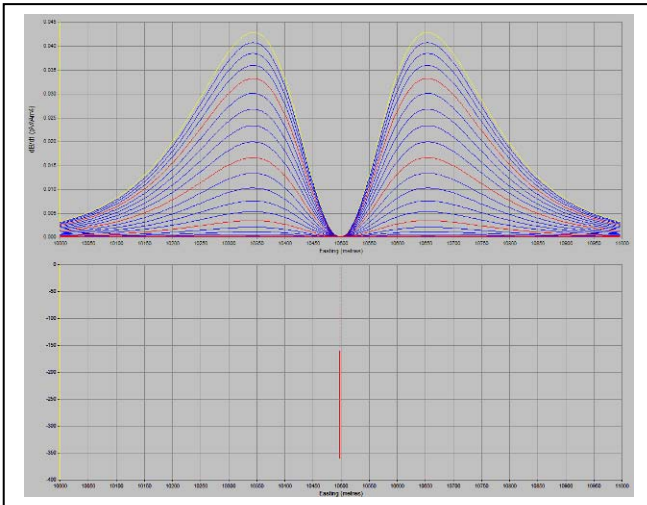


Figure C-5: dB/dt response of a deep vertical thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

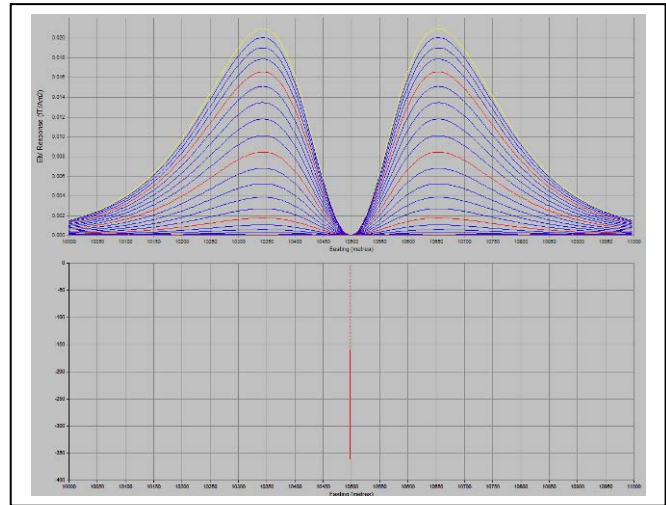


Figure C-6: B-Field response of a deep vertical thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment.

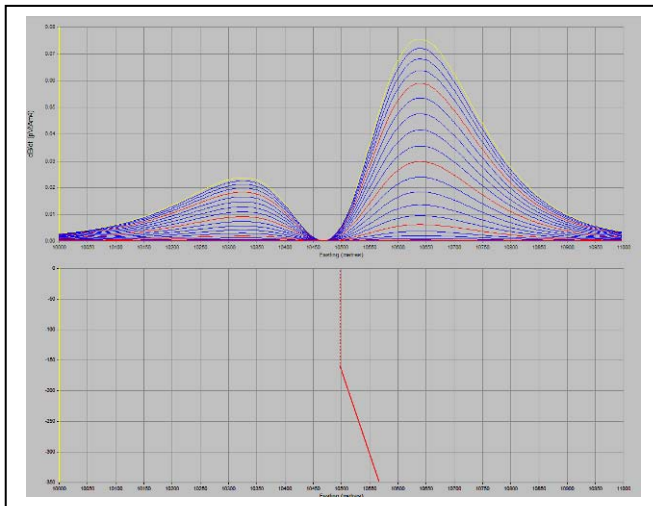


Figure C-7: dB/dt response of a deep skewed thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

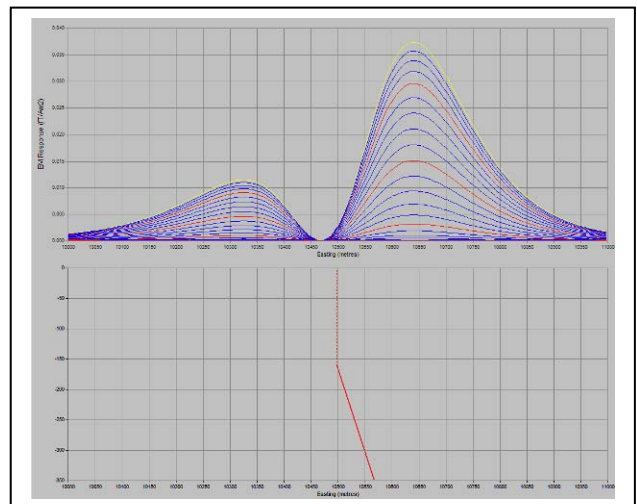


Figure C-8: B-field response of a deep skewed thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment.

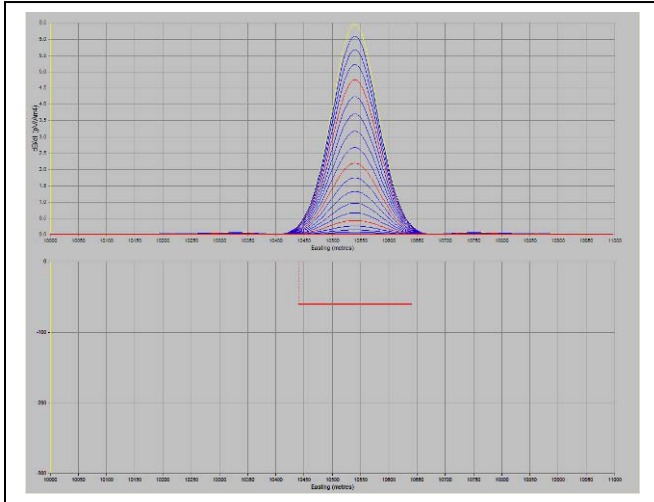


Figure C-9: dB/dt response of a shallow horizontal thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

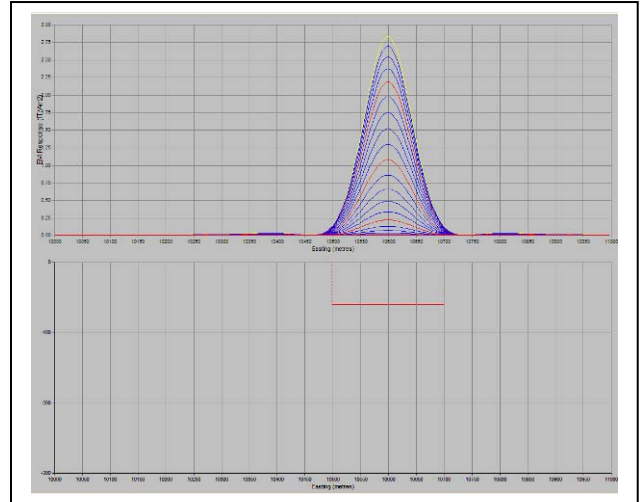


Figure C-10: B-Field response of a shallow horizontal thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

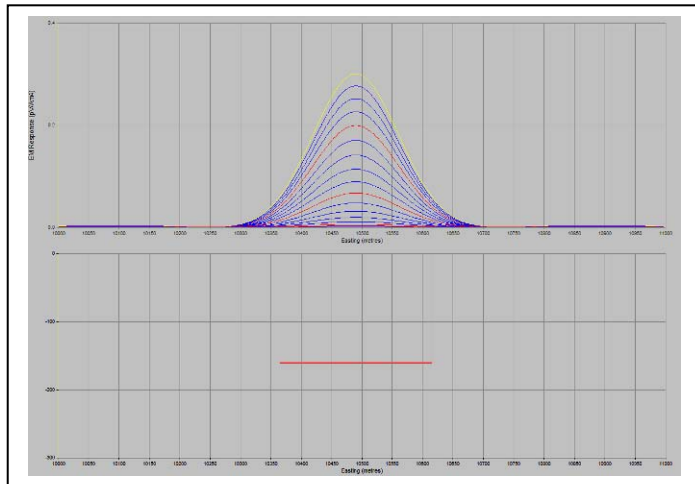


Figure C-11: dB/dt response of a deep horizontal thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

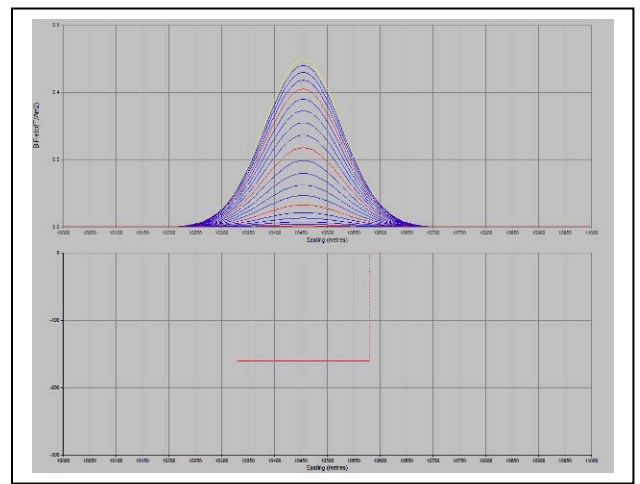


Figure C-12: B-Field response of a deep horizontal thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment.

## II. THICK PLATE

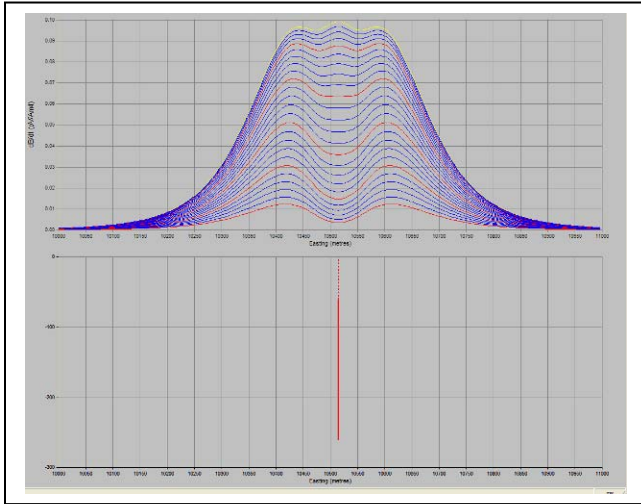


Figure C-13: dB/dt response of a shallow vertical thick plate. Depth=100 m, C=12 S/m, thickness=20 m. The EM response is normalized by the dipole moment and the Rx area.

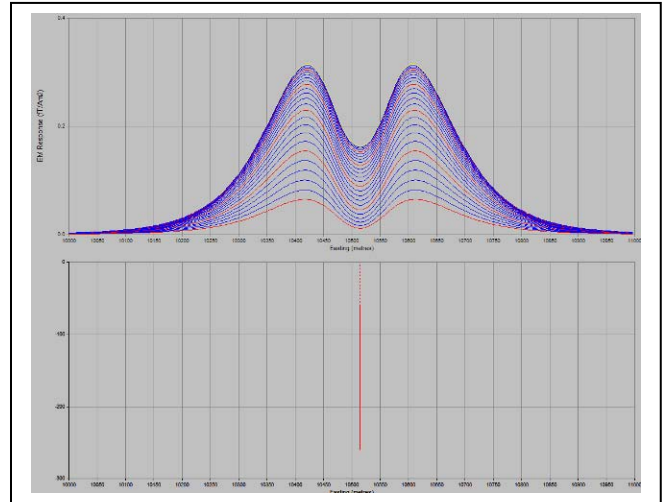


Figure C-14: B-Field response of a shallow vertical thick plate. Depth=100 m, C=12 S/m, thickness= 20 m. The EM response is normalized by the dipole moment.

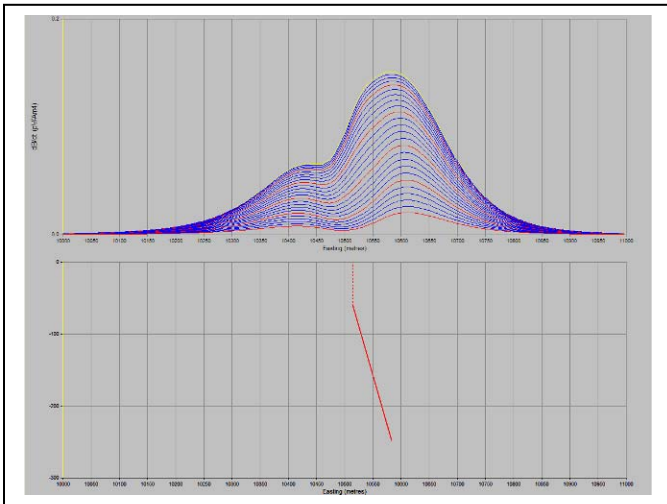


Figure C-15: dB/dt response of a shallow skewed thick plate. Depth=100 m, C=12 S/m, thickness=20 m. The EM response is normalized by the dipole moment and the Rx area.

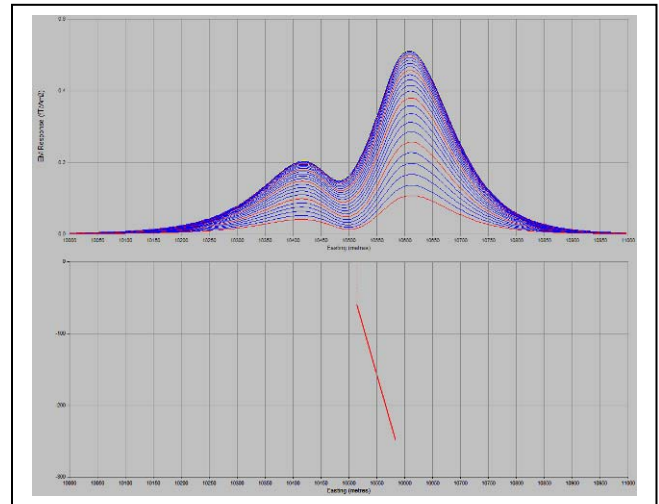


Figure C-16: B-Field response of a shallow skewed thick plate. Depth=100 m, C=12 S/m, thickness=20 m. The EM response is normalized by the dipole moment.

### III. MULTIPLE THIN PLATES

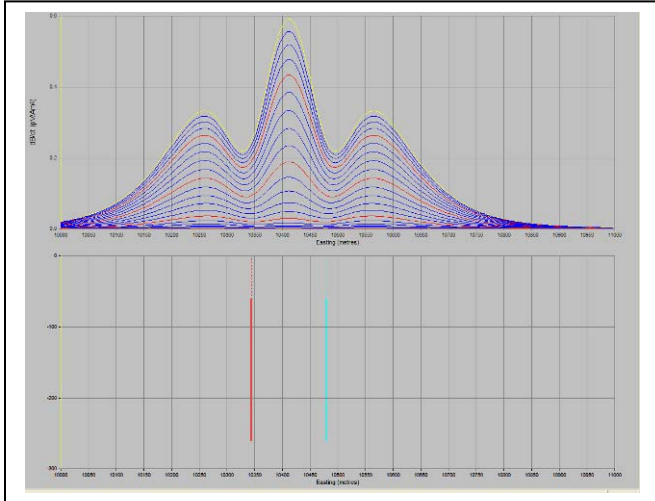


Figure C-17: dB/dt response of two vertical thin plates. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

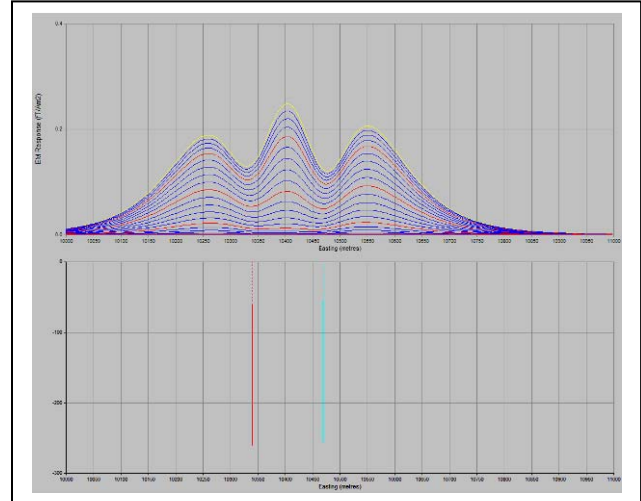


Figure C-18: B-Field response of two vertical thin plates. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

## General Interpretation Principals

### Magnetics

The total magnetic intensity responses reflect major changes in the magnetite and/or other magnetic minerals content in the underlying rocks and unconsolidated overburden. Precambrian rocks have often been subjected to intense heat and pressure during structural and metamorphic events in their history. Original signatures imprinted on these rocks at the time of formation have, in most cases, been modified, resulting in low magnetic susceptibility values.

The amplitude of magnetic anomalies, relative to the regional background, helps to assist in identifying specific magnetic and non-magnetic rock units (and conductors) related to, for example, mafic flows, mafic to ultramafic intrusives, felsic intrusives, felsic volcanics and/or sediments etc. Obviously, several geological sources can produce the same magnetic response. These ambiguities can be reduced considerably if basic geological information on the area is available to the geophysical interpreter.

In addition to simple amplitude variations, the shape of the response expressed in the wave length and the symmetry or asymmetry, is used to estimate the depth, geometric parameters and magnetization of the anomaly. For example, long narrow magnetic linears usually reflect mafic flows or intrusive dyke features. Large areas with complex magnetic patterns may be produced by intrusive bodies with significant magnetization, flat lying magnetic sills or sedimentary iron formation. Local isolated circular magnetic patterns often represent plug-like igneous intrusives such as kimberlites, pegmatites or volcanic vent areas.

Because the total magnetic intensity (TMI) responses may represent two or more closely spaced bodies within a response, the second derivative of the TMI response may be helpful for distinguishing these complexities. The second derivative is most useful in mapping near surface linears and other subtle magnetic structures that are partially masked by nearby higher amplitude magnetic features. The broad zones of higher magnetic amplitude, however, are severely attenuated in the vertical derivative results. These higher amplitude zones reflect rock units having strong magnetic susceptibility signatures. For this reason, both the TMI and the second derivative maps should be evaluated together.

Theoretically, the second derivative, zero contour or color delineates the contacts or limits of large sources with near vertical dip and shallow depth to the top. The vertical gradient map also aids in determining contact zones between rocks with a susceptibility contrast, however, different, more complicated rules of thumb apply.

### Concentric Loop EM Systems

Concentric systems with horizontal transmitter and receiver antennae produce much larger responses for flat lying conductors as contrasted with vertical plate-like conductors. The amount of current developing on the flat upper surface of targets having a substantial area in this dimension, are the direct result of the effective coupling angle, between the primary magnetic field and the flat surface area. One therefore, must not compare the amplitude/conductance of responses generated from flat lying bodies with those derived from near vertical plates; their ratios will be quite different for similar conductances.

Determining dip angle is very accurate for plates with dip angles greater than 30°. For angles less than 30° to 0°, the sensitivity is low and dips can not be distinguished accurately in the presence of normal survey noise levels.

A plate like body that has near vertical position will display a two shoulder, classic **M** shaped response with a distinctive separation distance between peaks for a given depth to top.

It is sometimes difficult to distinguish between responses associated with the edge effects of flat lying conductors and poorly conductive bedrock conductors. Poorly conductive bedrock conductors having low dip angles will also exhibit responses that may be interpreted as surficial overburden conductors. In some situations, the conductive response has line to line continuity and some magnetic correlation providing possible evidence that the response is related to an actual bedrock source.

The EM interpretation process used, places considerable emphasis on determining an understanding of the general conductive patterns in the area of interest. Each area has different characteristics and these can effectively guide the detailed process used.

The first stage is to determine which time gates are most descriptive of the overall conductance patterns. Maps of the time gates that represent the range of responses can be very informative.

Next, stacking the relevant channels as profiles on the flight path together with the second vertical derivative of the TMI is very helpful in revealing correlations between the EM and Magnetics.

Next, key lines can be profiled as single lines to emphasize specific characteristics of a conductor or the relationship of one conductor to another on the same line. Resistivity Depth sections can be constructed to show the relationship of conductive overburden or conductive bedrock with the conductive anomaly.

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Roger Barlow  
**Consultant**

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Nasreddine Bournas, P. Geo.  
**Geotech Ltd.**

October 2008

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
1016 – 510 West Hastings Street  
Vancouver, B.C. V6B 1L8

Telephone: 604-688-2568

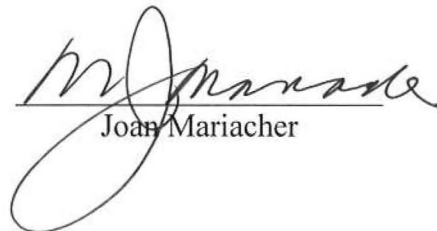
Fax: 604-688-2578

AFFIDAVIT



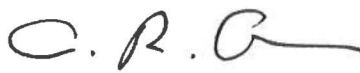
I, Joan Mariacher, of Vancouver, B.C. make oath and say:

That to the best of my knowledge the attached Statement of Expenditures for exploration work on the Bob 1-14 mineral claims on Claim Sheet 105G/6 is accurate.

  
Joan Mariacher

Sworn before me at Vancouver, B.C.

this 28th day of October 2008.

  
\_\_\_\_\_  
Notary Public, Yukon Territory

Statement of Expenditures  
Bob 1-14 Mineral Claims  
October 23, 2008

Contract VTEM Survey

Geotech Ltd.

\$27,278.39





# Geotech Ltd.

245 Industrial Parkway North, Aurora, ON L4G 4C4

<b>BILL TO:</b>
Archer, Cathro & Associates (1981) Limited 1016-510 West Hastings Street Vancouver, BC Canada V6B 1L8

<b>DATE:</b>	<b>INVOICE:</b>
7/30/2008	991575

<b>TERMS:</b>	<b>Project</b>
Due on receipt	8077

Description	Amount
Helicopter-borne time domain electromagnetic geophysical survey with VTEM system Interim Billing - Ninety Five (95%) of the estimated total charge plus GST is payable before receipt of preliminary data	389,862.00
Contract ( Yukon and northern BC.)	
For an estimated 2948 line km basic survey charge @\$70/km	\$206,360.00
Charges per block 15 blocks @\$2000/block	\$30,000.00
Charges per day for estimated 51 days @\$6000/day	\$306,000.00
Helicopter time charges for estimated 150 hours @\$1800/hr	\$270,000.00
Helicopter mob/demob	\$28,000.00
Crew and equipment mob/demob	\$26,000.00
Minimum Survey Charge	\$866,360.00
95% of the Minimum Survey Charge	\$823,042.00
Less Previous Billing Invoice 991388	(\$433,180.00)
<b>Total Amount Owing</b>	<b>\$389,862.00</b>
Business Number: 110859469	
<i>A ✓ Anthony - 10143.58</i> <i>A ✓ Aron - 15563.82</i> <i>A ✓ Black - 34147.50</i> <i>A ✓ Bob - 2091.98</i> <i>A ✓ 9546.58</i> <i>A ✓ Caribou - 23150.62</i> <i>A ✓ Emerald - 30098.57</i> <i>A ✓ Fairbanks - 14025.54</i> <i>A ✓ GK - 6922.00</i>	<i>A ✓ Grandkey - 30242.92</i> <i>A ✓ Ham - 25151.29</i> <i>A ✓ Hobo - 25409.88</i> <i>A ✓ May - 8640.76</i> <i>A ✓ Nick - 60523.69</i> <i>A ✓ Peter - 25470.10</i> <i>A ✓ Ron - 9880.86</i> <i>A ✓ Still Short - (3847.18)</i> <i>A ✓ Ross - 25409.88</i> <i>A ✓ Jagui - 21102.80</i> <i>A ✓ Jimber - 9232.41</i> <i>A ✓ Zabo - 9500.64</i> <b>389862.00</b>

Please Remit By Bank Transfer To:  
 ROYAL BANK OF CANADA  
 3300 Highway#7 West,  
 Suite100,Concord,  
 Ontario L4K 4M3  
 SWIFT:ROYCCAT2  
 TRANSIT # 00192  
 ACCOUNT #1114834

<b>Subtotal</b>	Can\$389,862.00
<b>GST</b>	Can\$19,493.10
<b>TOTAL</b>	<b>Can\$409,355.10</b>



# Geotech Ltd.

245 Industrial Parkway North, Aurora ON L4G 4C4

Bill To
Archer, Cathro & Associates (1981) Limite 1016-510 West Hastings Street Vancouver, BC Canada V6B 1L8

Date	Invoice #
4/30/2008	991388

PO

Terms	Project
Due on receipt	8077

Description	Amount
Helicopter-borne time domain electromagnetic geophysical survey with VTEM system Interim Billing - Fifty percent (50%) of the estimated total charge plus GST is payable on execution of the agreement	433,180.00
Contract ( Yukon and northern BC.)	
For an estimated 2948 line km basic survey charge @\$70/km	\$206,360.00
Charges per block 15 blocks @\$2000/block	\$30,000.00
Charges per day for estimated 51 days @\$6000/day	\$306,000.00
Helicopter time charges for estimated 150 hours @\$1800/hr	\$270,000.00
Helicopter mob/demob	\$28,000.00
Crew and equipment mob/demob	\$26,000.00
Minimum Survey Charge	\$866,360.00
50% of the Minimum Survey Charge	\$433,180.00
Business Number: 110859469	
<i>21659.00</i> <i>Antimony - 21568.55</i> <i>Auger. 2.0m - 32349.31</i> <i>Bob - 17731.81</i> <i>16887.44</i> <i>Andrea 2.0m - 67578.64</i> <i>30505.24</i> <i>6K - 12773.72</i>	<i>Groundhog - 67103.08</i> <i>MV - 42286.00</i> <i>Platan - 53776.02</i> <i>Silverchart - 9936.68</i> <i>* Jegeri - 42137.11</i> <i>Jimbo - 17596.70</i> <i>* Zolco - 18731.57</i> <i>&amp; Vancouver</i> <i>24KED 444839.00</i>

Please Remit By Bank Transfer To:  
 Royal Bank of Canada  
 3300 Highway #7 West, Suite 100, Concord,  
 Ontario L4K 4M3  
 SWIFT:ROYCCAT2  
 Transit#00192  
 Account#1114834

Subtotal	Can\$433,180.00
GST	Can\$21,659.00
<b>Total</b>	<b>Can\$454,839.00</b>