Event # 409239

A REPORT

ON

HELIBORNE MAGNETIC & ELECTROMAGNETIC

SURVEYING

Williams Project
Carpenter Lake Area, B.C.
50° 52'N, 122° 41'W
N.T.S. 92J/15

Claims surveyed: 507082,139,142 & 146

Survey Dates: April 4th – May 6th, 2006

FOR

BRADFORD MINERALS EXPLORATIONS LTD.

Vancouver, B.C.

By

PETER E. WALCOTT & ASSOCIATES LIMITED

Vancouver, B.C.

DECEMBER 2006

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INTRODUCTION.

Between April 4th and May 6th, 2006, McPhar Geosurveys Ltd. carried out a heliborne magnetic and electromagnetic survey for Bradford Mineral Explorations Ltd. over their Williams property, located in the Carpenter Lake area of southern British Columbia.

The survey was flown at a nominal terrain clearance of 30 metres for the bird – Hummingbird airfoil in which the EM and magnetic sensors were mounted – towed 30m below the AS 350B2 helicopter on east-west flight lines spaced 100 metres apart with north-south tie lines at a spacing of 1000 metres.

The results of the magnetic survey are presented in contour form on plan maps of the area while those of the EM survey are shown in profile form on similar maps at a scale of 1:10,000.

PROPERTY, LOCATION & ACCESS.

The property, known as the Williams property, is located in the Lillooet Mining Division of British Columbia and consists of the following claims:

Tenure No.	Area hectares	Anniversary
507082	367	July 10th
507139	204	July 10th
507142	326	July 10th
507146	306	July 10th

It is situated straddling Truax Creek some 55 kilometres west northwest of the town of Lillooet, and circa 9 kilometres east of the village of Gold Bridge, British Columbia.

Access to the property is by means of four wheel drive vehicle from Gold Bridge along the south shore of Carpenter Lake, and thence up the Truax Creek road or by helicopter.

PREVIOUS WORK.

The earliest work on the property was in the early thirties when gold bearing stibnite veins were investigated by trenching, and a short adit was driven into what was to become the North zone on the eastern bank of Truax Creek.

In 1960 – 74 H.Street of Gold Bridge built a small mill in an endeavour to develop the antimony potential of the property. Some tunneling and mining was carried out, and small shipments of concentrate were made.

The property was optioned to Keron Holdings in 1980, who subsequently optioned it to Hudson's Bay Oil 7 Gas. The later performed extensive road construction, trenchin, rock and soil geochemical surveys before dropping their option.

Andaurex Resources optioned the property in 1983 and cored 11 drill holes totaling 872 metres.

Subsequently Pilgrim Holdings acquired it in 1987 and carried out a small trenching programme, after which the property was allowed to lapse.

The property was restaked by Brent Hemingway of Surrey, B.C. in 2000.

For a more detailed description the reader is referred to various assessment reports.

GEOLOGY.

The property is underlain by highly deformed metasediments and metavolcanics of the Fergusson Group – mostly ribbon chert, schist and minor carbonate layers – intruded by a number of northwest trending feldspar porphyry dykes and at least two ultramafic bodies.

Mineralization observed on the property consists of weak molybdenum and traces of copper in a very low grade porphyry system, and more importantly gold mineralization with quartz-stibnite veins up to 5 metres in width. The latter occur in three zones, the Main, the North and the South, where previous operators have calculated ore reserves.

For a more detailed information the reader is referred to various assessment reports on the propertyand surrounding area.

PURPOSE.

The purpose of the survey was to examine the electromagnetic and magnetic response of the known mineralization – if any – and to search for additional occurrences of the same.

SURVEY SPECIFICATIONS.

The magnetic survey was carried out using an optically pumped cesium vapour magnetometer, manufactured by Scintrex Ltd. of Toronto, Ontario, housed in the towed bird.

The electromagnetic survey was conducted using a Geotech Hummingbord 5 frequency system. This system consists of 2 pairs of vertical coaxial coils operating at 980 and 7000 Hz and 3 pairs of horizontal coplanar coils operating at 880, 6630 and 34130 Hz mounted 4.9 to 6.3 metres apart in the airfoil.

The survey was flown on pre-programmed flight lines flown on east-west flight lines at a mean bird clearance of 30 metres.

Navigation and flight path recovery were obtained using a Novatel Millenium 12 channel dual frequency GPS unit with post processing to a similar GPS unit to ensure accuracies of better than 2 metres.

For a complete description the reader is referred to the McPhar operations report bound in Appendix II.

In all some 297 kilometres were flown including 154 kilometres of reflights occasioned by a harmonic problem with the 6630 Hz data.

DATA PRESENTATION.

The magnetic data was corrected for diurnal variations by comparison with the digitally recorded ground base station values. Network adjustments were made using the tie-line information to level the data set. Finally micro leveling was applied to remove the remaining level errors.

Compudrape was used in order to better present the magnetic data due to the steep topography where is was nigh impossible for the helicopter to maintain a constant height above the ground resulting in large variations between the magnetic sensor and the ground.

Compudrape attempts to correct this variable terrain clearance effect by generating a magnetic grid that "simulates" the result that would have been obtained had the magnetic sensor been maintained a constant height above the ground. In the case of this Project, a sensor height of 100 metres was used for the Compudrape surface.

In this application, the leveled and micro leveled data was processed for multiple continuation surfaces using a ID FFT transform to achieve maximum removal of the effects of the variation in terrain clearance from line to line and at traverse-tie line intersections

The Compudrape process was designed to perform a loose drape transformation. The elevation channels is the magnetic sensor elevation above seal level. The Topography channel is the topography (i.e., sensor terrain clearance above ground subtracted from sensor elevation above sea level). The new observation height value is the desired constant drape height above ground. The end result is for a more acceptable merging of the different data sets to produce a relatively contiguous TMI image for the entire area covered by the two surveys. Microlevelling was performed again to get rid of direction noise.

The first vertical derivative of the magnetic field was also computed from the gridded data.

Vertical derivatives compute the rate of change of the field as it drops off when measured vertically over the same point (upward continuation). Potential field data obeys Laplace's equation, which allows for the computation, through the FFT package, to take advantage of this symmetry and sole for the vertical or "z" component of the field. The First Vertical Derivative has the effect of sharpening anomalies, which allows for better spatial location of source axes and boundaries.

DATA PRESENTATION cont'd

The electromagnetic data was subjected to a two stage digital filtering process to reject major sferic events and to reduce system noise

Local sferic 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 sferic events. The filter used was a 0.5 sec non-linear filter.

Following the filtering process, a base level correction was made using EM zero levels determined during the high altitude calibration sequences. The correction applied is a linear function of time that ensures the corrected amplitude of the various in-phase and quadrature components is zero when no conductive or permeable source is present. Where necessary, finer level adjustments were made in order to yield the final EM channels of the filtered and leveled data that were used in the determination of apparent resistivity. For anomaly picking another nonlinear filter of 2 seconds wavelength was applied in order to avoid picking anomalies within noise levels. Manually picked zero-levels were also used during the intervening period between high-level calibrations.

The main purpose of EM anomaly selection is to identify possible near-vertical or dipping thin sheet bedrock conductors. If the source of conductance is not large, such anomalies may not register on the apparent resistivity maps as a distinctive resistivity low.

The response type expected from a vertical thin sheet conductor is a positive anomaly in the coaxial EM channels with a coincident low in the coplanar channels of the same frequency.

In some cases a negative in-phase anomaly will be accompanied by a positive quadrature response which suggests a source which is both conductive and magnetic (or conductors and magnetic sources which are very close). In rare instances, the coaxial in-phase trace shows a small positive peak superimposed on larger negative responses in both coaxial and coplanar channels. Such anomalies are often of special exploration interest.

EM anomalies were automatically picked from the offset profiles using Geosoft's HEM software. Each anomaly had to have a response in the 7,000Hz coaxial channel. The

DATA PRESENTATION cont'd

coaxial channel is more sensitive to vertical thin conductors typified by sulphide mineralization. Once the anomalies were picked on the corresponding 7,000 Hz coaxial channels, an apparent conductance (conductivity*thickness) was calculated for those points, and the anomalies were classified according to their apparent conductance values. The anomalies were then identified by a letter label and the apparent conductance values were posted.

DISCUSSION OF RESULTS.

The Williams Property has had numerous exploration campaigns over some 75 years. Mineralization is primarily in the form of weak molybdenum and trace copper in a low grade porphyry system (Dewonck, 1987), who also noted gold mineralization associated with quartz/stibnite vein zones and associated degrees of silicification.

Sources of high magnetic anomalies on the Williams Property may be either ultramafics, which will be larger features, and pyrrhotite-bearing volcanics and veins which could be smaller, linear features. Ostler, 2002, stated that mineralization on the Merry property has no obvious regional magnetic expression based on his interpretation of a 1972 airborne magnetometer survey completed by Geoterrex.

Gold was encountered in a number of drill holes on the property. Primary lithologies with associated gold geochemistry include; 1) felsic-silica alteration zones characterized by silicified quarts and calcite veins and veinlets, 2) massive andesite with associated pyrite and pyrrhotite on fractures and as coarse aggregates (pyrrhotite was also noted in some cases to be up to 50% semi-massive). Contorted and brecciated chert bands are noted to containing stibnite and gold. There is some degree of spatial relationship between anomalous gold in drill holes and deformed and recrystallized ribbon chert.

There is a general association with zones of deformed cherts, quartz-carbonate zones, and occasionally pyritic zones and the higher Au assays (up to0.45 oz/t). Previous reports on the Williams Property (Dewonck, 1987) state that the gold-bearing quartz-stibnite veins occur in all rock types with the main correlation being the intensity of silicification and veining.

Two principal orebody types have been described at the Williams Property (formerly the Merry Property). These are 1) stockwork molybdenum mineralization, and, 2) gold-bearing stibnite veins. The former is generally of large tonnage but with associated low Au grades. The latter is generally of low tonnage but with associated higher Au values. The stibnite veins often contain associated sulphides of variable percentages and include arsenopyrite, pyrrhotite, chalcopyrite, limonite and traces of tetrahedrite and jamesonite (Ostler, 2002).

DISCUSSION OF RESULTS cont'd.

Radar altimeter data were analyzed in order to monitor terrain clearance during flight operations. Excessive terrain clearances will tend to attenuate magnetic and electromagnetic field strengths, to the point where overly excessive terrain clearances will result in no measurable signals by either the mag sensor or the EM sensor. In general, there are a number of areas on the Williams Property where the radar altimeter indicates higher than survey specifications terrain clearance. This is often noted on every second survey line, where the attitude of the helicopter tends to flare out when attempting to fly down-slope. The interpretation of the geophysical responses therefore also must utilize the apparent terrain clearance on adjacent survey lines where the helicopter maintains what appears to be better terrain clearance when flying up-slope. Another way to check the accuracy of the radar altimeter data, and consequently the height of the survey sensors, is to examine anomaly amplitudes from line-to-line. For the case where the helicopter is truly too high above terrain, there will be significant signal attenuation for both the EM and magnetics data. This can be observed by comparison of anomaly amplitudes across the survey lines.

Computerized EM anomaly picking by McPhar shows a number of generally E-W trending, low conductivity and amplitude features. Some of these form linear and continuous features whereas others are discreet anomalies. These are indicated on maps provided by McPhar and are classified with a letter designation, and also an estimate of conductance, as described in Siemens.

SUMMARY. CONCLUSIONS & RECOMMENDATIONS.

Between April 4th and May 6th, 2006, at the request of Bradford Mineral Explorations Ltd., McPhar Geosurveys Ltd. flew a towed bird magnetic and electromagnetic survey over Mara property, located in the Carpenter Lake area of southern British Columbia.

After the data was corrected and processed colour contour plots of magnetic data were generated along with profile plots of the EM responses at the various frequencies.

The geophysical responses sought for the main target on the property, the gold-bearing silicified veins are:

1. areas of high resistivity due to silicification and quartz flooding.
2. possible associated conductors due to variable amounts of sulphides reportedly occurring as disseminations to massive sections.
3. possible areas of low resistivity, either lateral to, or along strike trends, due to metamorphic and/or weathering processes resulting in accumulations of clay-alteration minerals.
4. probable low magnetic intensity zones due to silicification and quartz flooding.
5. possible high magnetic intensity zones due to the presence of pyrrhotite.

The EM results have defined a number of poorly conductive trends on the property. The majority of these conductors are situated lateral to highly magnetic, WNW trending highs interpreted to relate to the reported ultramafics on the property. These conductive trends are shown on the base maps. There are also a number of conductive trends or anomalies that relate to low magnetic areas, similar to what is interpreted to be the location of the main zones on the property.

Perusal of the old reports have illustrated various differing geographic coordinates for the various mine and other workings making comparison with more recent data difficult. Thus the historic and more recent data on the property should be incorporated into a GIS data base so that proper and meaningful correlation can be sought between the various geoscientific data.

In addition the airborne magnetic and calculated resistivity data should undergo a structural linears analysis, in an effort to highlight areas of structural intersections amenable to emplacement of alteration minerals and gold.

SUMMARY, CONCLUSIONS & RECOMMENDATIONS cont'd

Further field work on the property should await the outcome of the aforementioned.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

John W. Kieley, P.Geo
Consulting Geophysicist

Peter E. Walcott, P.Eng.
Geophysicist

Vancouver, B.C.
December 2006

APPENDIX I

COST OF SURVEY

McPhar Geosurveys undertook the contract on a kilometre basis. Mobilization costs were extra so that the total cost of services by McPhar was $13,432.00.

Peter E. Walcott undertook the Q.C. and management of the surveys with a geophysicist on site during the flying. Reporting costs were extra so that the cost of services provided was $7,565.00.

PERSONNEL EMPLOYED ON SURVEY

Name	Occupation	Address	Dates
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 1529 W. 6th Ave. Vancouver, B.C. V6J 1R1	Apr. 1st – 2nd Dec. 9th-10th, 2006
J. Kieley	"	"	Apr.4th – 26th, 06 Dec. 2nd –3rd
A. Barrett	Operator	McPhar Geosurveys Newmarket, Ontario	Apr.4th – May 4th, 6th,2006
M. Andrews	"	"	June 1st, 11th , 06
Tonja Boykova	Geophysicist	"	July 29th , 06
R. Morrison	Pilot	Highland Helicopters Kamloops, B.C..	Apr 4th- 25th, May 4th, 6th, 2006
J. Walcott	Report Prep.	Peter E. Walcott & Assoc.	Dec. 11th, 2006

CERTIFICATION

I, John W. Kieley, P. Geo., of 288 Riverwood Drive, Woodlawn (Ottawa), Ontario, do hereby certify that:

1. I am a Professional Geoscientist in good standing and registered with the Professional Engineers and Geoscientists of Newfoundland and Labrador (PEG-NL).

2. I am a graduate of Cambrian College with an Honours Diploma in Geology and Geophysics (1974).

3. I have been continuously engaged in mineral exploration as a geophysicist since 1974, with extensive work experience in all Provinces and Territories of Canada, the western USA, Chile, Argentina, Peru, Bolivia, Brazil, Guyana, Haiti, Honduras, Spain, Portugal, Kenya, Tanzania, Rwanda, Cote d'Ivoire, Burkina Faso, Ghana, Russia, and Kyrgyzstan.

4. I have reviewed the results of the airborne magnetic and electromagnetic (Hummingbird) survey discussed in this report.

5. I do not hold, nor intend to hold, any interest in the Williams Property, nor do I own or expect to own any of the securities of Bradford Mineral Explorations Ltd.

I hereby grant permission for Bradford Mineral Explorations Ltd to use this report and its contents as it sees fit.

John W. Kieley, P.Geo.

Ottawa, Ontario
December, 2006

CERTIFICATION.

I, Peter E. Walcott of 605 Rutland Court, Coquitlam, British Columbia, do hereby certify that:

1. I am a Graduate of the University of Toronto in 1962 with a B.A.Sc. in Engineering Physics, Geophysics Option.

2. I have been practicing my profession for the last forty four years.

3. I am a member of the Association of Professional Engineers of British Columbia and Ontario.

4. I hold no interest, direct or indirect, in Bradford Mineral Explorations Ltd., nor do I expect to receive any.

Peter E. Walcott, P.Eng.

Vancouver, B.C.
December 2006

APPENDIX II

1. INTRODUCTION

This report describes a helicopter-borne geophysical survey carried out during April and May of 2006 on behalf of Bradford Mineral Explorations Ltd. by McPhar Geosurveys Ltd. over two areas known as Boston Bar and Williams Properties which are located northeast and south of the town of Lillooet, British Columbia.

The purpose of this survey was to acquire electromagnetic (EM) and magnetic data to possibly map and delineate the rock formations.

Mobilization of the helicopter, equipment and personnel to the Lillooet base was completed on April 3, 2006 and all of the production flights were completed by May 6, 2006.

All field operations were based out of the town of Lillooet, in south central British Columbia.

The principal geophysical sensors included a 5-frequency, lightweight, digital electromagnetic system and a high sensitivity cesium vapour magnetometer. Ancillary equipment included a GPS navigation system with GPS base station, a radar altimeter, and a base station magnetometer.

This report describes the survey, the data processing and the data presentation.

Figure 1: Survey helicopter & HUMMINGBIRD™ at the Lillooet airstrip

2. SURVEY AREA

The survey areas are shown in Figures 2 & 3. Topography is mountainous with steep mountain ranges throughout the survey block. Details of the survey block are included in tables below:

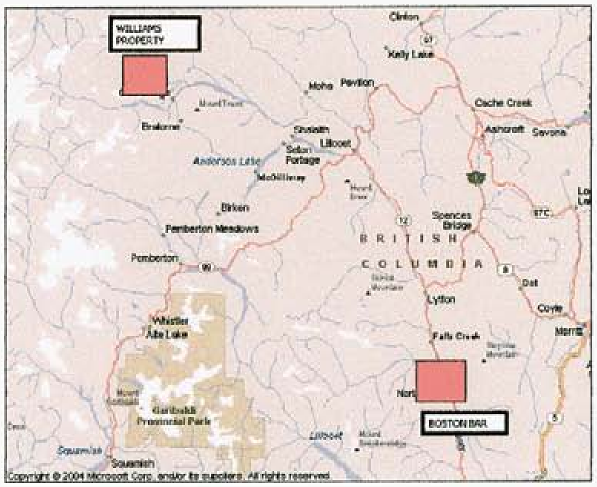


Figure 2: Maps showing locations of the Boston Bar and Williams Properties

The following coordinates, in WGS-84, UTM zone 10N coordinate system, define the survey areas:

Table 1:Boston Bar

Corner #	Easting	Northing
1	615768.7	5525963
2	615778.6	5525501
3	616676.5	5525519
4	616717.1	5523666
5	612224.5	5523572
6	612185.8	5525424
7	613533.1	5525453
8	613523.6	5525915

Table 2:Williams

Corner #	Easting	Northing
1	519688.8	5637346
2	522322.2	5637351
3	522327.7	5636424
4	522767.7	5636426
5	522770.4	5635962
6	523649.1	5635966
7	523661.2	5633187
8	521020.7	5633174
9	521014.3	5634565
10	519695.3	5634559
11	519688.8	5637346

For Boston Bar, the traverse lines, spaced at 100 metres, were flown in an East- West direction, with tie-lines flown perpendicular to that at 1000 metre spacing.

In the case of the Williams property, the traverse lines, spaced at 100 metres, were flown North – South, with tie-lines flown perpendicular to that at 1000 metre spacing. Combined, a total of 247 line-kilometers were flown (including tie-lines), covering an area of approximately 23 square kilometres.

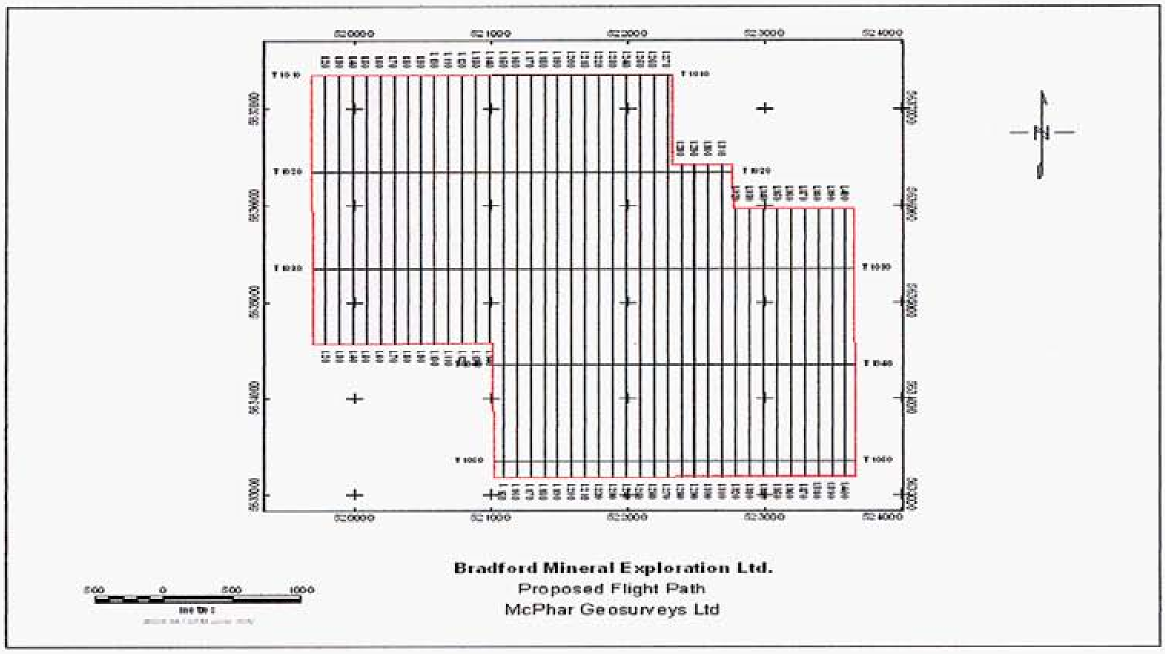


Figure3: Map showing pre-planned flight lines of the Williams Property

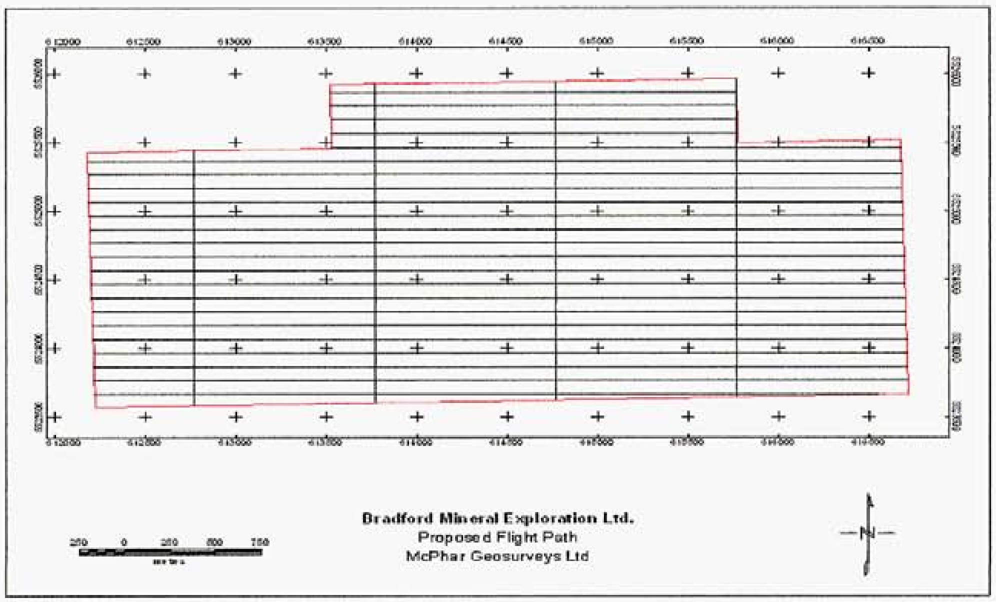


Figure4: Map showing pre-planned flight lines of the Boston Bar Property

3. Survey Operations

3.1 Operations Base

Lillooet, BC was the base of the operations. The magnetometer and GPS base stations were setup at the airstrip, away from any local 'pedestrian' traffic or aircraft.

Figure5: Basestation GPS and magnetometer setup

Figure6: Helicopter at William's fuel cache

Figure7: Typical survey terrain

3.2 Navigation

The nominal data acquisition speed was approximately 110 kilometres per hour. Scan rates for magnetic and electromagnetic data acquisition was 0.1 second, 1.0 second for the radar and barometric altimeters, and 1.0 second for the GPS navigation/positioning system. Therefore, a magnetic/electromagnetic value was recorded approximately every 3.0 meters and a position fix each 30 meters along the flight track.

Navigation was assisted by a GPS receiver system that reports GPS co-ordinates as WGS-84 latitude and longitude and directs the pilot over the pre-programmed two-dimensional (2-D) survey grid. The x-y position of the helicopter as reported by the DGPS system is recorded together with the terrain clearance as reported by the radar altimeter. For surveying purposes, the coordinates of the survey area were WGS84 (World) coordinates system.

Vertical navigation along flight lines was established using the radar altimeter. The optimum terrain clearance during normal survey flying was 60 metres for the helicopter, 30 metres for the towed-bird EM system and magnetometer. However, due to the rugged terrain throughout the survey area, and the pilot's judgment of safe flying conditions in these areas, these terrain clearances were not possible 100% of the time.

The final vertical and horizontal survey positions were differentially corrected post flight, computed using the data from a base station GPS receiver, to a precision of approximately +/- 2 metres.

3.3 Survey Statistics and Project Diary

The electromagnetic survey entailed a total of 21 flights. The first production flight was Flt# 01 on April 4, 2006, and the last production flight was Flt# 21 on May 6, 2006.

Table 3: Project Diary

Date	Flt #	Hours Flown	Line-Km	Comments
04 Apr	1	2.1	14.3	Abbreviated flight in PM
05 Apr	2,3,4	4.8	94.4	Production flights
06 Apr	5	0.2	0.0	Problem with 6K – flight aborted
23 Apr	6	0.3	0.0	Return from absence/repair – fly tests
24 Apr	7.8.9	4.3	40.8	Production flights
25 Apr	10,11,12	7.0	100.5	Production flights
26 Apr	-	-	-	Work on 'harmonic' problem
27 Apr	-	-	-	Continue to troubleshoot –release helicopter
03 May	-	-	-	Helicopter arrives back - reinstall
04 May	13,14,15	6.5	97.8	Production flights
05 May	16,17,18	4.4	98.7	Production flights
06 May	19,20,21	5.8	49.5	Production flights
		35.4	496.0	

- Totals are inclusive 249 line-kms of reflights

Figure8: The assembling of HUMMINGBIRD™

4. HELICOPTER AND SURVEY INSTRUMENTS

4.1 The Helicopter

An Eurocopter AS-350B2 A-Star helicopter; registration number C-GRHH, owned and operated by Highland Helicopters Ltd. of Vancouver, British Columbia was used for the survey. Installation of the geophysical and ancillary equipment was undertaken by McPhar's personnel in Revelstoke, BC, as well as again, in the town of Lillooet.

Figure9: The survey helicopter

The survey helicopter was flown at a nominal terrain clearance of 60 m (200ft). Normal helicopter airspeed was approximately 110 km/hr. The magnetometer and Hummingbird™ EM system were sampled at a rate of ten times per second (10 Hz) and the radar altimeter and GPS were sampled at a rate of once per second (Table 4).

Table 4: Survey Speeds

SURVEY SPEED (km/hour)	SURVEY SPEED (metres/sec)	SAMPLING INTERVAL (0.1 second)	SAMPLING INTERVAL (1 second)
110	30	3 meters	30 metres

4.1.1 Terrain Clearances

Optimum terrain clearances for the helicopter and instrumentation during this survey were:

Helicopter	-	60 metres
Hummingbird™ EM sensor & Magnetometer	-	30 metres

However, it was not possible to maintain the optimum terrain clearance throughout the survey due to the steep mountainous terrain throughout the survey area.

4.2 Survey Instruments

A HUMMINGBIRD™ Multi-Sensor System complete with the following instruments was utilized:

- HUMMINGBIRD™ EM 5-frequency system, 880Hz, 980 Hz, 6.6 kHz, 7 kHz and 34 kHz frequencies
- Scintrex CS-2 High-High Resolution Cesium Magnetometer
- A GPS Navigation System, comprising a NovAtel Millennium dual-frequency GPS receiver, and a PNAV 2100 GPS computer/pilot steering indicator (PSI)
- A Geotech GDAS data acquisition system
- A Terra TRA-3000 radar altimeter

Ground support equipment and base stations comprised:

- GEM GSM 19 proton magnetometer base station
- NovAtel Millennium dual frequency GPS Base Station
- FWS Field Workstation

4.2.1 The Helicopter-borne HUMMINGBIRD™ Digital Electromagnetic System

The electromagnetic system was a Geotech ***HUMMINGBIRD™*** 5-frequency system. Two vertical coaxial coil pairs were operated at 980 Hz and 7,001 Hz, and three horizontal coplanar coil pairs were operated at 880 Hz, 6,630 Hz and 34,133 Hz. Inphase and quadrature signals were measured simultaneously for the 5 frequencies with a time constant of 0.1 seconds. The ***HUMMINGBIRD™*** sensor was towed 30 m below the helicopter.

The basic HUMMINGBIRD™ electromagnetic system consists of a towed-bird airfoil for the EM sensors, and a Pentium-PC based data acquisition system with numerous plug-in boards (magnetometer Larmor processor, GPSCard, analog processor card, serial card, video overlay card, etc.). The data acquisition system records data on a removable PCMCIA hard disk, and displays data on a LCD display as traces (simulating an analog chart recorder). The signals from the EM sensors are processed in the airfoil, and sent to the data acquisition console in the helicopter for recording and display via an RS-232 cable. HUMMINGBIRD™ is fully digital and may be operated in a fully automated mode when necessary.

The 5-frequency HUMMINGBIRD™ system features the following frequencies and coil configurations:

Table 5: HUMMINGBIRD™ EM system details

COIL FREQUENCY	COIL ORIENTATION	COIL SEPARATION	CHANNELS
880 Hz	Coplanar	6.0 meters (19.5ft)	I, Q
980 Hz	Coaxial	6.0 meters (19.5ft)	I, Q
6.6 kHz	Coplanar	6.3meters (20.5ft)	I, Q
7 kHz	Coaxial	6.3meters (20.5ft)	I, Q
34 kHz	Coplanar	4.9 meters (16ft)	I, Q

I = In-phase Q = Quadrature

Figure 10: HUMMINGBIRD™ Electromagnetic Sensor

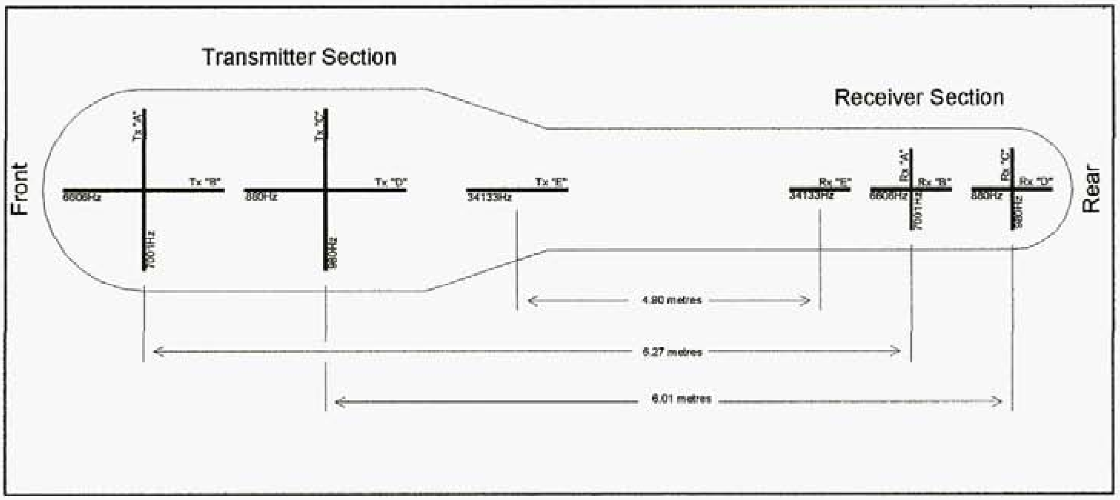


Figure 11: HUMMINGBIRD™ electromagnetic sensor coils information

The HUMMINGBIRD™ EM System is described in more detail in Appendix 2.

4.2.2 Airborne Magnetometer

A Scintrex CS-2 cesium magnetometer was used on this survey, and was installed inside the *HUMMINGBIRD*™ airfoil. Sampling rate was ten times per second (10Hz) with an in-flight sensitivity of 0.01 nT. Aerodynamic magnetometer noise did not exceed 0.25 nT. The resolution of the magnetometer is 0.001nT at a 0.1 second sampling rate.

Figure 12: Scintrex CS-2 Cesium Magnetometer

The Scintrex CS-2 magnetometers are described in Appendix 2.

4.2.3 Altimeter

A Terra TRA-3000 radar altimeter was used to record terrain clearance to an accuracy of about 1 ft (30 cm), over a range of 40ft to 2,500ft. The antenna was mounted beneath the helicopter cockpit on the skid stand. The recorded value of terrain clearance was adjusted to give bird height above ground.

The altimeter was interfaced to the data acquisition system with an output repetition rate of 1 second, and was digitally recorded.

4.2.4 GPS Navigation System

A NovAtel Millennium dual-frequency (12-channels) GPS receiver and a Picodas PNAV-2100 navigation computer and pilot steering indicator (PSI) provided in-flight navigation control. This navigation system operated on 12-channels. A pilot steering indicator (PSI) provided steering and cross-track guidance to the pilot. The system works with a predetermined "grid-flight-path" or "record-as-you-go" flight path.

This navigation system, in any event, yielded a real-time positional accuracy of better than +/-1.5 metres. Another NovAtel Millennium dual-frequency GPS receiver, with a PC data logger was set up as a base station at the airstrip to provide information for differential corrections of the airborne GPS data.

Survey co-ordinates were set-up prior to survey and the information was fed into the airborne navigation system. The co-ordinate system employed in the survey design and digital recording was WGS-84 projected X,Y coordinates. The GPS positional data was recorded at one-second intervals and used with the base station data to calculate differentially corrected locations.

4.2.5 Digital Data Acquisition System

A Geotech Hummingbird^{TM} GDAS digital data acquisition system recorded the digital survey data on an internal hard disk drive. Data is displayed on an LCD screen as traces to allow the operator to monitor the integrity of the system. The DAS provides for the:

- System control and monitoring
- Data acquisition recording
- Real-time data processing
- Navigation processing, and
- Post flight data playback and analysis

All data collection routines, checking and verification, buffering, and recording are software controlled for maximum flexibility both during and after the survey flight.

Table 6: Sampling rates of digital data

SYSTEM/No. of CHANNELS	SAMPLING RATES/SEC.
Total Field Magnetometer (1 channel)	0.1 sec
E.M. - 880 Hz (2 channels) Coplanar	0.1 sec
E.M. – 980 Hz (2 channels) Coaxial	0.1 sec
E.M. – 6.6kHz (2 channels) Coplanar	0.1 sec
E.M. – 7 kHz (2 channels) Coaxial	0.1 sec
E.M. – 34 kHz (2 channels) Coplanar	0.1 sec
Barometric Altimeter (1 channel)	1.0 sec
Radar Altimeter (1 channel)	1.0 sec
GPS Navigation	1.0 sec

4.2.6 Base Station Magnetometer

To monitor and record diurnal variations of the earth's magnetic field a GEM GSM-19 proton magnetometer base station was utilized. It was set up close (50 metres into the bush) to the Lillooet airport. Every effort was made to ensure that the magnetometer sensor was placed in a location with a low magnetic gradient and sited away from electric transmission lines and moving ferrous objects.

4.2.7 GPS Base Station

A NovAtel Millennium 12-channel dual-frequency GPS Base Station was also set-up at the airstrip to provide post-survey differential corrections for the airborne system. Data from a known geodetic point close to operation base was not available; therefore the GPS system itself was used, over a period of several hours, to calculate the average coordinates of the base station.

4.2.8 FWS Field Workstation

A Data Processing Field Workstation (FWS) comprised of a dedicated PC-based notebook computer for use at the technical base in the field, was used on this project. The FWS is designed for use with Geosoft OASIS/Montaj Data Processing Software. The FWS has a data replot capability, and may be used to produce pseudo-analogue charts from the recorded digital data within less than 12 hours after the completion of a survey flight, if this is necessary. It is also capable of processing and imaging all the geophysical and navigation data acquired during the survey, producing semi-final, preliminary-levelled maps.

The FWS was used to accomplish the following:

- **Quality Control/Digital Data Verification** - flight data quality and completeness were assured by both statistical and graphical means on a daily basis
- **Flight Path Plots** - flight path plots were generated from the GPS satellite data to verify the completeness and accuracy of each day's flying
- **Preliminary Maps** - the Geosoft software system permitted preliminary maps to be quickly and efficiently created for noise and coherency checks.

The Montaj software is designed for airborne data editing, compilation, processing and plotting. The software reads the portable data media from the airborne system checks them for gaps, spikes or other defects and permits the data to be edited where necessary. The base station GPS/magnetometer data is checked, edited, processed and then merged with the airborne data. GPS flight path plots are created and plotted for both flight planning and flight path verification.

4.2.9 Spares

A normal compliment of spare parts, tools, back-up software, and necessary test instrumentation was available in the office at the airport.

5. DATA ACQUISITION AND DATA QUALITY CONTROL

5.1 Instrument Checks, Tests and Calibrations

5.1.1 HEM Tests and Calibrations

The ***HUMMINGBIRD***™ EM system was:

- Calibrated at the start of survey on the ground, using a ferrite rod and calibration coil
- An internal Q-coil calibrations was performed by the onboard technician at the beginning of each flight
- At the beginning and end of each flight, and periodically during a flight, the helicopter climbed to high-altitude to allow the onboard technician to perform background and drift checks.

5.1.2. Magnetic Heading Effect

The magnetic heading effect was determined by flying a portion of a survey line and a tie line in both (nominal and reverse) directions periodically throughout the survey. The above-mentioned procedures enabled sufficient statistical information to be obtained to estimate the heading error. No modifications or additions to the helicopter or the installed equipment were made during the survey.

5.1.3. Lag Tests

Lag tests were performed to ascertain the time difference between the instrument readings and the operation of the GPS System. To determine the lag a test line was flown in two directions at survey altitude on flight 06 April 23.

5.1.4. GPS Tests

The GPS system itself was used, over a period of time, to calculate the coordinates of the landing pad where the helicopter landed every day. The measured and averaged coordinates were compared on daily basis. Care was also taken to ensure that the base station GPS had a maximum field-of-view to the GPS satellites.

5.1.5. Altimeter Calibration Checks

Checks of the radar altimeter calibration were completed on a daily basis over the course of the survey. The calibration was determined by comparing the radar altitude with a suitable reading from the GPS system during a radar "stack" over the landing spot of the helicopter where the ellipsoidal height of the ground is accurately known. A vertical flight over a flat area was carried out on flight 06 on April 23.

5.1.6 Overall Data Acquisition and QC Procedures

A GPS receiver and a data acquisition system that reports GPS co-ordinates as WGS-84 latitude/longitude and directs the pilot over a pre-programmed survey grid assisted navigation. The x-y-z position of the helicopter, as reported by the GPS, was recorded along with terrain clearance, as reported by the radar altimeter, at one-second intervals.

High-level calibration flights, mentioned in section 5.1.1, were flown outside of ground effects, i.e. above 300 m, to record electromagnetic zero levels periodically during a survey flight and at the start and end of each flight.

A test line was flown in both directions to determine and check the heading and lag effect; and to check the data quality of all the airborne geophysical sensors and the navigation equipment. The radar altimeter calibration was checked on a daily basis during vertical test flights carried out during landing and taking off.

A GPS base station was set up at the Lillooet airstrip. Care was taken to ensure that the base station GPS had a maximum field-of-view to the GPS satellites. The GPS base station recorded static GPS positions for later differential correction of the airborne GPS data. A magnetometer base station was also set up at the airstrip. The magnetometer base station was used to monitor and record the diurnal magnetic variation (maximum allowed gradient of 25 nT per 5 minutes chord).

The operator was responsible for ensuring that all instruments were properly warmed up prior to departure for survey. He also maintained a detailed flight log during the survey, noting the times of the flight as well as any unusual geophysical or topographic features.

On return of the aircrew to the base the survey data was transferred to a portable hard drive (PCMCIA).

All data collected in the air and on the ground were controlled and pre-processed by the field geophysicist on a daily basis as follows:

- heading and lag effect were checked
- EM system and radar calibration were checked
- all data collected on the test line were checked
- magnetometer and EM system noise were checked
- EM system drift was checked and calculated
- GPS and magnetic base station data were checked and processed
- GPS data were differentially corrected using Waypoint GrafNAV software
- GPS and radar altimetry data were processed to obtain the DTM (DEM) grid of the surveyed areas, which was compared to the topographic maps received from the client
- Magnetic data were corrected for diurnal variations of the total magnetic field as recorded by the magnetometer base station
- EM data were noise filtered and drift corrected
- Grids/Maps of all EM drift corrected channels were produced and compiled

6. PERSONNEL

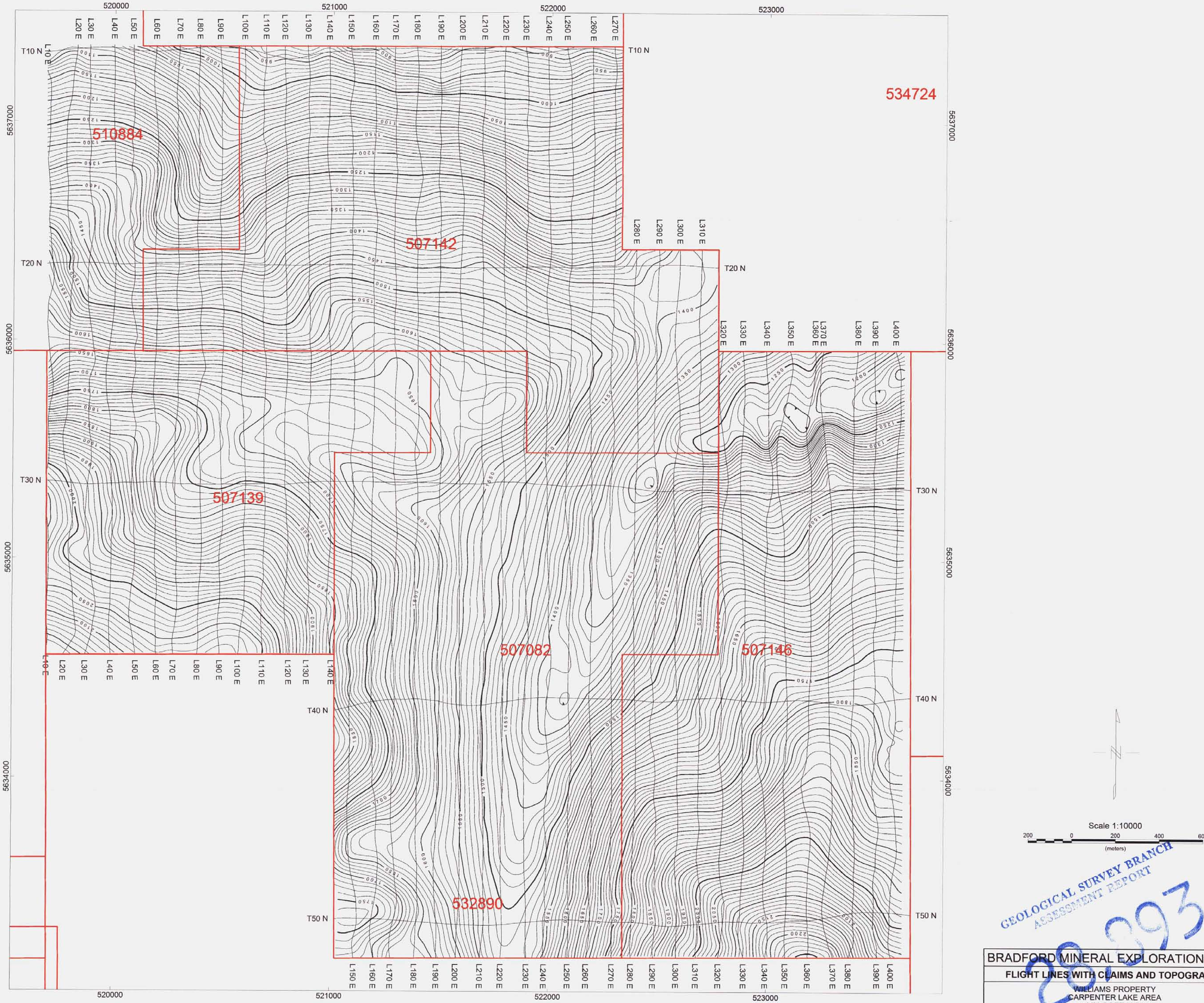
The following personnel were involved in the project:

Field Operations:	
Adam Barrett	Project Manager/QC/Data Processor
Mark Andrews	Technician/Operator
Newmarket Office:	
Dr. H.T. Andersen	Principle Geophysicist
Tonia Bojkova, M.Sc.	Data Processor/Geophysicist
Asif Mirza, M.Sc.	Data Processor/Geophysicist
Rebecca Bodger	Geophysical Technician

The survey pilots included Olaa Vaaga and Rob Morrison. They were supported by Dave Anderson, out of the Highland Kamloops hanger.

Overall management of the survey was carried out from the Newmarket office of McPhar Geosurveys Inc. by Timothy R. Bodger, President.

APPENDIX II



GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

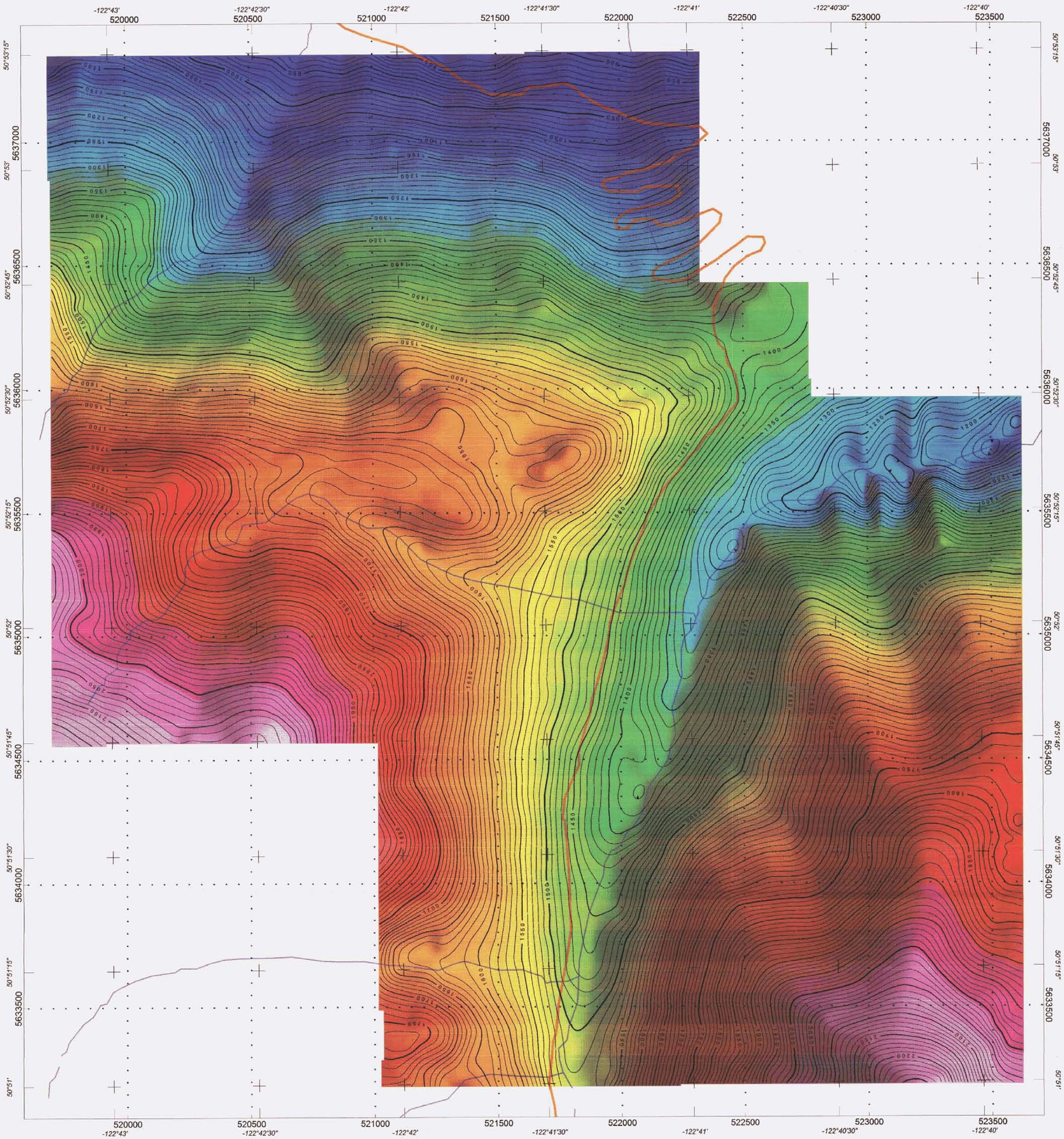
28,893

BRADFORD MINERAL EXPLORATIONS LTD.

FLIGHT LINES WITH CLAIMS AND TOPOGRAPHY

WILLIAMS PROPERTY
CARPENTER LAKE AREA
LILLOOET M.D.
DECEMBER 2006

PETER E. WALCOTT & ASSOCIATES LIMITED



LEGEND

Survey Parameters:

Helicopter Type: Helicopter A-Star B2
Helicopter Registration: C-GRHH
Survey Date: April-May 2006
Traverse Line Spacing: 100 metres
Traverse Line Direction: N-S
Control Line Spacing: 1000 metres
Control Line Direction: E-W

Airborne Magnetometer System:

Scintrex CS-2 Cesium Magnetometer
Sensitivity: 0.0006 nT
Noise Level: +/- 0.001 nT
Sensor Height: Nominally 30 metres mean terrain clearance (mtc)
Sensor Location: Mounted inside HUMMINGBIRD EM Sensor

Airborne Electromagnetic (HEM) System:

Geotech HUMMINGBIRD 5-Frequency System
with coplanar coils at 880 Hz and 6606 Hz and with coaxial coils 980 Hz, 7001 Hz and 34133 Hz
Sensor Height: Nominally 30 metres mean terrain clearance (mtc)
Sampling Rate: 10 readings/second

Data Acquisition System:

Geotech Data Acquisition System
Radar Altimeter: Terra TRA-3000/TRI-30

Airborne Navigation System:

AG-NAV Navigation System
Sampling Rate: 1 reading/second

Base Station GPS Receiver:

Novatel Millenium receiver
Sampling Rate: 1 reading/second

Base Station Magnetometer:

GSM 19T Proton
Sampling Rate: 1 reading/second
Sensitivity: 0.1 nT

2257
2061
1957
1863
1795
1740
1692
1656
1625
1591
1553
1518
1485
1449
1411
1377
1329
1263
1187
1067
863

DTM
metre

Contour Legend:

10 metre
50 metre
250 metre

Scale 1:10000

200 0 200 400 600
metres
WGS 84 / UTM zone 10N

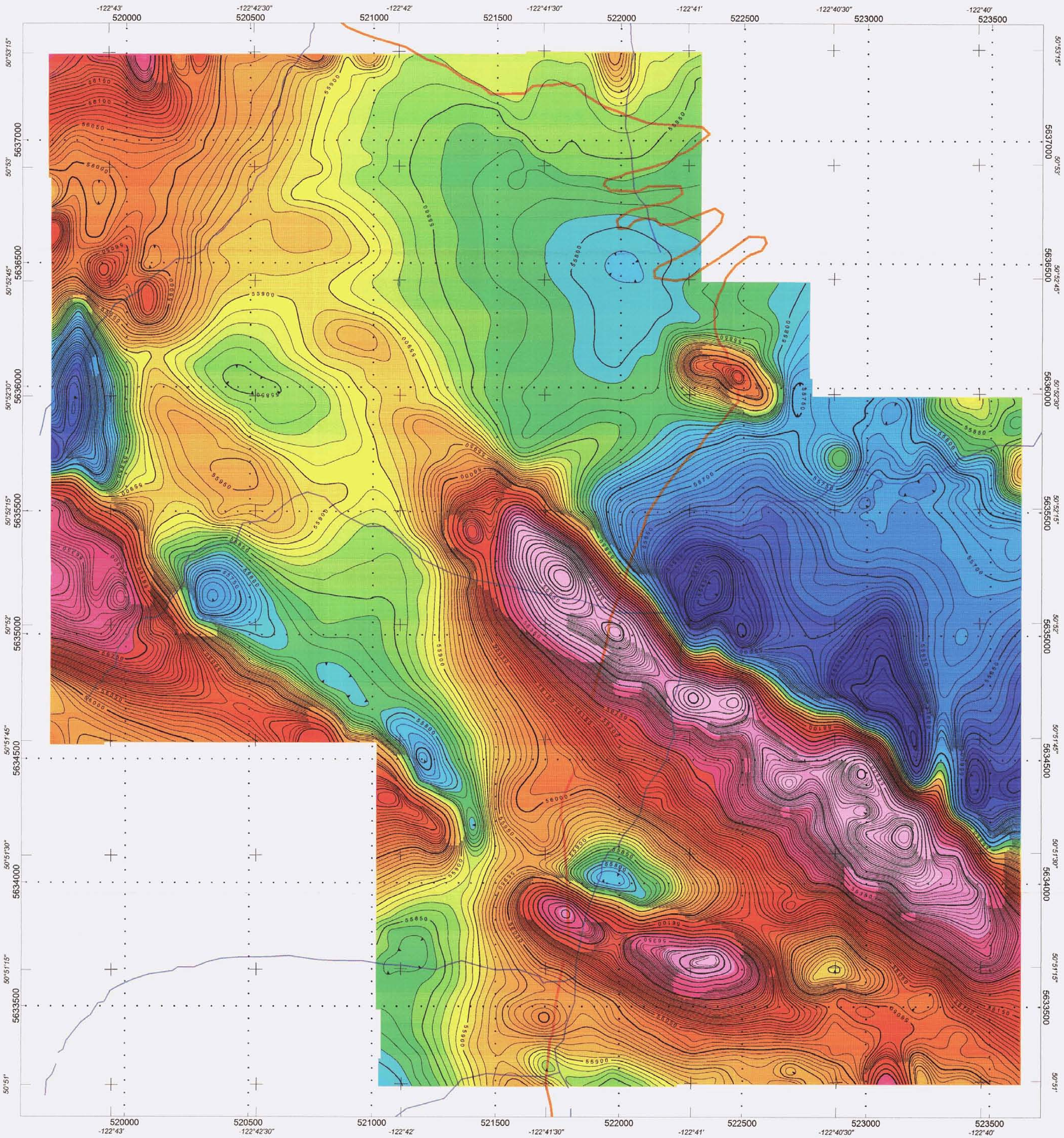
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT
28,093

McPHAR

Bradford Mineral Explorations Ltd.

Digital Terrain Model
Williams Block

McPhar Geosurveys Ltd.



N

LEGEND

Survey Parameters:

Helicopter Type: Helicopter A-Star B2
Helicopter Registration: C-GRHH
Survey Date: April-May 2006
Traverse Line Spacing: 100 metres
Traverse Line Direction: N-S
Control Line Spacing: 1000 metres
Control Line Direction: E-W

Airborne Magnetometer System:

Scintrex CS-2 Cesium Magnetometer
Sensitivity: 0.0006 nT
Noise Level: +/- 0.001 nT
Sensor Height: Nominally 30 metres mean terrain clearance (mtc)
Sensor Location: Mounted inside HUMMINGBIRD EM Sensor

Airborne Electromagnetic (HEM) System:

Geotech HUMMINGBIRD 5-Frequency System with coplanar coils at 880 Hz and 6606 Hz and with coaxial coils 980 Hz, 7001 Hz and 34133 Hz
Sensor Height: Nominally 30 metres mean terrain clearance (mtc)
Sampling Rate: 10 readings/second

Data Acquisition System:

Geotech Data Acquisition System
Radar Altimeter: Terra TRA-3000/TRI-30

Airborne Navigation System:

AG-NAV Navigation System
Sampling Rate: 1 reading/second

Base Station GPS Receiver:

Novatel Millenium receiver
Sampling Rate: 1 reading/second

Base Station Magnetometer:

GSM 19T Proton
Sampling Rate: 1 reading/second
Sensitivity: 0.1 nT

TMI (After Comudrape)
nanoTesla

Contour Legend:

10 nanoTesla
50 nanoTesla
250 nanoTesla

Magnetic Data have been calculated to conform to a common observation height (drape) of 100 metres.

Scale 1:10000

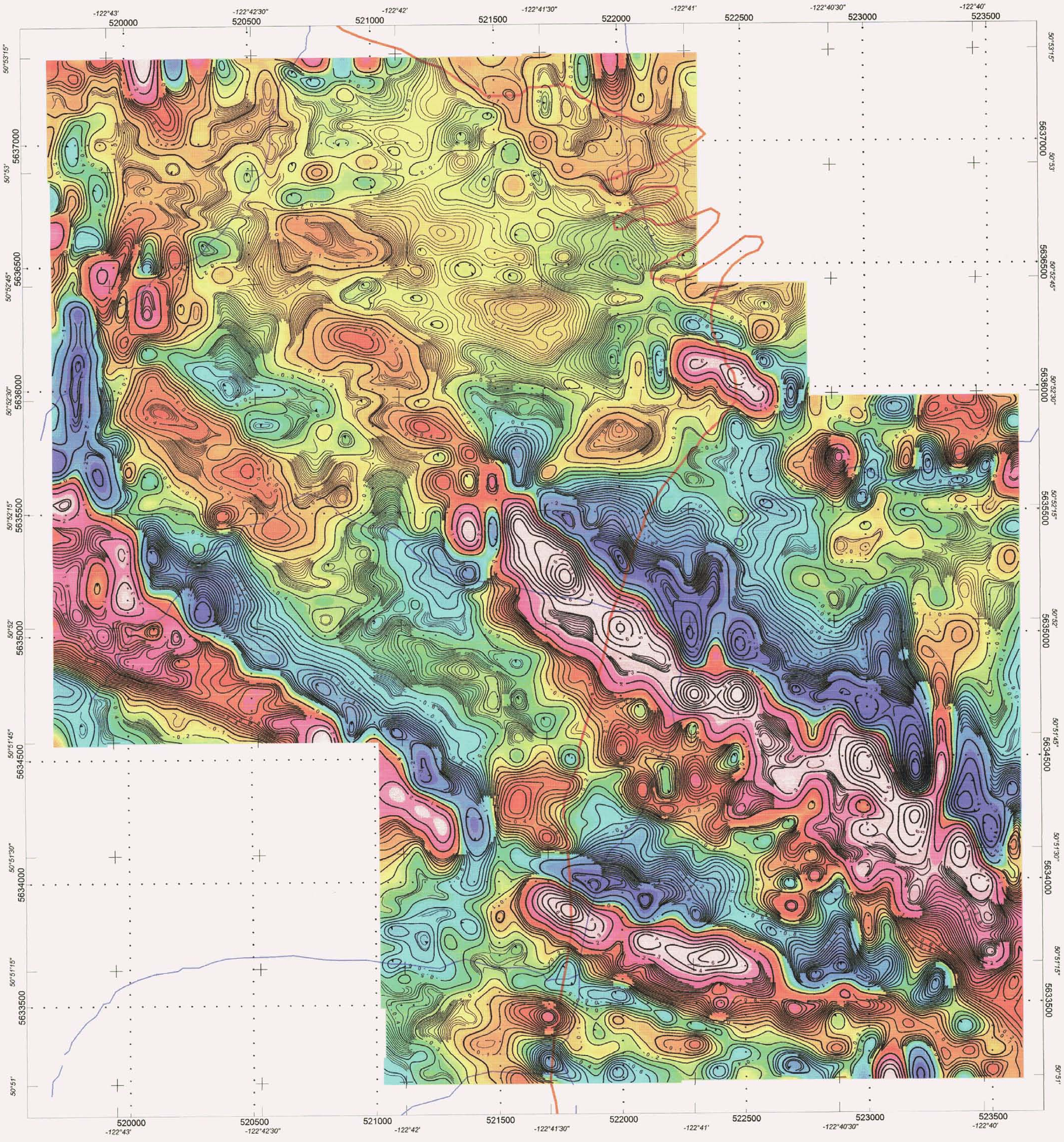
200 0 200 400 600
metres
WGS 84 / UTM zone 10N

28,893

Bradford Mineral Explorations Ltd.

Total Magnetic Intensity (After Compudrape)
Williams Block

McPhar Geosurveys Ltd.



LEGEND

Survey Parameters:

Helicopter Type: Helicopter A-Star B2
Helicopter Registration: C-GRHH
Survey Date: April-May 2006
Traverse Line Spacing: 100 metres
Traverse Line Direction: N-S
Control Line Spacing: 1000 metres
Control Line Direction: E-W

Airborne Magnetometer System:

Scintrex CS-2 Cesium Magnetometer
Sensitivity: 0.0006 nT
Noise Level: +/- 0.001 nT
Sensor Height: Nominally 30 metres mean terrain clearance (mtc)
Sensor Location: Mounted inside HUMMINGBIRD EM Sensor

Airborne Electromagnetic (HEM) System:

Geotech HUMMINGBIRD 5-Frequency System
with coplanar coils at 880 Hz and 6606 Hz and with coaxial coils 980 Hz, 7001 Hz and 34133 Hz
Sensor Height: Nominally 30 metres mean terrain clearance (mtc)
Sampling Rate: 10 readings/second

Data Acquisition System:

Geotech Data Acquisition System
Radar Altimeter: Terra TRA-3000/TRI-30

Airborne Navigation System:

AG-NAV Navigation System
Sampling Rate: 1 reading/second

Base Station GPS Receiver:

Novatel Millenium receiver
Sampling Rate: 1 reading/second

Base Station Magnetometer:

GSM 19T Proton
Sampling Rate: 1 reading/second
Sensitivity: 0.1 nT

11.86, 3.84, 2.63, 1.84, 1.34, 0.94, 0.66, 0.45, 0.32, 0.22, 0.14, 0.08, 0.03, 0.00, -0.03, -0.06, -0.09, -0.12, -0.14, -0.16, -0.18, -0.20, -0.21, -0.24, -0.27, -0.30, -0.33, -0.36, -0.40, -0.44, -0.48, -0.54, -0.61, -0.70, -0.84, -1.06, -1.37, -1.82, -2.60, -9.76

1VD
nanoTesla/metre

Contour Legend:

0.001 nT/m
0.01 nT/m
0.1 nT/m

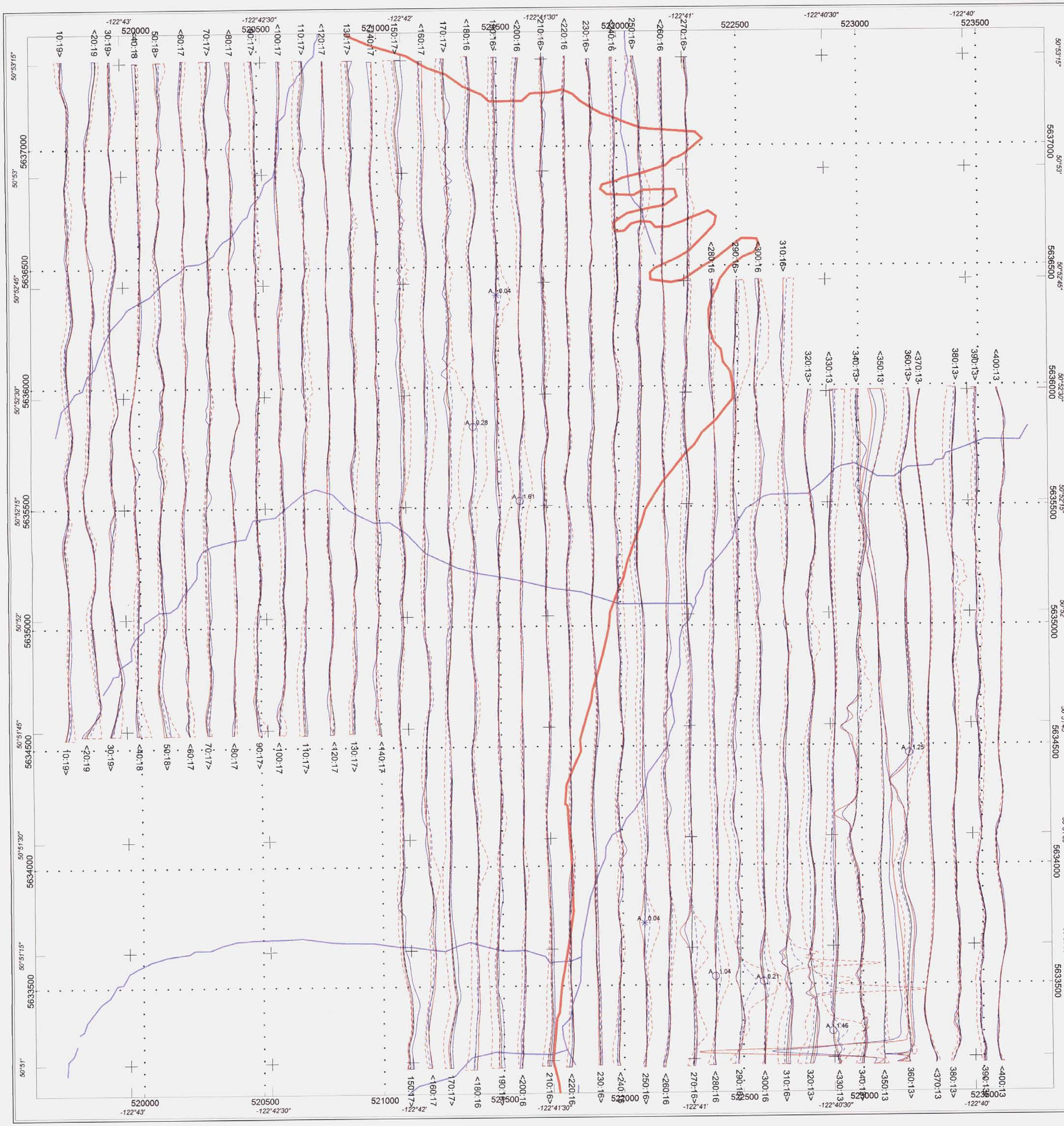
Magnetic Data have been calculated to conform to a common observation height (drape) of 100 metres.

Scale 1:10000
200 0 200 400 600
metres
WGS 84 / UTM zone 10N

Bradford Mineral Explorations Ltd.

Calculated First Vertical Derivative of TMI (after Compudrape) Williams Block

McPhar Geosurveys Ltd.



LEGEND

Survey Parameters:

Helicopter Type: Helicopter A-Star B2
Helicopter Registration: C-GRHH
Survey Date: April-May 2006
Traverse Line Spacing: 100 metres
Traverse Line Direction: N-S
Control Line Spacing: 1000 metres
Control Line Direction: E-W

Airborne Magnetometer System:

Scintrex CS-2 Cesium Magnetometer
Sensitivity: 0.0006 nT
Noise Level: +/- 0.001 nT
Sensor Height: Nominally 30 metres mean terrain clearance (mtc)
Sensor Location: Mounted inside HUMMINGBIRD EM Sensor

Airborne Electromagnetic (HEM) System:

Geotech HUMMINGBIRD 5-Frequency System with coplanar coils at 880 Hz and 6606 Hz and with coaxial coils 980 Hz, 7001 Hz and 34133 Hz
Sensor Height: Nominally 30 metres mean terrain clearance (mtc)
Sampling Rate: 10 readings/second

Data Acquisition System:

Geotech Data Acquisition System
Radar Altimeter: Terra TRA-3000/TRI-30

Airborne Navigation System:

AG-NAV Navigation System
Sampling Rate: 1 reading/second

Base Station GPS Receiver:

Novatel Millenium receiver
Sampling Rate: 1 reading/second

Base Station Magnetometer:

GSM 19T Proton
Sampling Rate: 1 reading/second
Sensitivity: 0.1 nT

Electromagnetic Anomaly Legend

Coaxial Coil (Conductance Units - Siemens)

980 Hz Coaxial Coil

- >16
- 8-16
- 4-8
- 2-4
- 1-2
- 0.5-1
- <0.5 questionable anomaly

3.23 E — Conductance (Siemens), Label

EM Profiles legend:

- 4 ppm/mm In Phase 880 Hz
- 1 ppm/mm Quadrature 880 Hz
- 1 ppm/mm In Phase 980 Hz
- 1 ppm/mm Quadrature 980 Hz

Scale 1:10000

200 0 200 400 600

metres

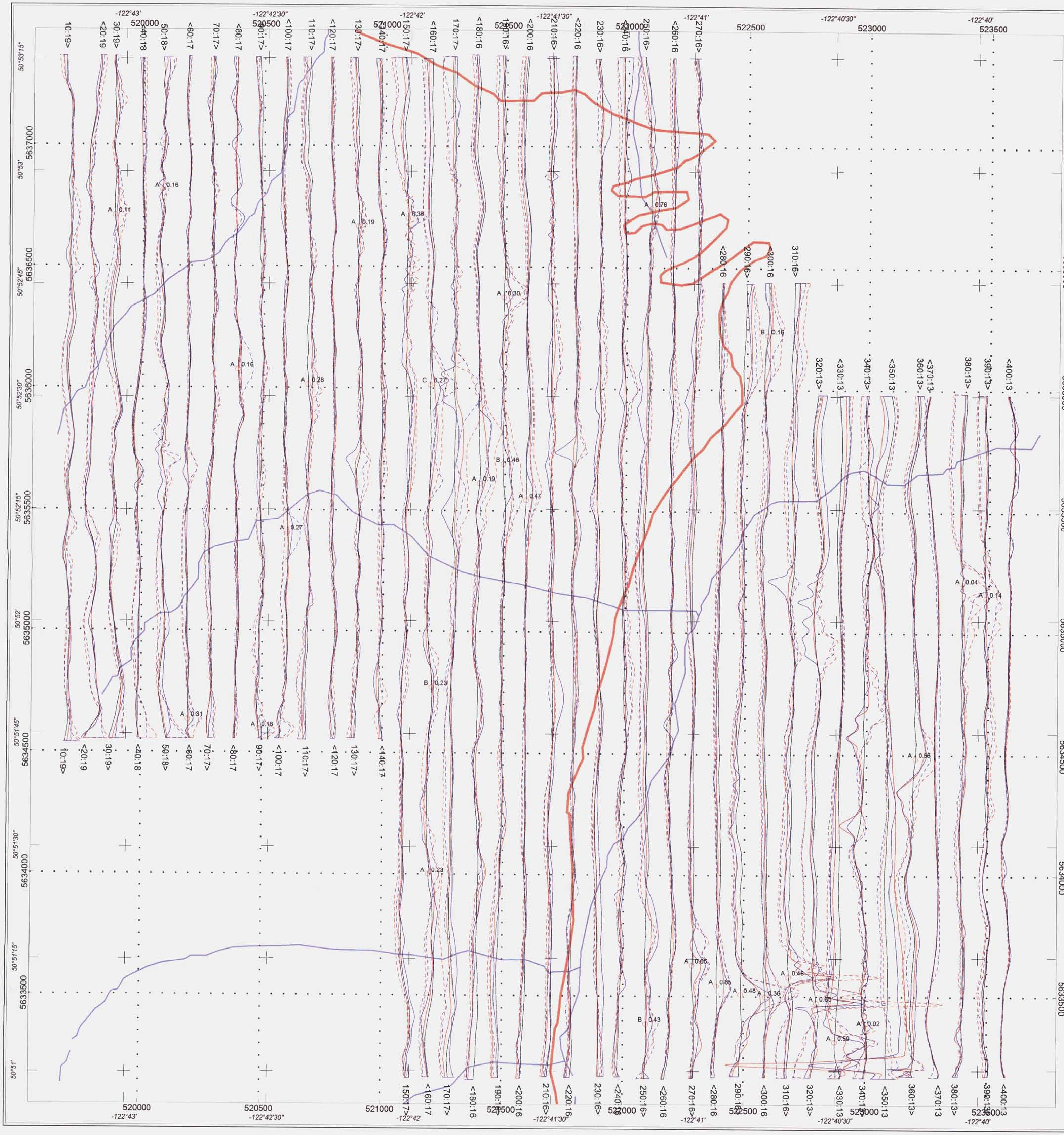
WGS 84 / UTM zone 10N

MCPHAR

Bradford Mineral Explorations Ltd.

EM Profiles: Horizontal Coplanar 880 Hz Coils
Vertical Coaxial 980 Hz Coils
Williams Block

McPhar Geosurveys Ltd.



LEGEND

Survey Parameters:

Helicopter Type: Helicopter A-Star B2
Helicopter Registration: C-GRHH
Survey Date: April-May 2006
Traverse Line Spacing: 100 metres
Traverse Line Direction: N-S
Control Line Spacing: 1000 metres
Control Line Direction: E-W

Airborne Magnetometer System:

Scintrex CS-2 Cesium Magnetometer
Sensitivity: 0.0006 nT
Noise Level: +/- 0.001 nT
Sensor Height: Nominally 30 metres mean terrain clearance (mtc)
Sensor Location: Mounted inside HUMMINGBIRD EM Sensor

Airborne Electromagnetic (HEM) System:

Geotech HUMMINGBIRD 5-Frequency System with coplanar coils at 880 Hz and 6606 Hz and with coaxial coils 980 Hz, 7001 Hz and 34133 Hz
Sensor Height: Nominally 30 metres mean terrain clearance (mtc)
Sampling Rate: 10 readings/second

Data Acquisition System:

Geotech Data Acquisition System
Radar Altimeter: Terra TRA-3000/TRI-30

Airborne Navigation System:

AG-NAV Navigation System
Sampling Rate: 1 reading/second

Base Station GPS Receiver:

Novatel Millenium receiver
Sampling Rate: 1 reading/second

Base Station Magnetometer:

GSM 19T Proton
Sampling Rate: 1 reading/second
Sensitivity: 0.1 nT

Electromagnetic Anomaly Legend

Coaxial Coil (Conductance Units - Siemens)

7000 Hz Coaxial Coil
>16
8-16
4-8
2-4
1-2
0.5-1
<0.5 questionable anomaly

3.23 E
Conductance (Siemens)
Label

EM Profiles legend:

5 ppm/mm In Phase 6600 Hz
5 ppm/mm Quadrature 6600 Hz
1 ppm/mm In Phase 7000 Hz
1 ppm/mm Quadrature 7000 Hz

Scale 1:10000
200 0 200 400 600
metres
WGS 84 / UTM zone 10N

McPHAR

Bradford Mineral Explorations Ltd.

EM Profiles: Horizontal Coplanar 6600 Hz Coils
Vertical Coaxial 7001 Hz Coils
Williams Block

McPhar Geosurveys Ltd.