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2007 Assessment Report

### Airborne Geophysical Survey on the Troitsa Property

Omineca Mining Division West-central British Columbia

53°34'04"N 127°03'55"W NTS 93E/11

Paget Resources Corporation 920-1040 W. Georgia St. Vancouver, BC V6E 4H1



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# 1 Introduction

The Troitsa Property, in the Whitesail Lake area south of Houston, hosts coppermolybdenum porphyry and epithermal gold-silver mineralization. The property was acquired in 2005 by Paget Resources Corporation and is 100% owned by the company. This report describes the results of an airborne magnetic gradiometer survey conducted over the property in March and April 2007 and recommends that further work be carried out on the property.

# 2 Property Location and Access

The Troitsa Property is located in west-central British Columbia (Figure 1), approximately 96 kilometers south-southwest of Houston. It lies in the Whitesail Range and extends to the shore of Whitesail Lake to the south. Elevations range from approximately 2800 feet at the lake to 6836 feet at Troitsa Peak. Access is via helicopter from Houston or Smithers. The southeastern corner of the property is accessible via the Tahtsa Reach logging road which is accessed by barge across Whitesail Lake.

# 3 Claim Status

The Troitsa Property (Figure 2) consists of twenty-one claims in the Omineca Mining Division. Mineral tenure numbers and details are as follows:

	Tenure			Мар	Good To	
	Number	Claim Name	Owner	Number	Date'	Area (ha)
	501194		201036 (100%)	093E	2010/sep/15	480.1
	501224		201036 (100%)	093E	2010/sep/15	480.0
	501260		201036 (100%)	093E	2010/sep/15	461.0
	501350		201036 (100%)	093E	2010/sep/15	480.5
	502015	Troitsa 5	201036 (100%)	093E	2010/sep/15	288.2
	503774	Troitsa 6	201036 (100%)	093E	2010/sep/15	345.6
	503775		201036 (100%)	093E	2010/sep/15	76.8
	503778	Troitsa 8	201036 (100%)	093E	2010/sep/15	230.6
	510587	TROITSA A	201036 (100%)	093E	2010/sep/15	115.3
	510588	TROITSA B	201036 (100%)	093E	2010/sep/15	115.2
	510589	TROITSA C	201036 (100%)	093E	2010/sep/15	76.8
	510590	TROITSA D	201036 (100%)	093E	2010/sep/15	76.8
	510684	TROITSA E	201036 (100%)	093E	2010/sep/15	460.5
	510686	TROITSA F	201036 (100%)	093E	2010/sep/15	115.2
	510691	TROITSA G	201036 (100%)	093E	2010/sep/15	479.7
	510696	TROITSA H	201036 (100%)	093E	2010/sep/15	307 <b>.0</b>
	510698	TROITSA I	201036 (100%)	093E	2010/sep/15	230.5
e	551781	TROITSA AA	201036 (100%)	093E	2010/sep/15	384.4
	551783	TROITSA BB	201036 (100%)	093E	2010/sep/15	461.5
	554798	TROITSA 50	201036 (100%)	093E	2010/sep/15	172.8
	554799	TROITSA 51	201036 (100%)	093E	2010/sep/15	288.3
					Total	6126.8

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' Good to Dates reflect new dates upon acceptance of work described in this report





# 4 Geology and Previous Work

The regional geology of the Whitesail Lake area has been described in several references (Duffell 1959, Woodsworth 1979, Diakow and Mihalynuk 1987).

Previous work in the property area is described in B.C. Ministry of Energy, Mines and Petroleum Resources Assessment Reports 10875 (Cawthorn 1982), 11512 (Cawthorn 1982a), 11709 (Cawthorn, 1982b), 11929 (Goldsmith 1984), 12109 (Goldsmith 1984a), 12326 (L'Orsa 1984), 13043 (Richards 1984), 16146 (Richards 1987), 17654 (Harivel), 17792 (Lambert 1988), 20817 (Richards 1990), 21720 (Richards 1991), 23759 (Goodall 1994), 24387 (L'Orsa 1995) and 28028 (Bradford 2005).

# 5 Airborne Geophysical Survey

A 648 line-kilometer airborne geophysical survey was conducted over the Troitsa Property from March  $22^{nd}$  to April  $2^{nd}$ , 2007 in an attempt to delineate subsurface structure and identify contact zones and faults.

The survey logistical details and equipment specifications are presented in Appendix A, "Report on a Helicopter-borne Magnetic Gradiometer Survey, Troitsa Property", by Aeroquest International.

### 5.1 Total Magnetic Intensity

The contour map (Figure 3) of the total magnetic intensity indicates that there is a 3 by 4 kilometer circular to oval magnetic high in the northern third of the survey, corresponding to the Troitsa Peak Complex. This zone is bounded to the south by a generally magnetically quiet zone in the southwestern area of the survey, and an area of moderate to high response in the southeast. The magnetically quiet zone is related to sedimentary rocks of the Hazelton Group (Smithers Formation). A northeast striking high within this zone is attributed to a mafic volcanic flow unit that crosses the sediments. The complex, moderate to high magnetic intensity in the southeast represents volcanic rocks, mostly andesite flows, of the Telkwa Formation. The Whitesail Fault can be seen as a magnetic low, trending from the southeast corner of the survey block to just south of the northeast corner.

Other zones of interest include: a 200 meter diameter circular low to the southwest of the Troitsa Peak Complex, that correlates well with the Morraine Zone (Cawthorn 1982, Bradford 2005), an area of quartz-sericite-pyrite alteration that sampling has shown to contain anomalous gold and silver values; an extremely strong magnetic high on the southern edge of the survey block that has not been examined or sampled; and the

Cummins Creek Porphyry Zone, a moderate magnetic high at 630100m E, 5935400m N rimmed by a semi-circular low which has been mapped (J. Bradford 2005) as quartz-sericite-pyrite alteration within volcanics.

### 5.2 Measured Vertical Gradient

The contour map (Figure 4) of the measured vertical gradient highlights the edges of the zones described above, and illuminates the internal complexity of the volcanic rocks of the Troitsa Peak Complex and the Telkwa Formation. It also further delineates the magnetic low of the Morraine Zone.

# 6 Summary and Recommendations

The 2007 airborne magnetic survey is useful in delineating the major rock units and structural details in the Troitsa property. A correlation between areas of alteration and low magnetic response was noted for the Morraine and Cummin Creek Porphyry zones.

It is recommended that further mapping and detailed rock, soil and talus fines sampling be performed in these areas and that the intense magnetic high on the southern boundary of the property also be investigated.

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# Appendix A

Report on a Helicopter-borne Magnetic Gradiometer Survey, Troitsa Property

Aeroquest International

### Report on a Helicopter-Borne Magnetic Gradiometer Survey



Aeroquest Job # 07076

Troitsa Property Houston, British Columbia NTS 093E11

For

### **Paget Resources**

by



7687 Bath Road, Mississauga, ON, L4T 3T1 Tel: (905) 672-9129 Fax: (905) 672-7083 www.aeroquest.ca

Report date: May 2007

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Aeroquest Job # 07076

### **Troitsa Property**

Houston, British Columbia NTS 093E11

For

### **Paget Resources**

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by



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- MVG Measured Vertical Gradient (MVG) with line contours



#### **1. INTRODUCTION**

This report describes a helicopter-borne geophysical survey carried out on behalf of Paget Resources on the Troitsa Property, in northern British Columbia. The principal geophysical sensor is Aeroquest's HELI-TAG tri-directional magnetic gradiometer (towed-bird) system which employs four (4) optically pumped Cesium magnetometer sensors. Ancillary equipment includes a GPS navigation system, radar altimeter, digital video acquisition system, and a base station magnetometer.

The total line-kilometres presented is 648.28 km of which 626.99km fell within the pre-defined survey boundary (Appendix 1). Survey flying described in this report took place from March 22<sup>nd</sup> to April 2<sup>nd</sup>, 2007. This report describes the survey logistics, the data processing, and provides an overview of the results.

#### 2. SURVEY AREA

The Project area (Figure 1) is located in Northern British Columbia approximately 150km southeast of Terrace and 95 km south of Houston. Project terrain is mountainous with some areas of permanent ice. Survey elevations ranged from 850 to over 2000m. The survey consisted of a single survey block of 56km<sup>2</sup>. The project was accessible by helicopter only.

Paget Resources Corporation holds 19 mining claims in the project area (Figure 2).

The base of survey operations was at Houston.





Figure 1. Project Area



Figure 2. Project flight path and mining claims



#### 3. SURVEY SPECIFICATIONS AND PROCEDURES

The survey specifications are summarised in the following table:

Project Name	Line Spacing (metres)	Line Direction	Survey Coverage (line-km)	Date flown
Troitsa	100	E-W (90°)	648.28	March 22nd to April 2nd, 2007

Table 1. Survey specifications summary

The presented survey coverage was calculated by adding up the survey and control (tie) line lengths as presented in the final Geosoft database.

The nominal gradiometer bird terrain clearance was 30 m but was periodically higher or lower over due to the rugged terrain and the capability of the aircraft. Nominal survey speed over relatively flat terrain is 100 km/hr and is generally lower in rougher terrain. Scan rates for gradiometer data acquisition is 0.10 seconds. The 10 samples per second translates to a gradiometer reading about every 1.5 to 3.0 metres along the flight path.

#### 3.1. NAVIGATION

Navigation is carried out using a GPS receiver installed on the gradiometer bird, an AGNAV2 system for navigation control. The Pico Envirotec acquisition system is used for GPS data recording. The x-y-z position of the aircraft, as reported by the GPS, is recorded at 0.2 second intervals. The system has a published accuracy of under 3 metres. A recent static ground test of the Mid-Tech WAAS GPS yielded a standard deviation in x and y of under 0.6 metres and for z under 1.5 metres over a two-hour period. The GPS antenna was mounted in a small bird 8m below the aircraft.

#### 4. AIRCRAFT AND EQUIPMENT

#### 4.1. AIRCRAFT

A Eurocopter EC-120B helicopter - registration C-GTRK was used as survey platform. The helicopter was owned and operated by TRK Helicopters, Langley, British Columbia. Installation of the geophysical and ancillary equipment was carried out by Aeroquest Limited personnel in conjunction with a licensed aircraft engineer. The survey aircraft was flown at a nominal terrain clearance of 220 ft (65 metres).



Figure 3. Helicopter registration number C-GTRK

#### 4.2. MAGNETIC GRADIOMETER SYSTEM

#### 4.2.1. Overview

The Aeroquest HELI-MAG magnetic gradiometer system (Figure 4) employs four (4) Geometrics G-823A optically pumped Cesium-vapor sensors. The Mag bird consists of 4 sensors allowing for measurements of the total field, vertical gradient and horizontal gradients both along and cross flight lines. Three sensors are configured in a tri-axial configuration at the rear of the bird and the fourth sensor is located in the nose of the bird to provide a longitudinal (horizontal) gradient measurement. The magnetic data is collected at a rate of 20Hz, and recorded by a dedicated Windows-based computer.

#### 4.2.2. Magnetometer Sensors

The specifications of the cesium vapour magnetometer are as follows\*:

Sensitivity:	<0.004 nT/rt-Hz
Absolute Accuracy:	< +/- 1.5 nT throughout operating range
Sampling Rate:	10 Hz
Dynamic Range:	20,000 - 100,000 nT
Heading Error:	less than 0.15 nT combined for sensor spins on all axes
Operating Temperature:	-35°C to +50°C

\*Specifications are provided by the sensor manufacturer

Aeroquest International - Report on a Helicopter-Borne HELI-TAG - Magnetic Gradiometer Survey



#### 4.2.3. Bird Design

Sensor Standoffs:

- Horizontal:	3.00 metres
- Vertical:	3.00 metres
- Longitudinal:	3.00 metres

Tow Cable:

45 metres long, with Kevlar strain member and weak-link

Terrain Clearance: 30 metres (nominal)



Figure 4. The Aeroquest HELI-TAG bird



#### 4.3. MAGNETOMETER BASE STATION

An integrated GPS and magnetometer base station is set up to monitor and record the diurnal variations of the Earth's magnetic field. The sensor, GPS and magnetic, receiver/signal processor is a dedicated unit for purposes of instrument control and/or data display and recording. The unit uses a common recording reference using the GPS clock.

The base station was a Geometrics G858 optically pumped Caesium vapour magnetometer coupled with a Garmin GPS18 GPS sensor. Data logging and magnetometer control was provided by the unit's internal software. The logging was configured to measure at 1.0 second intervals. Digital recording resolution was 0.01 nT. The sensor was placed on a tripod away from potential noise sources near the camp. A continuously updated profile plot of the magnetometer value is available for viewing on the unit's display.

#### 4.4. RADAR ALTIMETER

A Terra TRA 3500/TRI-30 radar altimeter is used to record terrain clearance. The antenna was mounted on the outside of the helicopter beneath the cockpit. Therefore, the recorded data reflect the height of the helicopter above the ground. The Terra altimeter has an altitude accuracy of  $\pm$  1.5 metres.

#### 4.5. VIDEO TRACKING AND RECORDING SYSTEM

A high resolution digital colour video camera is used to record the helicopter ground flight path along the survey lines. The video is recorded digitally and annotated with GPS position and time and can be used to verify ground positioning information and cultural causes of anomalous geophysical responses.



Figure 5. Digital video camera typical mounting location.

#### 4.6. GPS NAVIGATION SYSTEM

The navigation system consists of an Ag-Nav Incorporated AG-NAV2 GPS navigation system comprising a PC-based acquisition system, navigation software, a deviation indicator in front of the aircraft pilot to direct the flight, a full screen display with controls in front of the operator, a Mid-Tech RX400p WAAS-enabled GPS receiver mounted on the instrument rack and an antenna mounted on the magnetometer bird. WAAS (Wide Area Augmentation System) consists of approximately 25 ground reference stations positioned across the United States that monitor GPS satellite data. Two master stations located on the east and west coasts



collect data from the reference stations and create a GPS correction message. This correction accounts for GPS satellite orbit and clock drift plus signal delays caused by the atmosphere and ionosphere. The corrected differential message is then broadcast through one of two geostationary satellites, or satellites with a fixed position over the equator. The corrected position has a published accuracy of less than 3 metres.

Survey co-ordinates are set up prior to the survey and the information is fed into the airborne navigation system. The co-ordinate system employed in the survey design was WGS84 [World] using the UTM zone 9N projection. The real-time differentially corrected GPS positional data was recorded by the RMS DGR-33 in geodetic coordinates (latitude and longitude using WGS84) at 0.2 s intervals.

#### **5. PERSONNEL**

The following Aeroquest personnel were involved in the project:

- Manager of Operations: Bert Simon
- Manager of Data Processing: Jonathan Rudd
- Field Data Processor: Geoff Plastow
- Field Operator: Chris Kozak
- Data Interpretation and Reporting: Geoff Plastow, Matt Pozza, Marion Bishop

The survey pilot, Randy Marks, was employed directly by the helicopter operator – TRK Helicopters.

#### 6. DELIVERABLES

#### **6.1. HARDCOPY DELIVERABLES**

The report includes a set of two 1:10,000 maps. The survey area is covered by a single map plate and two geophysical data products are delivered as listed below:

- TMI Coloured Total Magnetic Intensity (TMI) with line contours
- MVG Measured Vertical Gradient (MVG) with line contours

The coordinate/projection system for the maps is NAD83 UTM Zone 9N. For reference, the latitude and longitude in WGS84 are also noted on the maps.

All the maps show flight path trace and contain topographic base data. Survey specifications are displayed in the margin of the maps.

#### **6.2. DIGITAL DELIVERABLES**

#### 6.2.1. Final Database of Survey Data (.GDB, .XYZ)

The geophysical profile data is archived digitally in a Geosoft GDB binary format database. A description of the contents of the individual channels in the database can be found in Appendix 2. A copy of this digital data is archived at the Aeroquest head office in Mississauga.



### 6.2.2. Geosoft Grid files (.GRD)

Levelled Grid products used to generate the geophysical map images. Cell size for all grid files is 25 metres.

- Total Magnetic Intensity (TMI)
- Measured Vertical Gradient (MVG)
- Measured Tansvesre Gradient (MTG)
- Measured Longitidinal Gradient (MLG)
- First vertical derivitaive of the TMI grid (1VD)
- Measured 3-D Analytic Signal (3DAS)

#### 6.2.3. Digital Versions of Final Maps (.MAP, .PDF)

Map files in Geosoft .map and Adobe PDF format.

#### 6.2.4. Free Viewing Software

- Geosoft Oasis Montaj Viewing Software with tutorial
- Adobe Acrobat Reader

#### 6.2.5. Digital Copy of this Document (.PDF)

#### 7. DATA PROCESSING AND PRESENTATION

All in-field and post-field data processing was carried out using Aeroquest proprietary data processing software and Geosoft Oasis Montaj software. Maps were generated using 36-inch wide Hewlett Packard ink-jet plotters.

#### 7.1. BASE MAP

The geophysical maps accompanying this report are based on positioning in the NAD83 datum. The survey geodetic GPS positions have been projected using the Universal Transverse Mercator projection in Zone 9 North. A summary of the map datum and projection specifications is given following:

- Eilipse: GRS 1980
- Ellipse major axis: 6378137m eccentricity: 0.081819191
- Datum: North American 1983 Canada Mean
- **•** Datum Shifts (x,y,z): 0, 0, 0 metres
- Map Projection: Universal Transverse Mercator Zone 9 (Central Meridian -129°W)
- Central Scale Factor: 0.9996
- False Easting, Northing: 500,000m, 0m

For reference, the latitude and longitude in WGS84 are also noted on the maps.

The background vector topography supplied by the client and the background shading was derived from NASA Shuttle Radar Topography Mission (SRTM) 90 metres resolution DEM data.



#### 7.2. FLIGHT PATH & TERRAIN CLEARANCE

The position of the survey helicopter was directed by use of the Global Positioning System (GPS). Positions were updated five times per second (5 Hz) and expressed as WGS84 latitude and longitude calculated from the raw pseudo range derived from the C/A code signal. The instantaneous GPS flight path, after conversion to UTM co-ordinates, is drawn using linear interpolation between the x/y positions. The terrain clearance was maintained with reference to the radar altimeter. The raw Digital Terrain Model (DTM) was derived by taking the GPS survey elevation and subtracting the radar altimeter terrain clearance values. The calculated topography elevation values are relative and are not tied in to surveyed geodetic heights.

Each flight included at least two high elevation 'background' checks. These high elevation checks are to ensure that the gain of the system remained constant and within specifications.

#### 7.3, MAGNETIC GRADIENT DATA

#### 7.3.1. Initial Processing - Total Field

Prior to any leveling the magnetic data was subjected to a lag correction of -0.05 seconds and a spike removal filter. The total field was calculated using an average reading of all the magnetometers (MagTF channel in database). This processes provides a more accurate reading of the total field in comparison to a single sensor measurement. Diurnal variation was removed using the base magnetometer data. Further leveling was carried out by using the intersections of the tie-lines (tie-line leveling). Finally the data was micro-leveled using a directional spatial filtering technique. This process removes other very small systematic errors in the data. The data was interpolated onto a grid using a minimum curvature gridding algorithm with a cell size of 20m. No corrections for the regional reference field (IGRF) were applied.

#### 7.3.2. Measured Gradients

The three magnetic gradient components were calculated by variable differencing of the four measured total field readings. The baselines distances of the gradient measurements are described in section 5.2. Further levelling of the gradient components was then carried out using tie-line levelling if required. This process minimised the small sources of error discussed above, as well as removed any DC gradient shifts introduced by the absolute accuracy limitations of the cesium sensors. The measured vertical, longitudinal, and transverse gradient profiles were interpolated into grids and are included in the digital archive. For comparison, a calculated vertical gradient grid was produced by applying a first vertical derivative (1VD) to the levelled total field grid. This product is also included in the digital archive. In general the products are similar, but the measured gradient reveals higher frequency information that is not present in the computed gradient. Magnetic trends visible in the calculated gradient, but not in the measured gradient, can be interpreted as deeper magnetic sources. The measured gradients effectively 'filter out' the longer wavelength magnetic response due to the short baseline design of the gradiometer. In contrast, smaller near surface responses have been enhanced in the measured gradients.

#### 7.3.3. Measured 3-D Analytic Signal



The 3-D Analytic Signal or "Total Magnetic Gradient" is indirectly measured by the HEL-TAG system. Since three orthologanl gradient components are measured, calculating the measured analytic signal is a trivial matter:

$$AS = \sqrt{MVG^2 + MTG^2 + MLG^2}$$

Where:

AS is the magnitude of the total gradient vector and

MVG, MTG, and MLG are the measured vertical, transverse, and longitudinal gradients.

The above formula is applied using the three gradient channels to provide the measured analytic signal (AS) profile. The primary advantage of this magnetic data form is that positive peaks will directly correlate with the centre of the magnetic sources, regardless of the Earth's magnetic field orientation, or possible remanent magnetism effects in the source bodies. Again, due to the short baseline design of the gradiometer system, the measured AS tends to enhances near surface magnetic sources. The AS profiles were interpolated onto a grid and included in the digital archive. This product may be useful for data interpretation since it can be though of as a map of magnetisation in the ground.

Respectfully submitted,

Matthew Pozza, M.Sc. Aeroquest Limited May, 2007



#### **APPENDIX 1: SURVEY BOUNDARIES**

The following table presents the Troitsa block boundary. All geophysical data presented in this report have been windowed to these outlines. X and Y positions are in NAD83 UTM Zone 9N.

X Y 624988.4 5942004.1 631213.4 5942004.1 631213.4 5932004.4 627926.6 5932002.2 627862.9 5934247.5 624997.5 5934169.5



### **APPENDIX 2: DESCRIPTION OF DATABASE FIELDS**

The GDB file is a Geosoft binary database. In the database, the Survey lines and Tie Lines are prefixed with an "L" for "Line" and "T" for "Tie".

COLUMN	UNITS	DESCRIPTOR
utctime	hh:mm:ss.s	UTC time
X	m	UTM Easting (NAD83)
Y	m	UTM Northing (NAD83)
basemagf	nT	base magnetometer readings
ralt	m	radar altitude of aircraft
bheight	<u>m</u>	calculated height of gradiometer bird
galtf	m	elevation of GPS antenna (AMSL) (WGS84)
dtm	m	Calculated Digital terrain model
TFMag	nT	Leveled total magnetic field (Average of Upper, Starboard and Port and Nose)
MVGf	nT/m	Measured Vertical magnetic Gradient (leveled)
MTGf	nT/m	Measured Transverse Gradient (Cross Track) corrected for flight direction and leveled
MLGf	nT/m	Measured Longitudinal Gradient (Along Track) corrected for flight direction and leveled
Mag_3DAS	nT/m	Measured Total Gradient (3D Analytic Signal)
MagU	nΓ	Uncorrected Upper (Top) sensor magnetic field reading
MagP	nT	Uncorrected Port sensor, magnetic field reading
MagS	nî	Uncorrected Starboard sensor, magnetic field reading
MagN	nT	Uncorrected Nose (Front) sensor, magnetic field reading

Figure 3: Total Magnetic Intensity Contour Map - in pocket

### Figure 4: Measured Vertical Gradient Contour Map - in pocket

### **Appendix B** Statement of Qualifications

I, Nigel Luckman, certify that:

- I am a geological engineer employed by Paget Resources Corporation, with offices located at: 920-1040 West Georgia Street Vancouver, BC
- 2. I graduated from the University of British Columbia in 1988 with a Bachelor of Applied Science, Geological Engineering.
- 3. Since 1988 I have been continuously employed in mineral exploration in North and South America.
- 4. I have prepared all sections of this report with the assistance of Paget Resources consultants.

Dated this 20th day of June, 2007

Luckner Signature

Nigel Luckman





### Appendix C Statement of Expenditures

# Aeroquest Survey Costs

Mob/demob	25000.00
Total field magnetic survey 626.9 kms @ \$85/km	53286.50
Standby 5.5 days @ \$3500/day	19250.00
Aeroquest survey report	2609.50
Accommodation for survey crew	3737.25
Helicopter ferry	5400.00
Perdiem rate \$48.10/day, 10 days, 3 people	1443.00

# Sub-total 110726.25 GST 6643.58

Expenses

	-	
ŀ	lelicopter fuel	5951.15
A	dministration, Peter Walcott and Associates	3392.00
F	Report printing, map plotting	400.00
F	Report writing costs: 4 days @ \$600/day	2400.00
1	0% management fee	11072.63
	-	

#### Total

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140585.60