

Proposal for a Helicopter-borne TIME DOMAIN ELECTROMAGNETIC Geophysical Survey with a VTEM system

For

ZINIFEX LIMITED (ZINIFEX)

Level 29, Freshwater Place
2 Southbank Boulevard
Southbank VIC, 3006, Australia
Contact: Darren Hicks
Tel: +61 3 9288 0333
Fax: +61 3 9288 0406
Email: Darren.Hicks@Zinifex.com

By



GEOTECH AIRBORNE PTY LTD (Geotech)

Unit 3, 31 Capital Rd.
Malaga
Western Australia, 6090
Tel: +61 8 9249 8814
Fax: +61 8 9249 8894
www.geotechairborne.com
Email: gapl@geotechairborne.com

INTRODUCTION

Geotech Airborne Pty Ltd is pleased to submit this proposal for a helicopter-borne geophysical survey for approximately 1,123 line-kms over the Tasmania Area in Australia.

ZINIFEX have requested a proposal for an airborne electromagnetic and magnetic survey for the purposes of investigating the mineral potential within the Tasmania project area. The survey location is detailed in the figures presented in section B1.

We propose the Geotech Versatile Time-Domain Electromagnetic (VTEM) geophysical system to survey your area, comprising the following main instrumentation:

- The VTEM Time Domain EM system for locating conductive anomalies and mapping earth resistivities
- A high-sensitivity proton precession magnetometer for mapping geologic structure and lithology.
 - A proton precession magnetometer base station for diurnal correction.
- A Radar altimeter with an accuracy of approximately 1 meter
- A GPS Navigation System providing an in-flight accuracy up to 3 meters

The following are some of the features of our proposal, which will be of particular benefit to ZINIFEX:

- The latest technology Time Domain System, exhibiting significant advantages over other commercially available systems such as:
 - *The industries highest signal/noise ratio and spatial resolution of conductors*
 - *Unparalleled depth of penetration AND highest resolution*
 - ✓ *25 or 30 Hz base frequency*
 - ✓ *26m Transmitter coil is the largest diameter loop size available on any airborne geophysical platform*
 - ✓ *Small footprint to discriminate smaller targets (eg. kimberlites)*
 - *Superior "Repair or Replace" Time*
 - ✓ *The VTEM system is field repairable within a few hours using the on-site available spares kit, even after damage due to hard landings, etc.*
 - ✓ *Multiple systems available. – In the event of a serious system or aircraft failure for whatever reason, the ready availability of identical systems will ensure that their will be no delays.*
 - *Concentric Transmitter – Receiver geometry ensures positive anomaly location*
 - ✓ *No need for ground follow-up resulting in huge time savings and cost savings.*
 - *Advanced trapezoid wave-form with a longer 'on-time' pulse width of 7 ms for more effective conductor saturation.*
 - *Helicopter Platform to provide the highest resolution survey.*
- Mobilization to the survey site after signature of contract and is anticipated to be in mid March 2008.
- Complete set of spares on site for this system
- High-resolution proton precession magnetometer, resolution 0.02 nT, sampling 10 times per second
- GPS satellite navigation utilizing latest NovAtel's OEM4-G2 GPS receiver.
- Satellite Internet equipment (depending upon signal and local authority approvals) in the field to send the data from the field to the office daily. Data QC and data processing are done by experienced data processors; preliminary data may be made available on FTP site daily upon request.

- Data processing and mapping, by experienced geophysicists, using the latest computer technology and state-of-the-art software.

Terms & Conditions As per Zinifex Agreement ZC01610

Schedule A. Pricing and Payments

- A1. Responsibilities
- A2. Charges
- A3. Payments
- A4. Terms of Payment

Schedule B. Survey Area

- B1. Outline of the Survey Area
- B2. Flight Line specifications

Schedule C. Data Acquisition

- C1. Helicopter
- C2. Services provided by Geotech
- C3. Survey Scheduling
- C4. Flight Specifications
- C5. Survey Instruments
- C6. Field Personnel

Schedule D. Field Data Processing / Quality control

Schedule E. Products for Delivery

- E1. Preliminary maps
- E2. Final standard products
- E3. Additional products

Schedule F. Acknowledgements

SCHEDULE A

PRICING AND PAYMENTS

A1. Responsibilities

The survey will be flown out of a camp or other facility provided by ZINIFEX which is to be located in or within 30km of the survey area.

Geotech will provide:

- Quality control of the geophysical data, final data processing will be performed at a Geotech processing centre;
- Survey helicopter including survey experienced pilots and related helicopter costs, **excluding** helicopter fuel.

ZINIFEX will provide:

- accommodations and meals for the survey crew at the survey base;
- local transportation for crew in and around the survey base at Camp;
- positioned fuel for the helicopter at the survey site;
- acquisition of all local licenses and permits required to carry out the survey;
- detailed final location co-ordinates in WGS84 UTM of the survey area

A2. Charges

Notes:

- Quotation conditional on the completion of a successful security and aviation risk evaluation of the survey area and is valid for 30 days.
- ZINIFEX will be responsible for the cost of helicopter fuel, accommodation and meals for the Geotech crew, as well as local transportation. Geotech can organise the logistics around these items and bill ZINIFEX at cost.
- The survey will be flown in conjunction with Geotech's other projects within the immediate vicinity.
- Minimum line length is three kilometers;
- Standby Charges \$/day;
- Subject to meeting all the requirements of Geotech's services agreement with Zinifex a % rate reduction will apply which is indicated above. If all conditions are not met this reduction will not apply.

A standby day is defined by any day where any of the following takes place:

- survey production is less than 100 km after the equipment is installed (standby is not chargeable if the equipment or helicopter is inoperable for any reason);
- weather conditions prevent the crew to complete the installation;
- weather conditions prevent the crew from leaving the site after the survey is completed;

Standby charges will also apply for all days, or part days that are lost due to delays in acquiring local permits and licenses that are the responsibility of the Client, as well as the unavailability of on-site fuel for the helicopter. Standby charges will apply as well for any days or part days lost due to bureaucratic delays such as customs, etc., including delays entering and exiting the country.

A3. Payments

The invoices shall be payable as follows:

1. Fifty percent (50%) of the estimated total charge is payable on execution of the agreement.

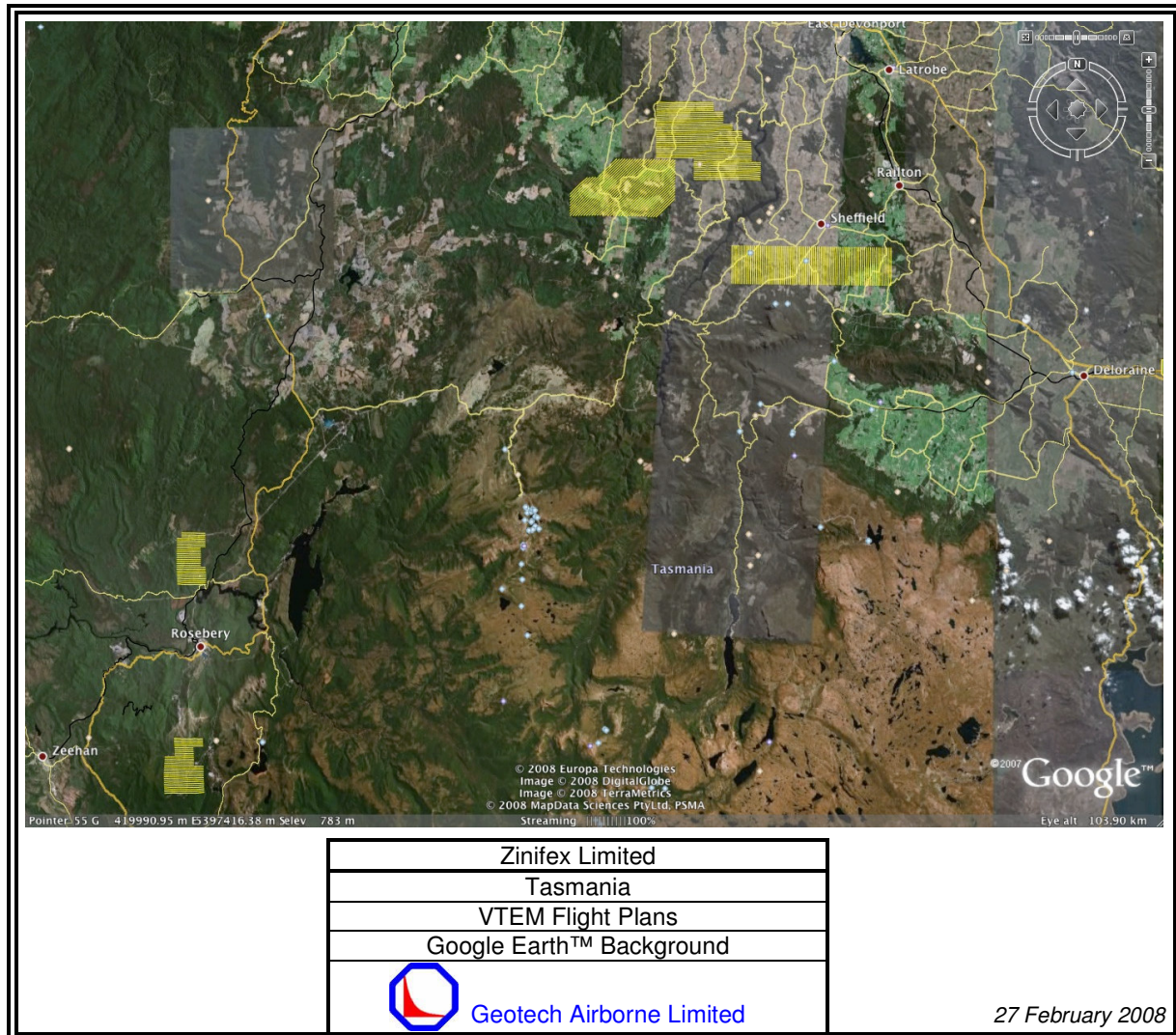
2. Forty percent (40%) of the survey total charge, plus any additional charges including, but not limited to extra line km, standby days is payable upon completion of flying
3. Ten percent (10%) of the estimated total charge is payable right before delivery of the products described in Schedule E hereof

A4. Terms of Payment

Geotech will issue invoices for payment as required, as per Section A3 above. These invoices will be due 14 days from receipt by the Client. Payments should be made by telegraphic bank transfer to Geotech's bank. Instructions will be posted on all invoices. Late payments will be subject to a 1.5% per month late payment charge on 14 days overdue.

SCHEDULE B - SURVEY AREA

B1. Outline of the Survey Area



Final survey co-ordinates must be provided in WGS84 UTM and will be agreed upon in writing prior to commencement of survey operations.

The above area was generated using the following UTM coordinates supplied by ZINIFEX, assuming UTM Z 55S and the WGS84 spheroid.

Easting UTM55S	Northing UTM55S
AREA 2	
376603.35	5385695.02
379105.73	5385689.44
379109.42	5384184.78
378610.67	5384176.35
378601.15	5382179.52
379107.16	5382178.44
379111.82	5380191.50
376105.65	5380188.29
376113.00	5385194.62
376611.99	5385193.58
376603.35	5385695.02

B2. Flight line Specifications

	Line spacing	Line Direction	TieLine Spacing	TieLine Direction	Line-kms
A371_Area 2	200	090 - 270	N/A	N/A	77.5

SCHEDULE C
DATA ACQUISITION

C1. Helicopter

Geotech will fly the survey with a locally registered AS350B3 helicopter (or equivalent) with the necessary cargo hook. This helicopter has the necessary range and flight duration to fly this type of survey.

C2. Services provided by Geotech

1. Supervision of the helicopter and its crew.
2. Provision of the necessary qualified personnel required to complete the survey.
3. Supply of the technical equipment with spares necessary to fly the survey in an expeditious manner.
4. Quality Control of the geophysical data.
5. Preparation and delivery to ZINIFEX of all the final products specified in Schedule E.
6. Provide Zinifex's nominated representative access to the data each night/next day via the secure internet site.

C3. Survey Scheduling

1. Survey preparations and mobilization to the survey area are expected to commence in mid March 2008 and the survey operations will take an estimated Two Weeks.
2. Field preliminary maps will be prepared progressively throughout the actual survey flying and delivered in the field, if required.
3. Standard preliminary products will normally be delivered 2 weeks after receipt of the field data at Geotech's processing centre and after the second payment, due upon completion of flying, is received
4. Final maps and report will normally be delivered eight weeks after delivery of the preliminary products.

All phases of the survey scheduling will be coordinated with the requirements of the Client.

C4. Flight Specifications

1. Flight Lines

Line directions and spacing are as specified in Schedule B. The pilot will make every effort not to deviate from the flight plan more than 50m over a distance of 2km, but due to the terrain it could be more.

Optimum terrain clearances for the helicopter and instrumentation during normal survey flying are:

Helicopter – 75 to 85 meters (tow cable dependant)
EM sensor - 30 meters
Magnetic sensor – 60 to 70 meters (tow cable dependant)

Terrain clearance may vary, based on the pilot's judgement of safe flying conditions around man-made structures or in rugged terrain.

2. Airspeed

Normal helicopter airspeed will be approximately 80 km/hr, but this may vary in areas of rugged terrain. With a data-recording rate of 0.1 point per second, geophysical measurements are acquired approximately every 2 meters along the survey line.

3. Electromagnetic Data

Data will be re-flown at the Contractor's expense when the standard deviation of the normally processed 6340 μ s time gate EM channel exceeds 0.01 pico volts per Amp-m⁴ continuously over a horizontal distance of 2 km under normal survey conditions, or when Geotech's on-site representative deems the data to be un-interpretable.

C5. Survey Instruments

1. VTEM System

The VTEM or Versatile Time Domain Electro Magnetic system is the most innovative and successful airborne electromagnetic system to be introduced in more than 30 years. The proprietary receiver design using the advantages of modern digital electronics and signal processing delivers exceptionally low-noise levels. Coupled with a high dipole moment transmitter, the result is unparalleled resolution and depth of investigation in precision electromagnetic measurements.

Key features include:

- Superior Exploration Depth – Over 400 metres
- Low Base Frequency (25 or 30 Hz) for Penetration through conductive cover
- High Spatial Resolution – 2 to 3 metres
- Improved Interpretability due to Receiver-Transmitter symmetry
- Spotting drill targets directly off of the airborne results
- Excellent resistivity discrimination and detection of weak anomalies
- Virtually impervious to spheric activity.

The system was designed to be field configurable to best suit a large variety of different geophysical requirements from deep penetration to optimizing the discrimination within a narrow range of resistivity values.

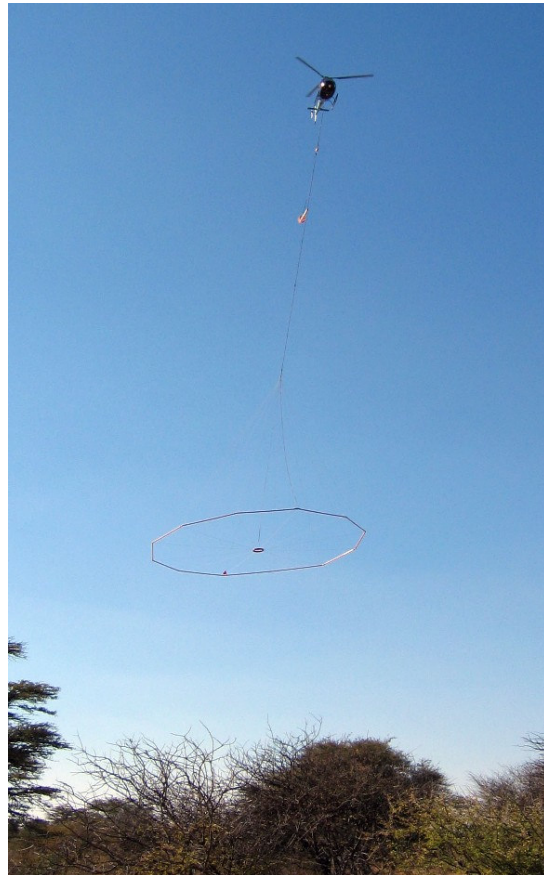
The system is easily transportable. It can be disassembled for packaging in relatively small units for shipping to surveys around the world.

In the event of damage to the EM bird in-flight or while being transported between survey sites, the unique design allows the easy replacement of any part of the system in the field. The transmitter loop can be assembled or disassembled in 3-4 hours.

The recent surveys flown with VTEM have produced superior results over the same test areas flown by competing airborne EM surveys. VTEM has flown the Reid-Mahaffy, Caber, Perseverance and Montcalm test ranges and the results have demonstrated that VTEM provides the Industries highest signal/noise ratio and conductor spatial resolution.

2. Magnetometer

A Geometrics/Scintrex split-beam total field magnetic sensor, with a sampling interval of 0.1 seconds and an in-flight sensitivity of 0.02 nT, will be utilized. The magnetometer will perform continuously in areas of high magnetic gradient with the ambient range of the sensor approximately 20k-100k nT. Aerodynamic magnetometer noise will not exceed 0.5 nT.



3. Electronic Navigation - GPS

A GPS system utilizing the Novatel OEM4-G2-3151W GPS receiver will provide in-flight navigation control. This system determines the absolute position of the helicopter in three dimensions. As many as 11 GPS satellites may be monitored at any one time. Autonomous GPS will be used for flight navigation.

4. Altimeter

An altimeter system will record the ground clearance to an accuracy of approximately 1 m. The altimeters will be interfaced to the data acquisition system with an output repetition rate of 0.5 second. Recording will be in digital form.

5. Data Acquisition/Recording System

A Geotech data acquisition system will be used. Data will be recorded on a PCMCIA flash card.

6. Field Computer Workstation

A dedicated PC-based field computer workstation will be used in the field for purposes of displaying geophysical data for quality control, calculating and displaying the navigation, producing preliminary EM anomaly information and diurnally corrected magnetic maps, and copying/verifying the digital data.

7. Safety

Installation of the survey equipment in the helicopter will be done by qualified personnel. An airworthiness approval certificate is maintained for all installations.

8. Spares

A normal compliment of spare parts and necessary test instrumentation will be available in the field.

9. Base station

A dedicated computer including high sensitivity base station proton precession magnetometer will be employed to record magnetic activity.

C6. Survey Crew

The survey crew will consist of at least the following personnel:

1. An experienced Geophysicist or Geophysical Technician/Project Manager to supervise the survey operations, perform quality control of the data and to assist in arranging the survey logistics and field operations.
2. A Geophysical Operator to maintain and operate the geophysical instruments.
3. An experienced Survey Pilot, who has demonstrated his ability to fly the geophysical instrumentation safely and within survey specifications.
4. An experienced Aircraft Mechanic will be on stand-by at the helicopter base and should be ready to be on the survey site with minimal delay.

Curriculum Vitae of the key personnel who may be utilized during the survey work are available upon request.

SCHEDULE D

FIELD DATA PROCESSING / QUALITY CONTROL

The field data processing includes the following quality control measures:

1. All digital data will be inspected on a daily basis to ensure that bad data is not present and to identify missing data sections.
2. A preliminary flight path map will be plotted and checked against survey specifications.
3. All digitally acquired survey data will be merged into a Geosoft Montaj database. Profiles will be edited to ensure completeness of all data traces.
4. The recorded EM data will be digitally processed to remove spheric events and filtered to reduce any system noise. Following the filtering process, base level adjustments will be made to the EM profile data, as required.

SCHEDULE E

PRODUCTS FOR DELIVERY

Please note that Preliminary and Final Data will be provided to SGC

E1. Preliminary maps

The digital preliminary maps will be produced as soon after the completion of flying as possible. The products will include:

- Color magnetic map
- EM profiles map

The preliminary maps are provided in digital form.

E2. Final standard products

1. Final standard digital maps at a scale specified will be delivered in two copies on CD-ROM or DVD-ROM.

- Color magnetic map
- EM profiles map at a logarithmic scale

2. The processed digital data will be delivered in two copies on CD-ROM or DVD-ROM. The line data will be delivered in the Geosoft Montaj GDB format. The maps will be delivered in the Geosoft Montaj MAP format. Full descriptions of the digital data formats will be included in the final report and as text files on each CD-ROM

3. Operational report will be delivered in two copies. The report will provide information pertaining to the acquisition, processing and presentation of the data.

E3. Additional products

The following additional products can be produced, if required.

- | | |
|---|---|
| <ul style="list-style-type: none">• EM anomaly map (minimum US\$1000) | <ul style="list-style-type: none">- US\$3.00/ line-km |
| <ul style="list-style-type: none">• Apparent conductivity map for a selected time gate | <ul style="list-style-type: none">- US\$100/ channel as a Geosoft Database channel- US\$250/ channel as a Geosoft Database channel and in map form |
| <ul style="list-style-type: none">• Late Channel Time Constant (Tau) calculated on Automatically selected time gates and discriminated by correlation coefficient | <ul style="list-style-type: none">- US\$200 as a Geosoft Database channel- US\$350 as a Geosoft Database Channel and in map form |
| <ul style="list-style-type: none">• Magnetic derivative data (IGRF removed, 1st, 2nd vertical gradient, horizontal gradient, Reduction-to-the-Pole, analytical signal) | <ul style="list-style-type: none">- US\$100 per process as a Geosoft Database channel- US\$250 per process as a Geosoft Database channel and in map form |
| <ul style="list-style-type: none">• Digital Terrain map (derived from the radar altimeter and GPS height) | <ul style="list-style-type: none">- US\$250 per sheet |
| <ul style="list-style-type: none">• Resistivity-depth section on paper
(minimum US\$1000) | <ul style="list-style-type: none">- US\$100 per section |
| <ul style="list-style-type: none">• Customer designed map | <ul style="list-style-type: none">- US\$300 per sheet |

Additional copies

- | | |
|---|--|
| <ul style="list-style-type: none">• Paper copy from existing files | <ul style="list-style-type: none">- US\$80 per sheet |
| <ul style="list-style-type: none">• Mylar copy from existing files | <ul style="list-style-type: none">- US\$120 per sheet |
| <ul style="list-style-type: none">• Extra paper copy of the report | <ul style="list-style-type: none">- US\$40 |
| <ul style="list-style-type: none">• Extra copy of a CD/DVD | <ul style="list-style-type: none">- US\$40 |

SCHEDULE F

ACKNOWLEDGEMENTS

1. The client agrees to acknowledge in all press releases and other publications that the survey was flown with the VTEM time-domain system. The client also agrees that Geotech may advertise that the VTEM system was used by the client in the event that news articles are published purporting to a discovery in the Survey area, providing that the client approves the advertisement, which approval will not be unreasonably withheld.
2. Geotech will not divulge any information with respect to the Survey to third parties.
3. Until payment is received in full, the information, documents and data pertaining to the Survey shall remain the property of Geotech.