

PLENTY RIVER PROJECT

CAROLINE PROSPECT

NORTHERN TERRITORY

DRILLING COLLABORATIONS REPORT

DECEMBER 2009

Title Holder: AusQuest Ltd

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Title: EL 23792

Datum: MGA 94, Zone 53 Map Sheets 1:250K: Hay River SF53-16

Map Sheets 1:100K: NA

Commodities: Copper, Gold
Distribution: AQ, NTGS

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1. EXECUTIVE SUMMARY

The Plenty River Project is a greenfields exploration project located in central south-eastern Northern Territory and is targeting base metal mineralisation below the Cretaceous (Eromanga) sediments.

Previous exploration work has been limited to loam sampling and near surface drilling for kimberlite pipes undertaken under a Joint Venture between AusQuest and Rio Tinto Exploration Ltd from 2005 – 2006. Recently AusQuest acquired further detailed geophysical data (gravity) that suggested a coincident gravity /magnetic target below the Cretaceous sediments may have potential for IOCG style mineralisation.

The exploration model for the Plenty River Project was based on comparisons with the Prominent Hill style deposit located in South Australia which is characterised by a low tenor gravity response and a semi-coincident magnetic anomaly reflecting the presence of significant quantities of hematite mineralisation (alteration). The target at Caroline which occurs below a cover sequence in the order of 200m thick, displayed similar geophysical characteristics.

AusQuest applied for funding under the Northern Territory Government Drilling Collaborations Programme in April 2009 and received approval in July 2009.

The drilling programme at the Caroline prospect commenced in September 2009 and was completed in October 2009. A total of three pre-collared diamond holes and 1407.18m of drilling (including 456.8m of mud rotary pre collars and 953.38 NQ diamond core) were completed. One hole was abandoned in the cover sequence due to difficult drilling conditions.

Drilling intersected a thick sequence of sulphidic (pyrrhotite) laminated sediments with interbedded felsic volcanics, dacitic tuffs and flows and interlayered mafic sills. Physical property measurements on core confirmed the magnetic anomaly is caused by the pyrrhotite mineralisation and the gravity response is due to a thick section of gabbro/dolerite in the core of a synclinal structure.

Weakly elevated base metal values were encountered within the sedimentary package but no ore grade intersections were reported. Further exploration work within the general region is planned for 2010.

2. INTRODUCTION

The Plenty River Project - Caroline Prospect is located approximately 350km east of Alice Springs along the eastern margin of the Eastern Arunta Block, which hosts numerous base and precious metal deposits. The project can be accessed via the Stuart and thence via the Plenty Highways and numerous station tracks.

A summary of the current tenement status is provided in Table 1 and a tenement location plan is provided as Figure 1. Tenement EL23792 covers the coincident magnetic-gravity anomaly which is now referred to as the Caroline prospect.

Table 1 – Tenement Schedule

Tenement	Name	Sub- blocks	Area Km2	Applic Date	Grant Date	Expiry Date	Rent \$	Commitment \$
EL 23792	Plenty River	57	182	27/11/2002	1/11/2005	31/10/2011	2,508	55,000

This report details the results of a drilling programme completed under the Northern Territory Drilling Collaborations Programme with funding approved in July 2009.

3. PREVIOUS EXPLORATION HISTORY

A summary of the previous exploration for the tenement EL 23792 is provided in the following report 'Plenty River Third Annual Report for the Period 19th December 2007 to 18th December 2008 ELs 22824, 23566, 23792 and 25007', submitted to the Department in January 2009.

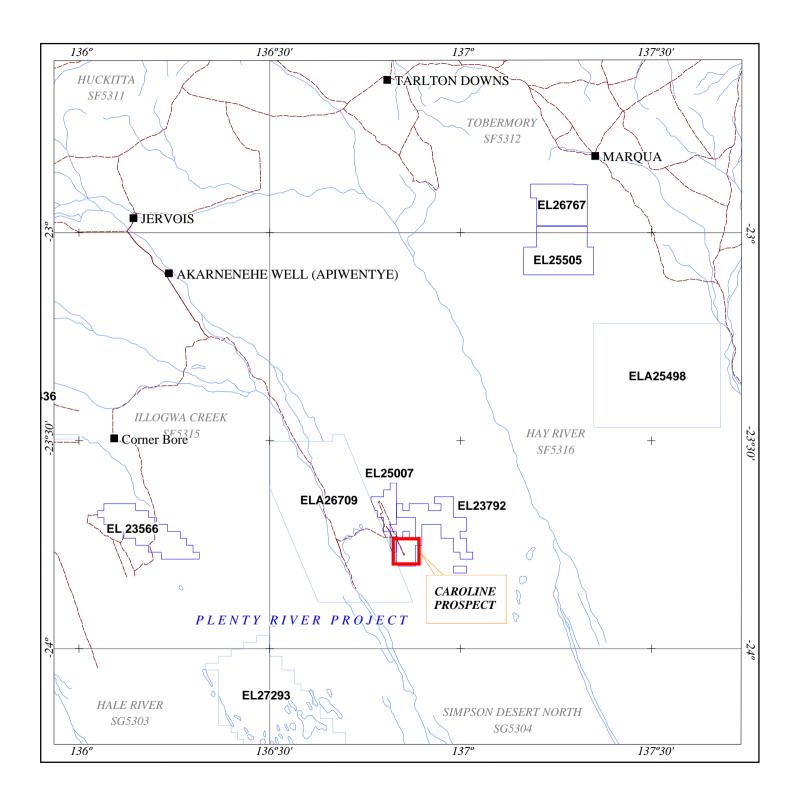
4. REGIONAL GEOLOGY

The Plenty River project is located near the eastern edge of the Arunta Block where continental scale structures and/or plate boundaries have been inferred from interpretation of regional geophysical data sets (Figure 2).

Regionally, AusQuest's titles straddle a prominent WNW-ESE structural corridor (the Larapinta corridor) as defined in aeromagnetic and gravity data. The exposed part of this corridor mainly comprises supracrustal Neoproterozoic to Cambrian metamorphic rocks of the Irindina package, structurally emplaced between Palaeoproterozoic basement rocks (Mawby, 2000; Buick *et al.*, 2001; Pietsch, 2001). The high temperature - high pressure metamorphic event which affected the Irindina rocks in this region is of Ordovician age (Mawby *et al.*, 1999), and the rocks include pelitic, psammitic and calc-silicate metasediments and mafic lithologies.

Stratigraphy of the Irindina package is well exposed in the Harts Range, and extends eastward into areas of poor exposure in the west of AusQuest's block of titles. Current published mapping (Illogwa Creek 1:250 000 sheet), however, does not correlate outcrop in and at the margins of AusQuest's western titles with recognised Irindina stratigraphy.

Further to the southeast, flat-lying sedimentary cover sequences blanket the metamorphic and igneous rocks of the Arunta Province to increasing depths. The thickest component of these cover sequences belongs to the Eromanga Basin, spanning an age bracket of Late Jurassic to Cretaceous. Thin remnants of a Tertiary sedimentary stratigraphy are patchily developed (or



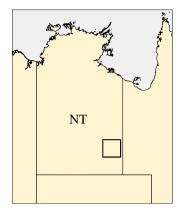
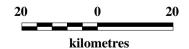




Figure 1
Location Plan
Caroline Prospect
Plenty River Project



Scale: 1:1,000,000

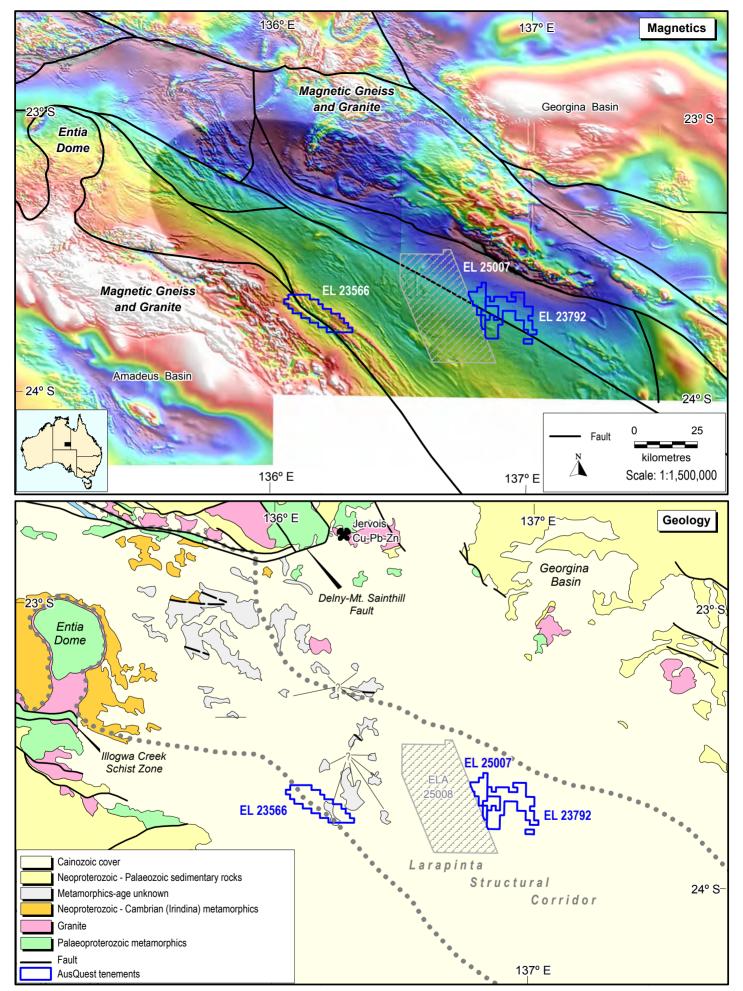


Figure 2 Regional geology and magnetics of the eastern Arunta Province

preserved) and Quaternary fluvio-aeolian unconsolidated sediment forms a veneer of dune-dominated cover in the Simpson Desert.

5. PROSPECT GEOLOGY

Locally the Caroline prospect is covered by the dune fields of the northern portion of the Simpson Desert, the dunes are extensive and persist over distances of 100 km and more, The dunes are variable in height from 3-4m to up to 15m. Dunes run sub-parallel to the prevailing southeast wind direction. Dune swales are filled with fine loam and sand and are lightly to moderately vegetated with spinifex and eucalyptus and small acacia shrubs. No surface outcrop is present at the Caroline prospect.

Drilling intersected a cover sequence that included a thin cover of recent aeolian sand 1-3m thick above a regolith cap of clay and sap rock with a variable thickness between 30 and 90m. The cretaceous cover consisted of very fine to fine sandstone with interbedded mudstone horizons to a depth of 140 to 190 metres below surface.

The basement sequence at the Caroline prospect appears to be related to a synclinal structure containing an interbedded package of siltstones and mudstones with interbedded felsic tuffs and flows, below a mafic sill (gabbro/dolerite). The sedimentary package has been weakly overprinted by sulphide (pyrrhotite) mineralisation.

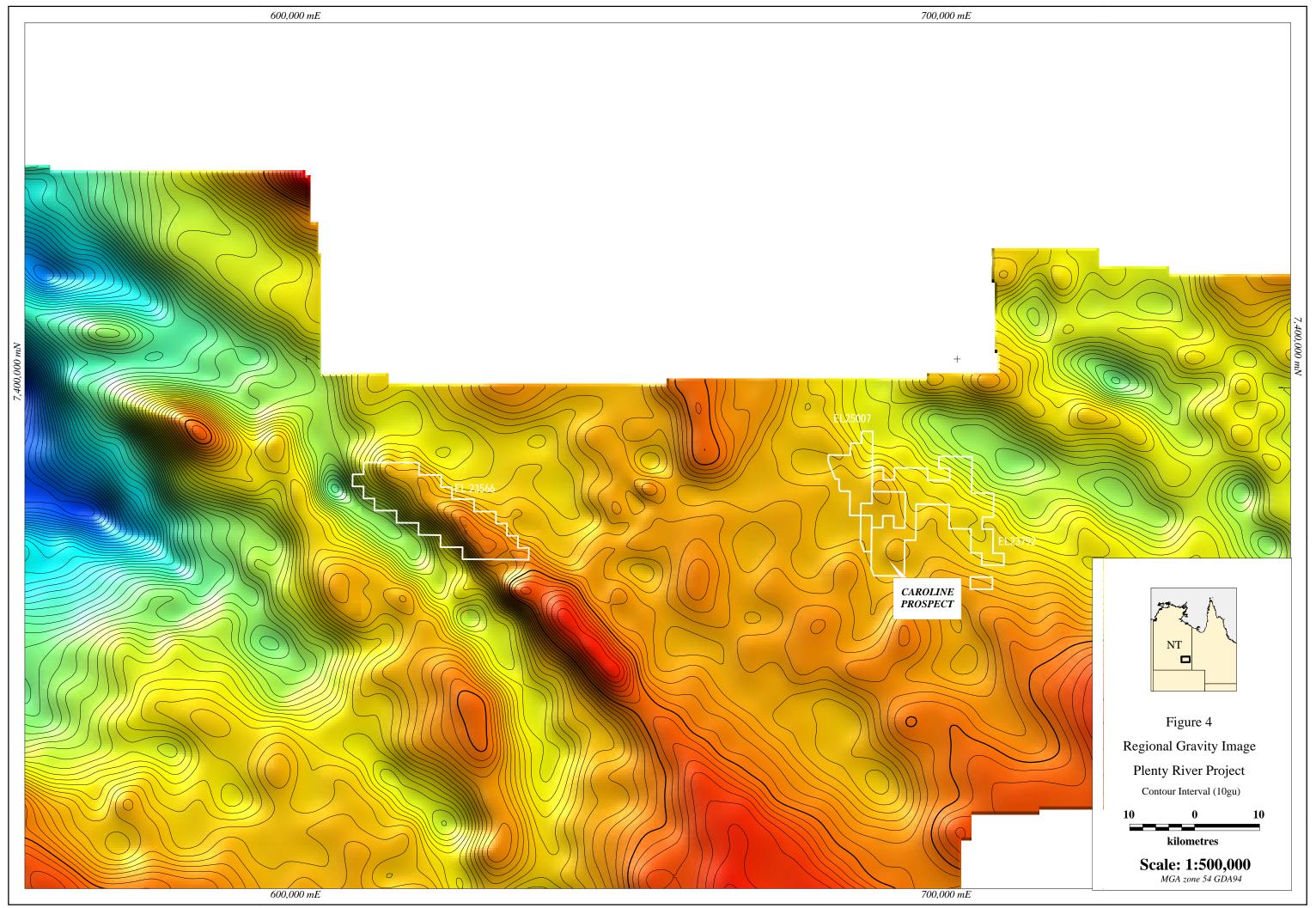
6. GEOPHYSICS

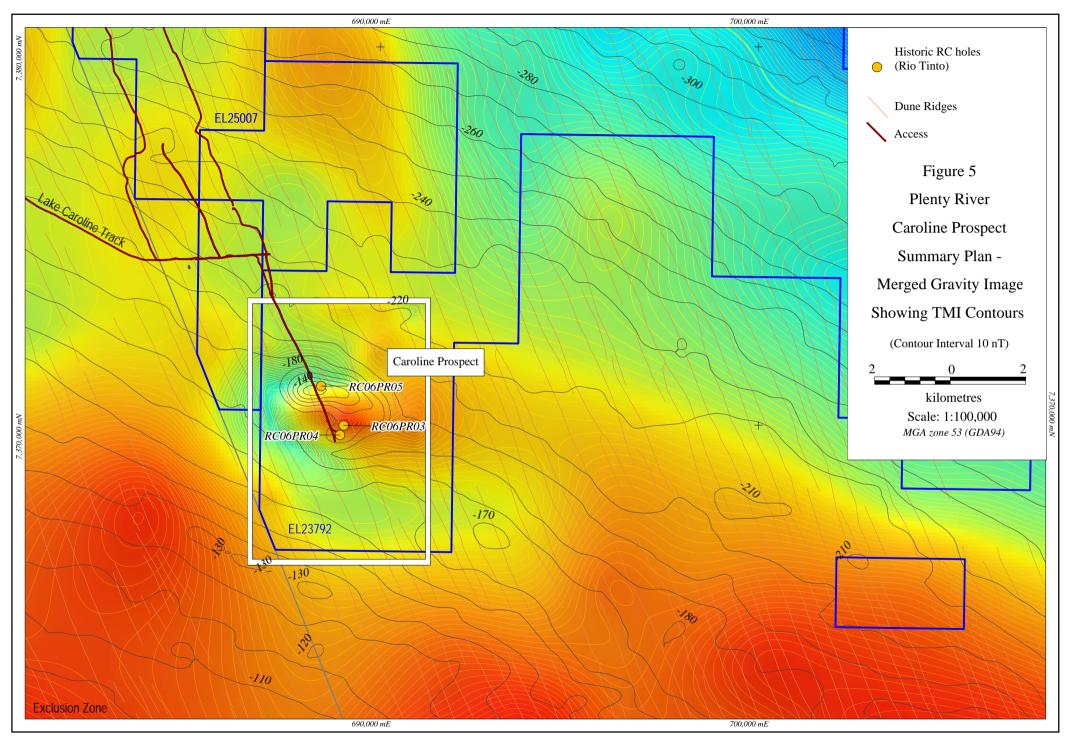
In 2007 AusQuest completed a detailed helicopter based gravity survey over a discrete magnetic target highlighted by the NT Government's regional TMI survey data to further evaluate this anomaly (Figure 3).

During 2008 regional gravity data were collected by the NTGS in conjunction with GA, as part of the Central Arunta Gravity Survey. The survey covered a large portion of the central and south-eastern Arunta Region of central Australia including the Plenty River area (Figure 4). The survey involved approximately 12,000 helicopter-supported ground gravity stations, at station spacings that varied between 4 km, 2 km and 1 km grids. AusQuest contributed to this survey by funding more detailed gravity coverage over the company's tenements.

Southern Geoscience Consultants were subsequently contracted to merge and level the data. The merged datasets were gridded at 800m and then resampled to 400m for imaging. The resulting grids showed the Caroline gravity feature to be quite distinctive within the regional context. The gravity data overlain with magnetic contours at 10nT intervals are presented in figure 5 and demonstrate the proximal relationship of the magnetic and gravity features.

Broad spaced VTEM surveying (1km line spacing) was trialled over the Caroline prospect but the conductivity of the Cretaceous cover sequence was found to be too high for the method to be effective in detecting massive sulphide targets beneath the cover. Consequently no detailed surveying was undertaken.





7. DRILLING

At the Caroline prospect three diamond holes were drilled to basement to test a semi coincident gravity/magnetic target below a Cretaceous cover sequence interpreted to be approximately 150m thick. Previous drilling in the area had not penetrated below the cover sequence due to swelling clays and lack of available drilling water. Drill hole details are provided in Table 2, collar information in Appendix 1, and a drill-hole location Plan in figure 6.

Table 2 Caroline Drill Holes

Project Datum MGA 94 Zone 53 **Plenty River** DDH MGA 94 MGA 94 Pre Hole ID East North Dip | Az | collar Tail Total m **Comments** Drilled to basement reached target 09CPD001 688420 7370643 -90 141 225.7 366.7 depth Central Hole reached target depth 688607 -90 09CPD002 7370251 144 359.48 503.4 extended to test basement stratigraphy 09CPD003 688715 7369851 -70 180 63 0 63 Hole Abandoned Drilled to basement reached target 09CPD003A 688715 -70 180 7369853 108.8 428.2 537 depth

Drilling Procedures

Sub Total

Three diamond drill holes were completed at the Caroline Prospect for a total of 1013.8m of NQ core. Pre-collars were established using mud rotary techniques. Tom Browne Drilling Services from Mt Isa were contracted to complete the drilling utilising a multi purpose UDR 600 drill rig with Man 6X6 support vehicles.

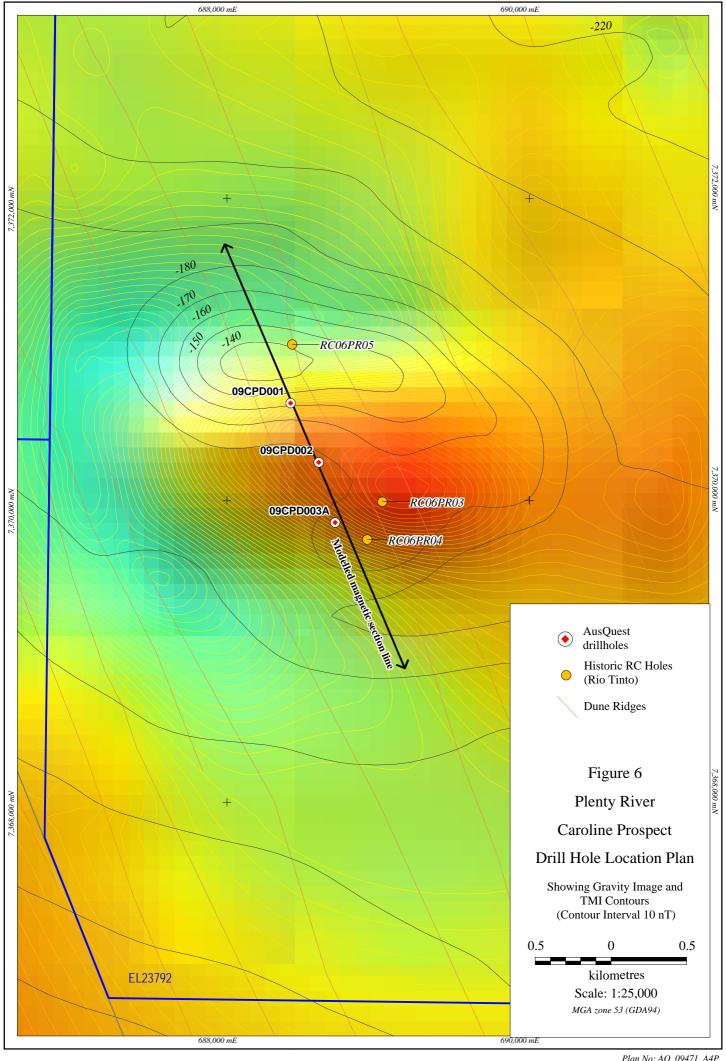
456.8 1,013.38

1,470.18

Three large drill sumps were established for each drill site. Water for drilling was carted from Ahunja water bore approximately twenty five kilometres from the drill site and this water was recycled when possible. All sumps were fenced off during drilling operations and there was minimal water loss during drilling. Sumps were backfilled on completion of the drilling programme as part of site rehabilitation.

Pre-collars were drilled predominantly with mud rotary techniques to penetrate through the cover sequence. The precollar holes were a nominal 150mm diameter utilising an RC rod string. Drill cuttings were retained in the drill sumps and a lithogical sample collected every 6 metres or one sample per rod length. Hole 09CPD003A encountered minor difficulties in the mud rotary precollars where hard calcrete and laterite layers restricted the penetration capacity of the rock roller drill bit. In this hole sections of the upper profile had to be drilled with HQ core but the core was not retained.

Diamond drilling below the pre-collars was all NQ core with a nominal hole diameter of 75 mm. Two of the three holes drilled were cased with 50mm PVC to facilitate down hole geophysical surveys. All diamond holes drilled past the nominal target depths of 300m and



were surveyed on a nominal 50m interval. Down-hole survey data are provided in Appendix 2.

Diamond Core Processing Procedures

Core trays were marked up on site according to the requirements for the NTGS core storage facility and transported with foam inlays to the processing area. The processing facility was set up at Ahunja Bore on Atula Station approximately 25km from the drill site.

The core was then marked up on a one metre basis with metre marks painted on the core with permanent ink marker. A basic structural and Rock Quality Designation (RQD) log was recorded in the field data logger and later transferred to a master Excel spreadsheet (see Appendix 3 for the RQD log). Geological logging was completed and the intervals for sampling were selected (see Appendix 4 for detailed log and Appendix 4a as geology codes and Appendix 5 for detailed summary log). All core was then photographed prior to being cut, photographs were taken on a dry and wet basis (see Appendix 6, 7, and 8).

Density Data Collection

Down hole density measurements were determined on core samples taken at about 10m intervals with extra samples taken of minor litho-types. Samples of between 0.2m and 0.3m length were cut accurately at right angles to the core axis, and cylinder dimensions were measured to calculate volume by measurement. Accurate measurements were taken (four diameter and four length readings averaged) using Vernier calipers and a scale rule. An alternative set of volume measurements was made by water displacement. Core cylinders were lowered into a measuring cylinder containing a pre-measured volume of distilled water and the new water level was recorded. The core volume determined by difference (Displacement Method) was compared with the calculated volume by dimension measurement, providing a cross-check on sample volumes. The dry cores were accurately weighed (to 0.1g) using a set of precision scales. The data were then entered onto a field recording sheet and transferred into an Excel spreadsheet (See Appendix 9)

Magnetic Susceptibility Data Collection

Down hole magnetic susceptibility readings were taken over the entire length of the hole, with scanned readings averaged to a single value for every metre and peak values recorded into a comments column. The data were entered into a field data logger and then transferred to the master Excel spreadsheet. (See Appendix 10)

Structural Data Collection

One drill hole at Caroline 09CPD003A was inclined at an angle of -70⁰ towards 180⁰ magnetic enabling the drill core to be orientated using an ace orientation core tool. The core was marked with the bottom of hole (BOH) mark at the end of every drill run and the orientation line was checked and if three drilling runs could be linked downhole an orientation line was marked on the core. Fractures, bedding and other relevant data were collected and alpha and beta angles recorded for each data point. Alpha and beta angles were recorded with a NQ Kenometer and the data entered into a field data logger and converted to dip and dip direction readings with core orient software. The structural data are provided in Appendix 11.

Petrological Data Collection

A petrological sample was collected for each geochemical sample and in areas of lithogical interest. These samples have been retained for later reference against assay results and descriptions of the thin and/or polished sections will be reported on separately in future annual reports where they have been completed.

8. SAMPLING AND ANALYSIS

Sampling

The drill core was sampled for geochemical analyses on a minimum basis of one sample (of ~0.2m half core) every 10m down hole. Additional samples were taken and broader intervals sampled where geologically appropriate. Samples were allocated unique sample numbers which were recorded into a sample book and a sample ledger prior to entry into an Excel spreadsheet. Core was then cut in half and the retained sample marked with the corresponding sample number. Samples were sent to Genalysis Laboratories in Perth for whole rock analysis for a comprehensive elemental suite.

Analytical Methodology

A total of 443 core samples were collected and submitted to Genalysis Laboratories in Perth for major, trace and Rare Earth Elements, gold, PGE's, selected volatiles and LOI (Loss On Ignition) using the methods described below.

Elements and analytical methods:

• Majors: SiO2, Al2O3, TiO2, Cr2O3, FeO, MgO, MnO, CaO, P2O5, Analytical method: XRF- fused disc, Genalysis Code FS XRF01

• Trace elements: Ag, As, Ba, Bi, Cd, Co, Cs, Cu, Mo, Nb, Ni, Pb, Rb, Sb, Sc, Se, Sr, Ta, Te, Th, Ti, U, Y, Zn, Zr.

Analytical method: - ICP-MS (4-acid digest), A/MS

- REE's: La, Ce, Pr, Nd, Pm, Eu, Gd, Tb, Dy, Ho, Eu, Tm, Er, Tm, Yb, Lu Analytical method: ICP-MS (4-acid digest), A/MS
 - PGE's: Au, Pd, Pt

Analytical method: Fire Assay, Genalysis Code FA25/OES

• LOI (1000),

Analytical method: Loss on Ignition at 1000°C, Genalysis Code /TGA

Geochemical results are included in Appendix 12.

9. DOWN HOLE ELECTROMAGNETIC SURVEYS

Down Hole Electromagnetic Surveys (DHEM) undertaken by Outer Rim Exploration Services were completed in two of the drill-holes (09CPD001 and 09CPD03A) and the

results processed and interpreted by Southern Geoscience Consultants Pty Ltd. Their report is included in Appendix 13.

A moderate off-hole conductor (below the drilled depth) was detected in drill-hole 09CPD001 and a moderate in-hole response located at ~295 metres depth in hole 09CPD003A. The latter coincides with a narrow zone (8cm) of increased sulphide content.

10. DISCUSSION OF RESULTS

10.1 Geochemistry

Geochemical results from the Caroline prospect indicate that weak sulphide mineralisation is pervasive throughout the sedimentary and volcanic package. This package has been intruded by a mafic sill that is non magnetic and contains weakly elevated background metal values reflecting their mafic magma source.

The sulphide mineralisation in the volcanic and sedimentary packages is predominantly iron sulphide (pyrrhotite) with rare pyrite and chalcopyrite. Thick zones of elevated zinc (150ppm to 350ppm Zn and up to 1,958ppm Zn) and lead (40 to 90ppm Pb) with occasional narrow zones of elevated copper (100ppm to 200ppm Cu, up to 1,800ppm) and gold (10 to 45ppbAu) are reported throughout the sulphidic sediments.

In hole 09CPD003A a narrow interval (8cm) of high sulphur content (~10%S) returned the highest metal values for the prospect (1883ppm Cu, 1208ppm Zn, 45ppb Au) suggesting that ore grade could be possible if more massive sulphide mineralisation was located.

Down-hole plots of geochemistry and geology are presented on Plans 09399A and 09399B.

10.2 Magnetic Susceptibility

Magnetic susceptibility data are listed in Appendix 10 and graphs of down-hole susceptibility readings are provided in Figures 11 to13.

The higher magnetic susceptibility measurements ranging from 200 to 500×10^{-5} SI units are consistently associated with increases in pyrrhotite content within the sediments. Readings over the volcanic rocks were consistently low (50×10^{-5} SI units) reflecting a paucity of magnetite within both the mafic and felsic components. Magnetic susceptibilities measured from the core have been used in revised modelling of the magnetic data.

10.3 Density Data

Measured density data are listed in Appendix 9 and down-hole plots are provided in figures 14-16 for holes 09CPD001 – 09CPD003A respectively. Density values ranged from 2.62 to 3.05 gm/cc with the average density for the mafic sill (gabbro/dolerite) being 3.00 g/cm³ compared with the sulphidic sediments which average ~2.7 g/cm³. Felsic tuffs and flows also averaged ~ 2.70 g/cm³ providing sufficient contrast to explain the gravity anomaly recorded by the helicopter assisted gravity survey.

09CPD001

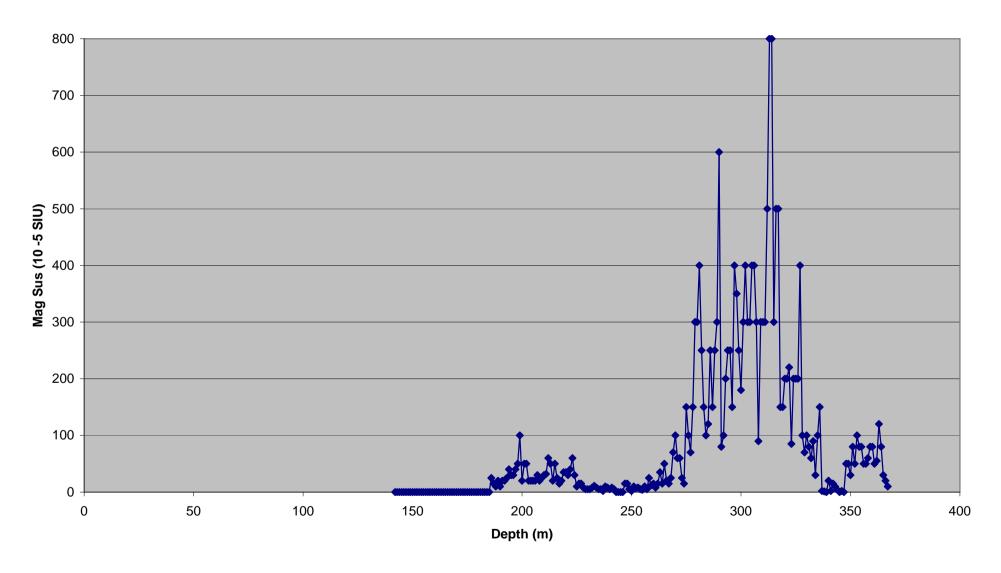


Figure 11.

09CPD002

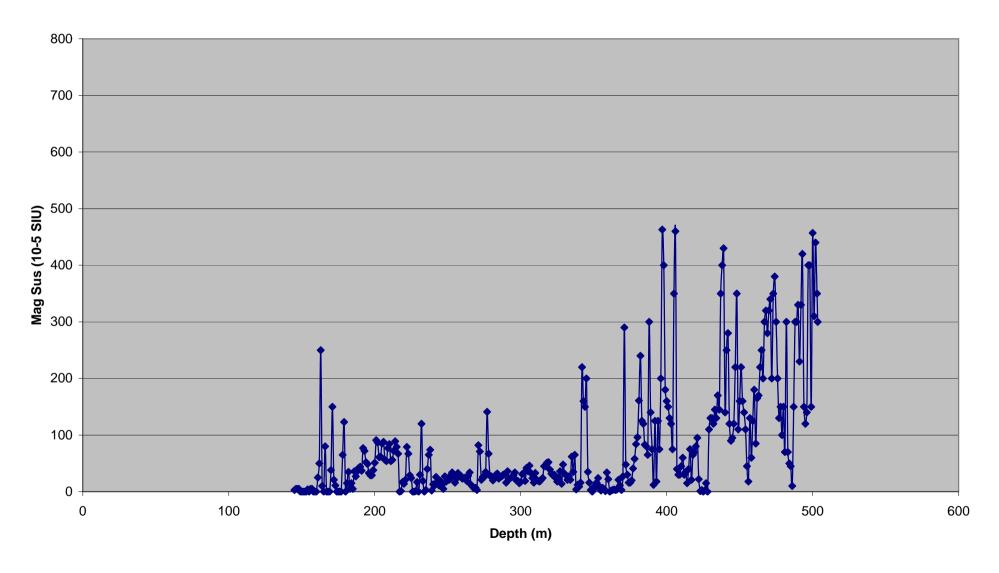


Figure 12.

09CPD003A

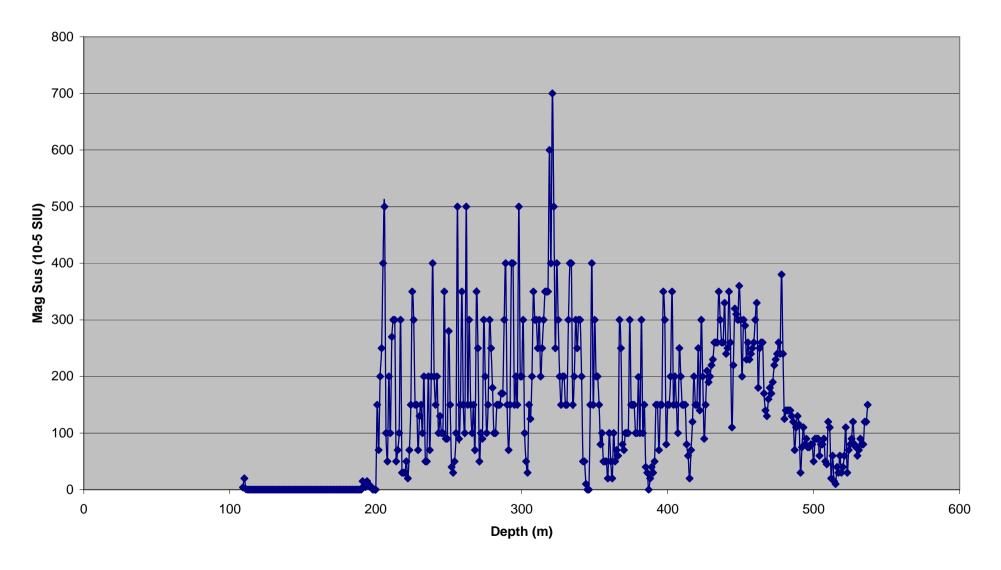


Figure 13.

09CPD001 Density Readings

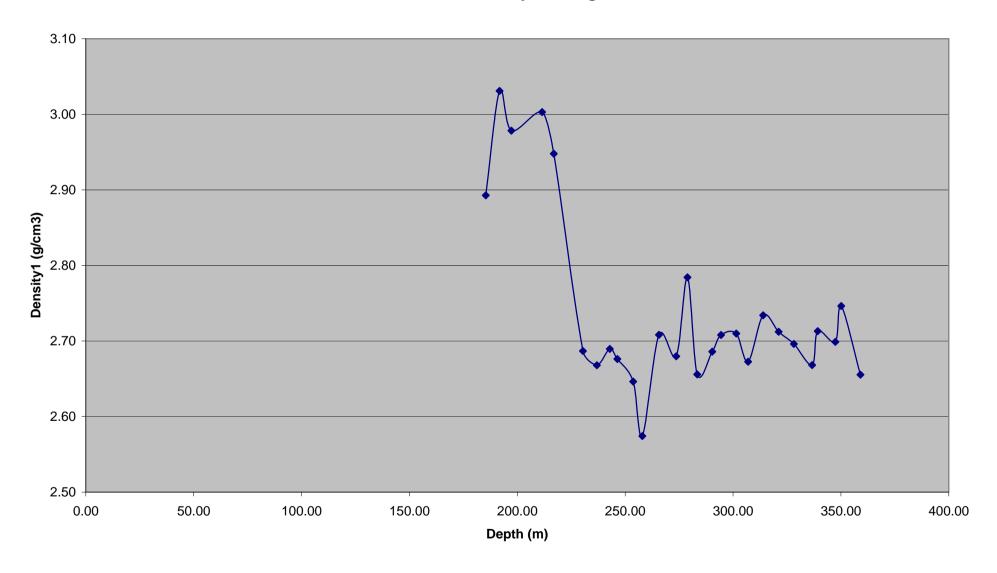
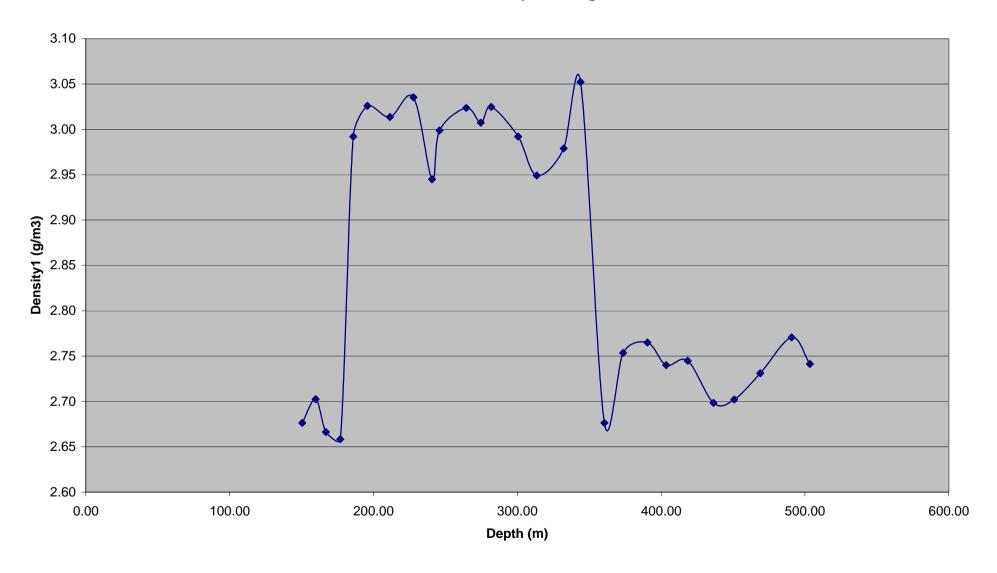
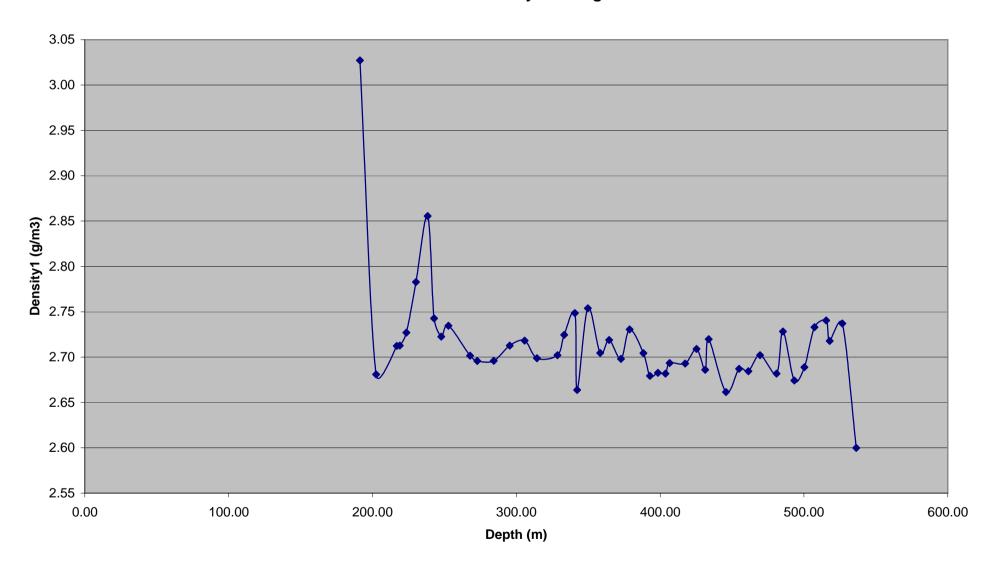


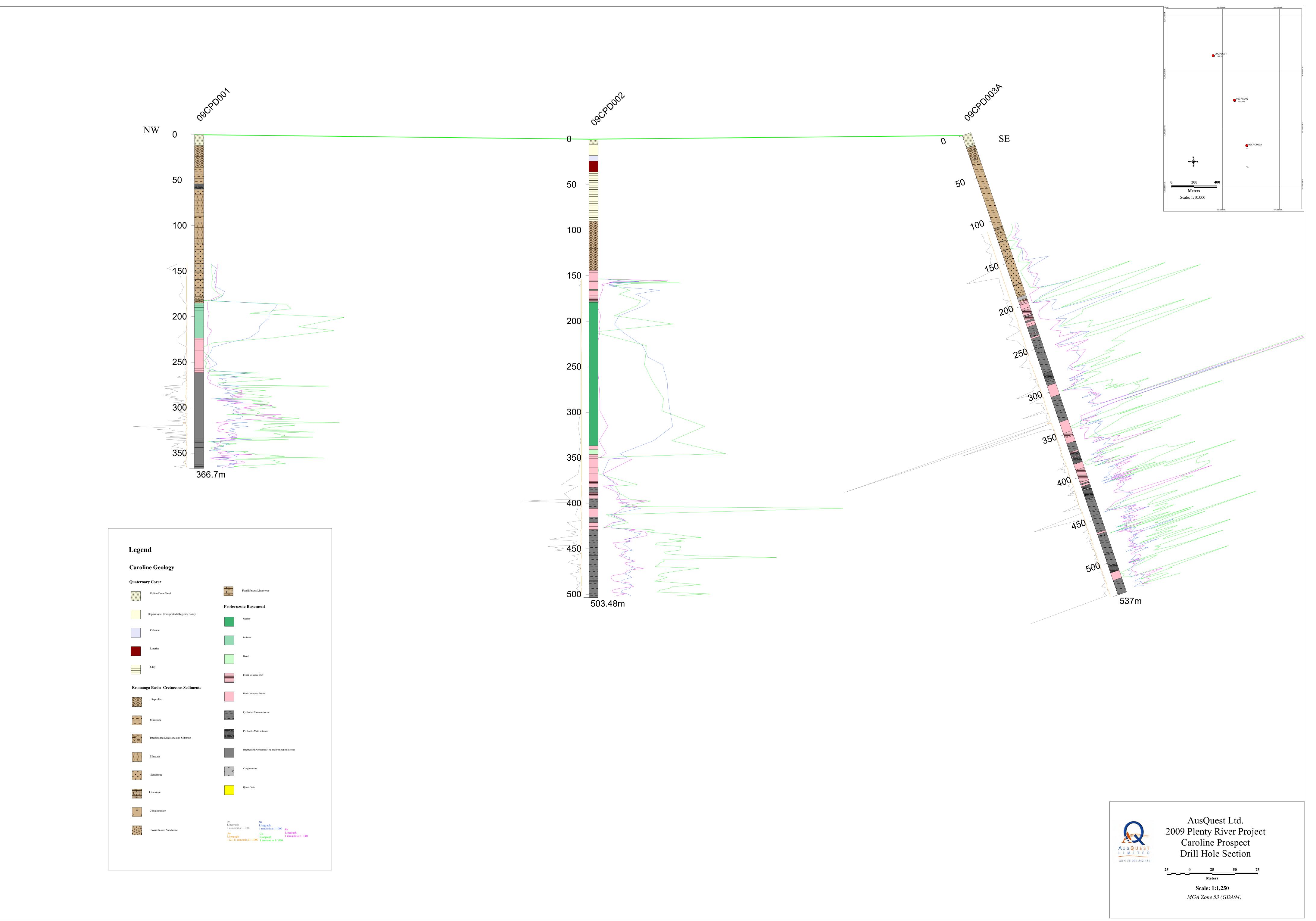
Figure 14.

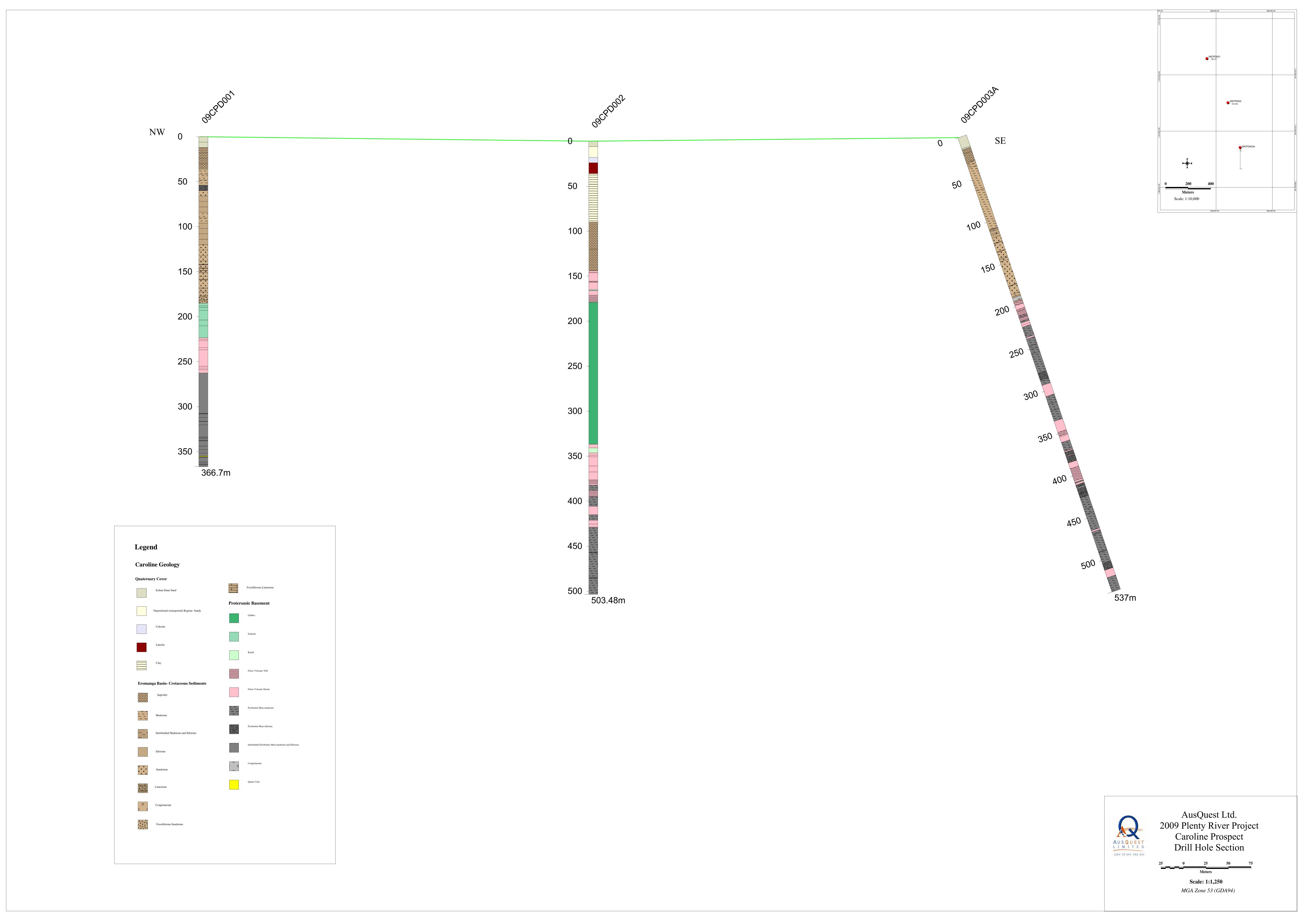
09CPD002 Density Readings



09CPD003A Density Readings







10.4 Geophysical Modelling

Based on the drilling results, revised geophysical models have been generated that incorporate magnetic susceptibility readings and density measurements for the different lithologys intersected down-hole. The revised magnetic model confirms a gently dipping synclinal structure below the Cretaceous cover as indicated by the drilling, and reflects the presence of magnetic pyrrhotite mineralisation within the laminated sediments (See figure 7).

The revised gravity model which was extended to incorporate a more regional view, also confirms the general synclinal structure as indicated by drilling and magnetic modelling. Average modelled densities for the mafic sill are compatible with the average density of the gabbro/dolerite (3.0 gm/cc) that was measured from the core. The revised gravity modelled sections and their location are shown as figures 8 to 10.

The modelling suggests that drilling to date has not intersected the full extent of the pyrrhotite mineralisation with further mineralisation expected to occur below the end of drill-holes CPD01 and CPD02. This is compatible with the DHEM data for drill-hole 09CPD001 which infers the presence of a conductor below the end of the hole.

11. DIRECT DRILLING COSTS

Total direct drilling cost for the Caroline programme was \$339,012.47 as detailed in Table 3 below. This expenditure does not include the costs of access preparation and rehabilitation of drill sites. Copies of the invoices are included in appendix 14.

Table 3 Drilling Costs

Tom Browne Drilling Services Pty Ltd - Drilling Costs for Caroline Prospect

Invoice				
Number	Date from	Date to	Details	Cost \$
1325	16/08/2009	31/08/2009	Mobilisation and set-up	\$ 12,820.00
1360	1/09/2009	15/09/2009	Drill costs CP01, CP02	\$ 169,762.89
1368	16/09/2009	30/09/2009	Drill costs CP02, CP03, CP03A	\$ 150,944.58
1400	1/10/2009	15/10/2009	Drill costs CP03A	\$ 5,485.00

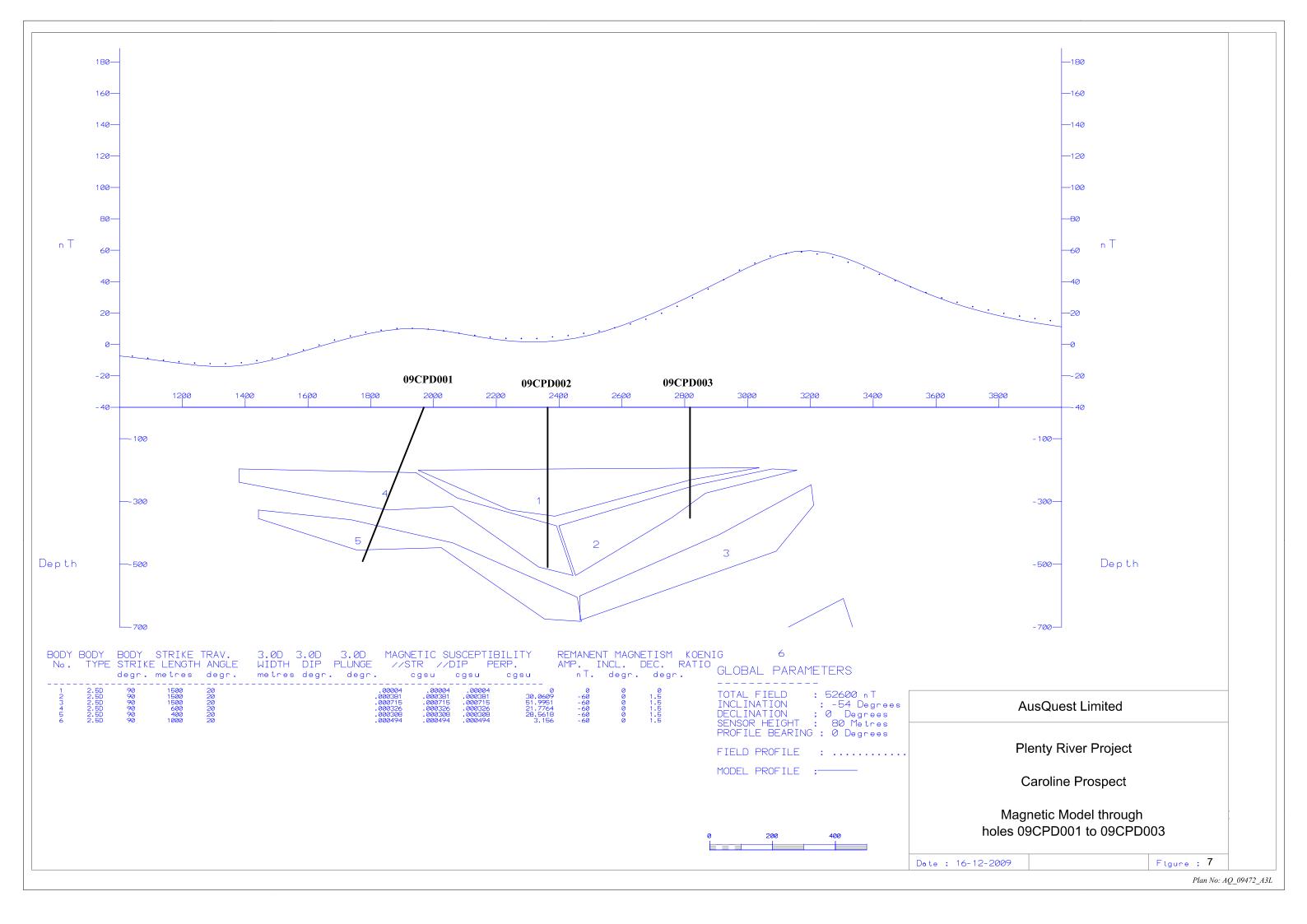
TOTAL \$ 339,012.47

12. CONCLUSION AND RECOMMENDATIONS

Three diamond drill-holes at the Caroline prospect were successfully completed under the Northern Territory Drilling Collaboration Programme in October 2009.

Large thicknesses of fine grained sulphidic (pyrrhotite) laminated sediments containing traces of base metals that were intersected by drilling, suggest the region may have potential for sediment hosted base metal deposits similar to those found in the general Mt Isa area.

Further exploration in the vicinity of the Caroline prospect has been recommended.



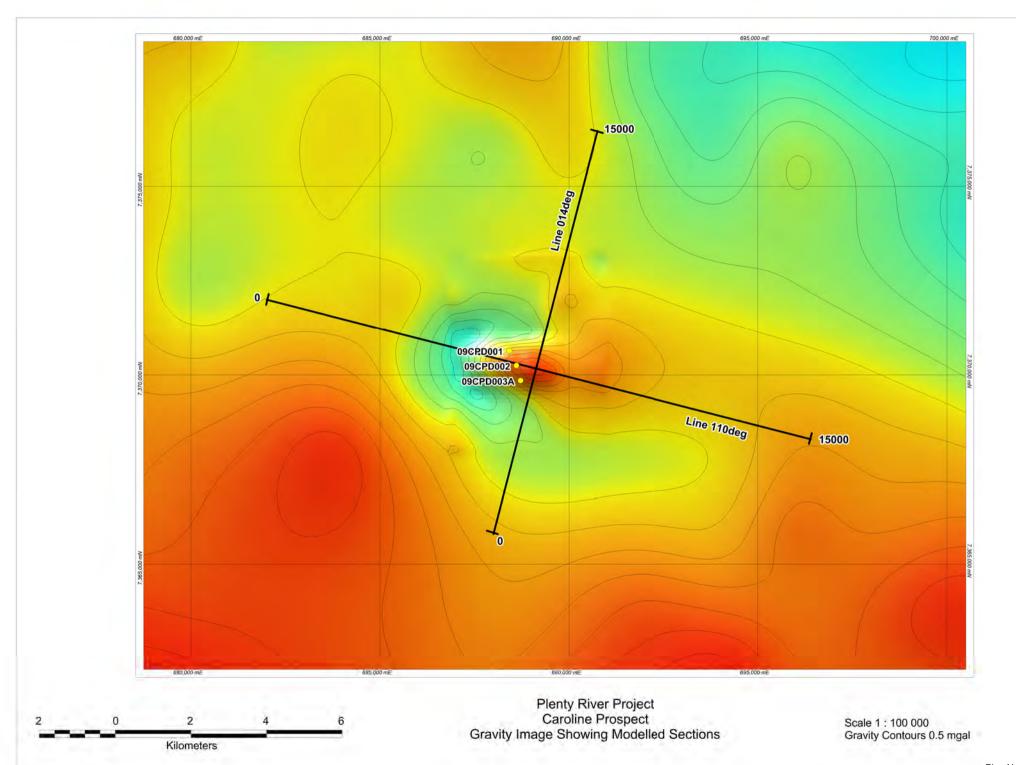
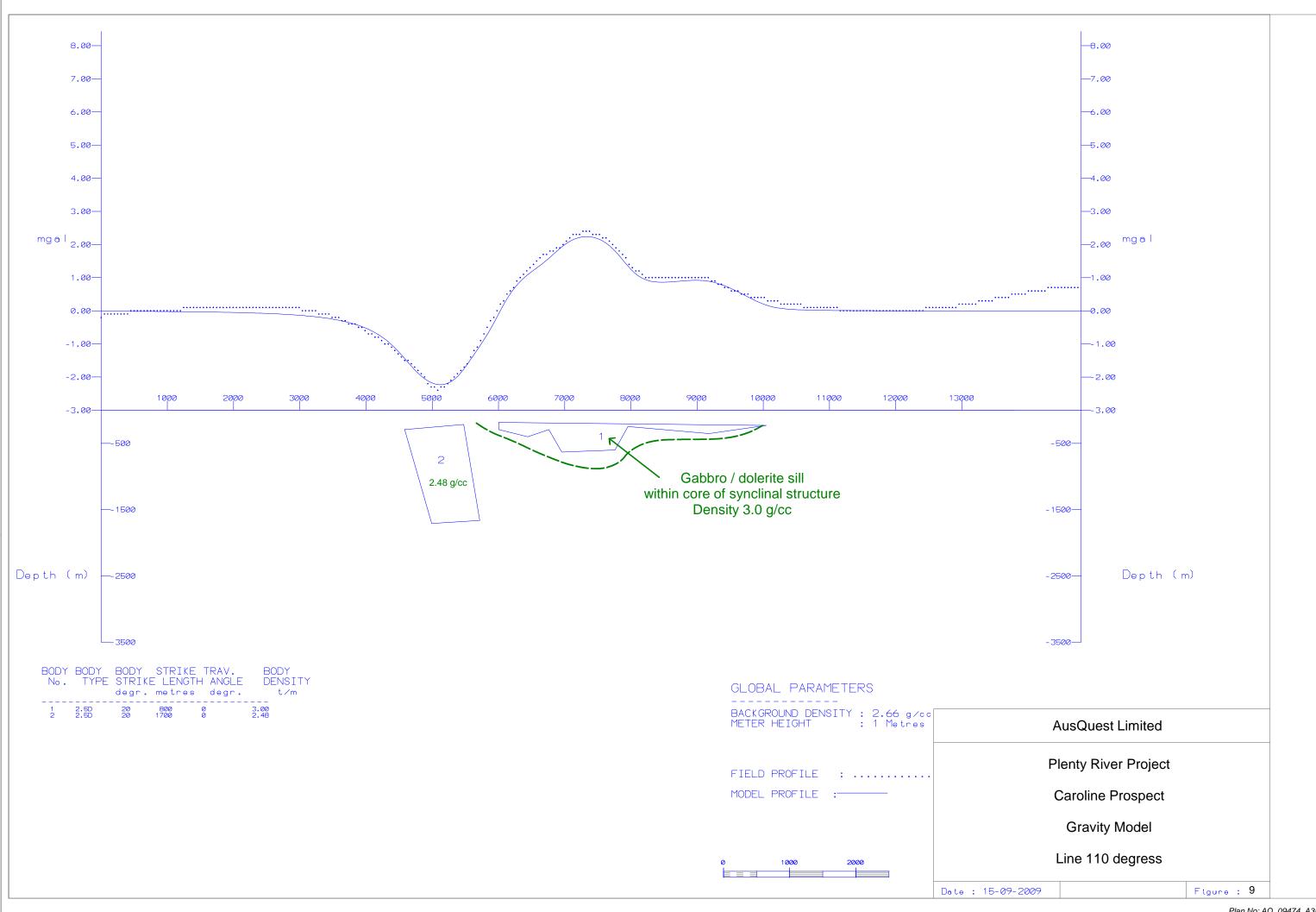
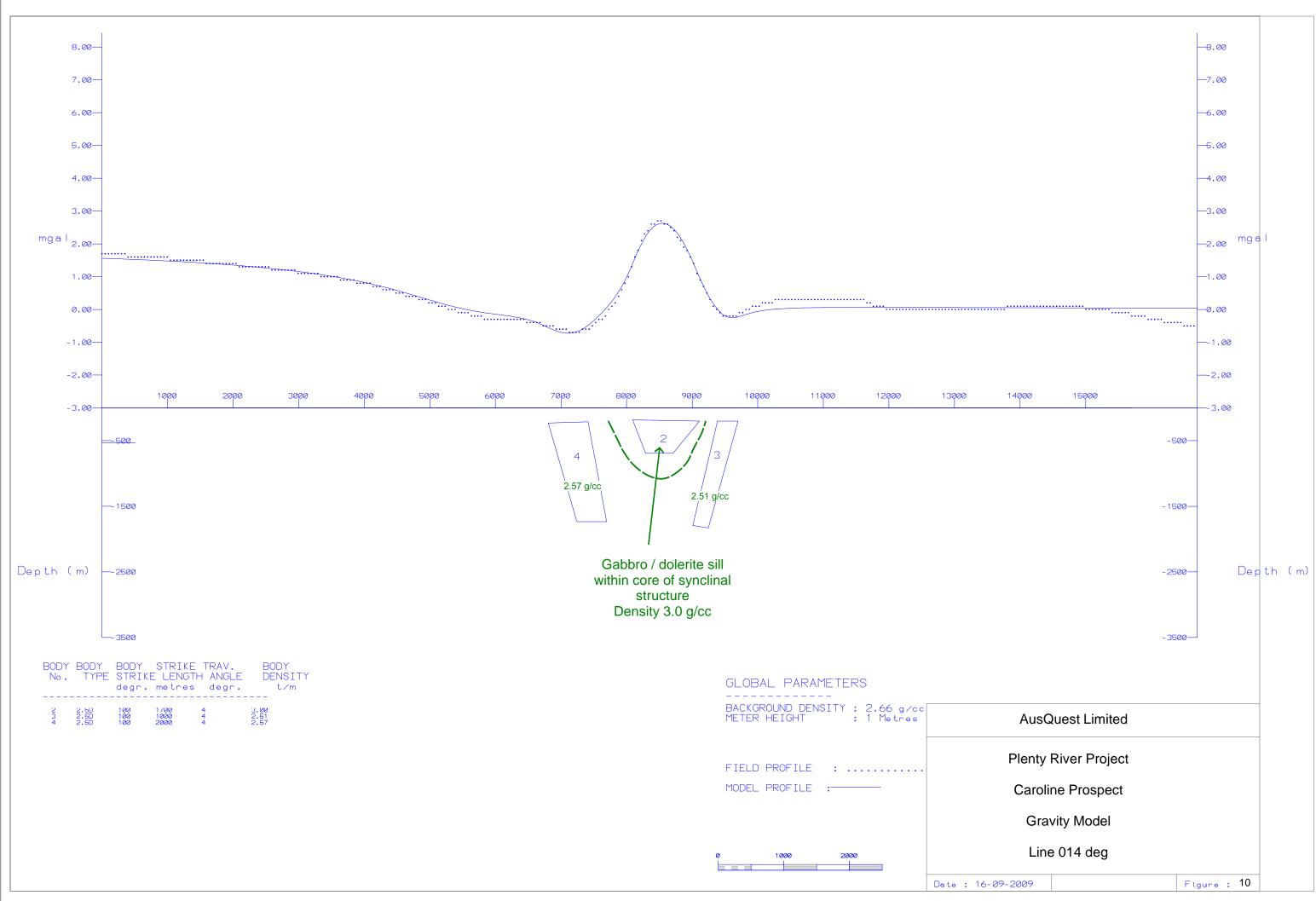


Figure 8

Plan No: AQ_09476_A4L





13. REFERENCES

Plenty River Third Annual Report for the Period 19th December 2007 to 18th December 2008 ELs 22824, 23566, 23792 and 25007 S Lee and J Thornett 2008