



# Environmental Monitoring Report

Reporting Period

31/05/2010-04/07/2010



Former Bayer Crop Science Site  
Hauxton  
Cambridgeshire

9<sup>th</sup> July 2010

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## 1.0 Introduction

### 1.1. *General*

This report has been prepared and submitted in accordance Environmental Permitting Regulations 2007 with reference to the approved Deployment of Vertase FLI's Environmental Permit Ref: ERP/QP3293FY for the remediation works at the former Bayer CropScience site Hauxton, and in accordance with Condition 4 of the planning permission dated 5<sup>th</sup> February 2010.

The time period that this report represents is from the 31<sup>st</sup> of May 2010, until the 4<sup>th</sup> of July 2010.

### 1.2. *The site*

The site is the former Bayer Crop Science site, Cambridge Road, Hauxton, Cambridge. The site was used for the storage and production of agrichemicals from the 1940's through to ceasing production in 2004. The site was used primarily for the synthesis, formulation, packaging and storage of agrichemicals (both herbicides and pesticides). It is this former historical use that has led to the contamination legacy of soil and groundwater at the site.

There is also a Waste Water Treatment Plant (WWTP) and other agricultural land which is part of the former land holding of Bayer Crop Science and is part of that controlled by Harrow Estates. The WWTP will be utilised to assist in the treatment of recovered groundwater and will be improved to undertake this task and then maintained for the duration of the remediation. This area of the site will not be subject to remediation as part of this phase of works but will be remediated as a separate phase of work under a separate contract and separate Remediation Method Statement in the future.

### 1.3. *Remediation Brief and Philosophy*

The philosophy for this remediation project is set out in detail in the agreed Remediation Method Statement. The remediation of the site has been developed from knowledge of the site gained from historical site investigations, Atkins Preliminary Conceptual Model Report August 2006 (interpretative report defining the current and correct understanding of the geological and environmental conditions) and subsequent sampling and analysis defining the extent of

contamination following further investigation. This information has allowed the conceptual site model and pollutant linkages to be developed to form the remediation methodology. Whilst the remediation work itself is complex and varied, the philosophy is simple and defines the proposed remedial action required. This philosophy has been designed with the brief in mind. This brief can be defined as “a remediation to address all pollutant linkages and ensure that following remediation and re-development no unacceptable risks will remain associated with the treated area of the site by applying the best available techniques not entailing excessive costs (BATNEEC)”.

The philosophy behind the remediation is to remove all uncertainty relating to soils and groundwater within the site area by the excavation, characterisation and treatment. All pathways between the identified sources and receptors will be removed and the contaminant mass within soils reduced as far as the practical limits of cost effective technology permit. The Remediation Method Statement sets out how this philosophy or strategy will be achieved practically on site and validated with confirmative post remediation risk assessment.

These remediation works are also required to satisfy the regulators that adequate remediation works have been completed to satisfy their requirements under Part IIa of the Environmental Protection Act 1990.

## **2.0 Monthly Progress**

### **Week 12. Week Commencing 31<sup>st</sup> May 2010**

Excavation of contaminated soils continues in grid squares I8 and H8 (Drawing D907-07 Appendix A), contaminated materials hauled to treatment area, formed into treatment beds and covered to prevent odour migration. Concrete slab and foundations were removed from grid squares I9 and H9, this material was stockpiled on site and is to be crushed at a later date. The main excavation followed on through grid squares I9 and H9, the contaminated soils excavated mainly comprised of marl and clay. The small percentage of sand and gravels excavated were hauled to the processing area and screened before being placed into treatment beds. Treatment beds continue to be turned to in accordance with the Review of Odour Mitigation and Odour Management Measures document, 2nd June 2010.

### **Week 13. Week Commencing 7<sup>th</sup> June 2010**

Completed the excavation of grid square H9 (Drawing D907-07 Appendix A), the remaining excavation faces adjacent were covered and sealed to prevent odour generation. A former service duct known to contain a small amount of non-notifiable bonded ACM (asbestos containing material) was excavated and removed from grid square M10, this activity was undertaken during days of particularly heavy rainfall to aid in dust suppression. The ACM was stockpiled and covered onsite to await offsite disposal, grid square M10 was inspected post the removal of the ACM to ensure the activity was complete and excavation of contaminated soils could continue in this area. The main excavation continued through grid squares L9, L10 and K10, DNOC contaminated soils from grid squares L9-L10 have been quarantined and will be remediated separately to avoid cross contamination.

### **Week 14. Week Commencing 14<sup>th</sup> June 2010**

At the start of the week the main excavation continued in grid square L10 progressing in to L11, due to a change in wind direction and the excavation being particularly odorous the excavation activity was ceased in this area to prevent the release of odours and the potential migration towards adjacent receptors. The excavation activity then focussed on the failed validation surface of grid squares J7, J8 and J9 removing small quantities of soils to provide a clean validation surface. The soils from the base of the excavation were non odorous due to the low

levels of contamination present. Further excavation of non odours clays was undertaken in grid squares L7, K7 and K8 to achieve a validation surface.

**Week 15. Week Commencing 21<sup>st</sup> June 2010**

Concrete slab and foundations were broken out in grid squares K10 and L10. The main excavation continued through K9 and L10, due to the high odour potential of this material the excavation was halted and materials covered within the base of the excavation to reduce odour generation and migration off site. Free product was discovered in grid square K10, this material was left in-situ, sampled and covered, until the product could be fully identified and quantified. The main excavation switched to grid squares I7 and I8 to remove non odorous clays that had failed the validation process and require treatment.

**Week 16. Week Commencing 28<sup>th</sup> June 2010**

Concrete foundations were broken out in grid squares K9 and K8. Due to the odorous nature of the soils within grid squares K10 and the predominant wind direction soils from K10 were only excavated on 01/07/2010 and 2/07/2010 am, further excavation could not be undertaken during this week due to the risk of generating significant odours. Certain treatment beds were selected on a daily basis and processed to increase the rate of bioremediation within the soils, the beds were selected inline with the predominant wind direction.

### 3.0 Environmental Monitoring Summary

The environmental monitoring locations detailed in the Environmental Permit deployment form for the site are highlighted in drawing D907\_33C in Appendix A.

The detailed environmental monitoring data can be found in Appendix B, the following chapters summarise the findings from the monitoring undertaken by Vertase FLI Site Engineers.

#### 3.1. *Odour and VOC Emissions*

Odour and VOC monitoring around the site boundary commenced on the 22<sup>nd</sup> March 2010 and has been undertaken twice daily at eight compass points around the site boundary, in the public access areas. Odour and VOC related observations in between the eight compass points around the site are also noted by the Vertase FLI representative undertaking the monitoring.

In addition to physical control via covers and management of activities odour controlling suppressants and masking agent are being used around the site boundary to mitigate the impact of odour migration off site. Initially two mobile telescopic misting fans were used on site and a full boundary misting system was also erected to supplement the mobile units, along with the addition of two further mobile units to focus specifically on the excavation. The odour controlling solutions used in the misting and telescopic fan systems vary in fragrance from lemon, to melon, to pine, to bubblegum.

Site generated odours including those from the remediation processes and the odour suppression systems observed during the monitoring rounds beyond the site boundary are listed in the environmental monitoring data spreadsheet in Appendix B.

The Vertase FLI Environmental Engineers and Site Management team have been working closely to prevent odours and VOC's generated by the remediation processes migrating off site, along with trying to achieve a fine balance of using a variety of odour control fragrance's at a variety of dilutions to reduce the impact of any odours detected off site.

The Environmental Engineers have logged the actions undertaken on site to reduce the impact of VOC/odours off site, these are noted in the environmental monitoring data in Appendix B. All

mitigation measures have been in accordance with the actions stipulated in the deployment form, including some additional actions to reduce the potential of odour nuisance e.g. repositioning of mobile odour control systems.

During the twice daily environmental monitoring a Photoionisation Detector (PID) has been used to record VOC's present beyond the site boundary. During the reported period VOC's, were detected by the PID (Limit of detection of 0.1ppm) on the 14/06/2010 at the westerly monitoring location both in the morning and afternoon, 0.2ppm and 0.1ppm respectively. Similar detections were noted on the 15/06/2010 am again at the westerly monitoring location.

On the 01/07/2010 at 17:06 the PID registered a intermittent peak of 1.4ppm at the northern monitoring location, odours related to the excavation process were also intermittent, generally weak ranging to very strong. The excavation was halted immediately and VOC emitting materials covered.

Long term passive VOC monitoring is carried out at eight compass point locations around the site boundary, in the public accessible areas. A further monitoring location is located within the centre of the waste water treatment works.

The results for the long term passive VOC monitoring carried out between 13/05/2010 and 10/06/2010 are presented in appendix C. The analysis indicates that the majority of the VOC's detected are around the baseline, except for Toluene and Tetrachloroethylene which continue to be slightly raised above the baseline values but are well below the levels considered to be within acceptable limits for published criteria. The odour control suppressant product that is used around the site boundary has again been changed in order to improve the systems effectiveness at neutralising and suppressing current odours from the site.

Two further monitoring locations have been added to the monitoring programme to ascertain the influence of site related VOC's upon the locations of Church road, Hauxton and Queens Close, Harston. The analysis for these locations indicates there are some site related VOC's detected at these locations, but at levels that are considered to be within acceptable limits for published criteria. The site related VOC's detected at these locations are significantly reduced in concentration from those monitoring locations adjacent to the site.

The 28 day passive VOC monitoring results have been forwarded to the Health Protection Agency for review. The HPA have undertaken independent risk assessment upon the data provided and have provided a positive non technical summary which is available on South Cambridgeshire District Councils website.

### **3.2. Dust Fibre and Particulate Emission**

Both real time dust measurement and long term dust deposition monitoring has been undertaken around the site boundary at six compass point locations, north, east, south, west with two monitoring positions in the northeast (drawing D907\_30C, Appendix A).

Real time airborne dust monitoring is undertaken as a minimum twice daily by an Environmental Engineer using a 'Dustmate' dust particle monitor around the site boundary as part of the environmental monitoring schedule, results are recorded in the environmental monitoring spreadsheet (Appendix B). The 'Dustmate' dust particle monitor will not function correctly in wet weather conditions, therefore on occasion data may be missing from the environmental monitoring spreadsheet for this reason. Dust migration is however less likely in wet weather conditions.

Dust particle measurements at each monitoring location have varied, with the higher dust readings being generally at the locations adjacent to the heavily trafficked Cambridge Road (A10). The average Total Suspended Particulates (TSP) reading around the site is 140.46  $\mu\text{g}/\text{m}^3$ , the average PM10 dust reading around the site is 75.46  $\mu\text{g}/\text{m}^3$ . Where a potential for dust has been observed, on site dust suppression methods have been deployed immediately to reduce the generation of site dust and all haul routes are continually wetted to prevent dust release.

Directional dust deposition gauges at the six monitoring locations are analysed every fortnight for Effective Area Coverage (EAC) (percentage of dust deposition relating to the potential to cause nuisance), results generated by an external laboratory are presented in Appendix D.

Baseline dust monitoring undertaken between 19/02/2010 to 19/03/2010 (4 locations monitored) recorded a maximum dust deposition rate of 0.54 %EAC at the western monitoring location.

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Dust monitoring undertaken from the 13/05/2010 to 28/05/2010 (6 locations monitored) recorded a maximum dust deposition rate was 1.20 %EAC at the West monitoring location. All other locations had a maximum dust deposition rate of 0.87 %EAC, or less.

Dust monitoring undertaken from the 20/05/2010 to 10/06/2010 (5 locations monitored) recorded a maximum dust deposition rate of 1.15% EAC at the east monitoring location. All other locations had a maximum dust deposition rate of 1.08%EAC, or less.

Dust monitoring undertaken from the 10/06/2010 to 24/06/2010 (6 locations monitored) recorded a maximum dust deposition rate of 0.86% EAC at the north and south monitoring locations. All other locations had a maximum dust deposition rate of 0.79% EAC, or less.

Dust deposition values of less than 2.5% are regarded as having a very low nuisance potential. Only when percentages rise from 2.5% – 5% EAC is dust considered to have a low nuisance causing potential.

During the reported period dust, fibre and particle emissions have been low, and have not caused visual dusting off site.

### **3.3. Control of Mud and Debris**

A pressure washer has been on site constantly to allow any maintenance or plant delivery vehicles leaving contaminated parts of the site to be washed down thoroughly first, as not to take potentially contaminated mud and debris through the clean zone and off site. The movement of vehicles between the contaminated and clean parts of the site is strictly controlled by the site management team.

### **3.4. Noise**

Noise monitoring around the site boundary commenced on the 22<sup>nd</sup> March 2010 and has been undertaken twice daily as a minimum, recording findings at eight compass points around the site boundary in the public access areas (drawing D907\_30C, Appendix A).

Site operations are restricted to 8am to 6pm and site noise levels are consistently at an acceptable low background level. Exceedance's of the 80dB threshold (stipulated in the Environmental Permit deployment document) have been recorded during the monitoring period, however traffic along the A10 and Church Road has been identified as the source of the slightly elevated noise levels. Data is recorded in the environmental monitoring data spreadsheet, Appendix B.

### **3.5. Litter**

All litter occurrences are removed from within the site, and off site around the boundary fence, and disposed of appropriately. Litter is generally low off site, and is well managed on site, by all site personnel. All recordings of the presence of litter are noted in the Environmental Monitoring Data spreadsheet in Appendix B.

## **4.0 Surface and Ground Water Condition**

### **4.1 Surface Water Monitoring**

As part of the environmental monitoring programme, the Riddy Brook located to the east of the site (Drawing D907\_33C, Appendix A) is inspected daily as a minimum at two locations up and down stream for general observations, on any discolouration, sedimentation etc. The observations are recorded on the Environmental Monitoring Data (Appendix B). Throughout the monitoring period there have been no visual signs that the remediation works on site are having any impact on the Riddy Brook.

The water level within the Riddy Brook is monitored and recorded on a daily basis at a minimum of two locations, footbridge adjacent to Mill House (Riddy 1) and the most southerly footbridge over the Riddy Brook, adjacent to the eastern corner of the site (Riddy 4). Two further locations are also monitored, Riddy 2 at the footbridge over the Riddy Brook approximately 150m southeast of Mill House and the former fire exit bridge (Riddy 3), 210m southeast of Mill House. All the water level data is recorded in the main groundwater level data sheet in Appendix E.

During the monitoring period there was a slight rise, then fall in Riddy Brook water levels caused by a heavy rain event during the weekend of the 5/06/2010. Generally there has been very little change in level and flow along the Riddy Brook.

### **4.2 Surface Water Sampling and Analysis**

Upstream and downstream water samples from both the River Cam (Granta) and the Riddy Brook are taken on a monthly basis. The results for samples taken on 27<sup>th</sup> May 2010 and the 24<sup>th</sup> of June 2010 are presented in Appendix F.

The surface water analysis taken on the 27<sup>th</sup> May 2010 shows traces of the contaminants of concern (Ethofumesate, Cis-1,2-Dichloroethylene, Tetrachloroethylene and Trichloroethylene) in the downstream sample taken from the Riddy Brook. The traces of the COC's present in the downstream sample taken from the Riddy Brook are consistent with baseline water quality data monitored in August 2008.

Tetrachloroethylene is present at trace levels (<3 µg/l) in both upstream and downstream Riddy Brook and River Cam samples. These trace levels of Tetrachloroethylene were present in the March and April 2010 samples and in the baseline data collected during the summer of 2008.

Trace levels (<0.3 ug/l) of Mecoprop (Methylchlorophenoxypropionic acid) are present in the upstream sample of the River Cam, Mecoprop is a widely used herbicide for the control of broad leaf weeds.

The surface water analysis taken on the 24<sup>th</sup> June 2010 shows traces of the contaminants of concern (Ethofumesate, Cis-1,2-Dichloroethylene, Tetrachloroethylene and Trichloroethylene) in the downstream sample taken from the Riddy Brook. The traces of the COC's present in the downstream sample taken from the Riddy Brook are consistent with baseline water quality data.

Tetrachloroethylene is present at trace levels (<3 µg/l) in both upstream and downstream Riddy Brook and River Cam samples. These trace levels of Tetrachloroethylene were present in the March and May 2010 samples and in the baseline data collected during the summer of 2008.

Detectable levels of Bis (2 Chloroethyl) ether, MCPA (2-methyl-4-chlorophenoxyacetic acid) and Mecoprop (17ug/l, 12ug/l and 4ug/l respectfully) are present in the upstream sample from the Riddy Brook. The sampling location represents the surface water up hydraulic gradient of the former Bayer Cropscience site. Trace levels of MCPA (<1.1ug/l) were also detected in the downstream sample taken from the Riddy Brook.

### **4.3. Groundwater Level Monitoring**

Groundwater levels are recorded within at least 11 borehole locations onsite on a daily basis, to ensure the groundwater beneath the site remains in a static condition during the remediation works and does not pose a risk to surface and groundwater bodies beyond the site boundary.

During the initial excavation works on site very little groundwater has been encountered, the majority of excavations located in the western parts of the site have exceeded a depth of 4m below current ground level and have penetrated the Gault Clay in parts.

The main source of water encountered during excavations has been discontinuous contaminated perched water present in the Made Ground. This water has been captured and treated in the Waste Water Treatment Works associated with the site.

From approximately 2-3m below ground level discontinuous thin sand and gravel bands have also produced some limited quantities of water, which have tended to dry up within 24 hours.

The groundwater levels measured at locations around the site are shown in drawing D907\_31E, in appendix A. The groundwater levels are presented in Appendix E.

Groundwater contour plots are drawn up on a weekly basis to interpret the potential movement of the water beneath the site. Contour plots D907\_80, D907\_82, D907\_83 and D907\_86 (Appendix G) illustrate the weekly groundwater levels for the reported period.

The four contour plots constructed (Appendix G) illustrate that there have been subtle changes in groundwater levels during the monitoring period. Up until the 10/06/2010 the contour plots are very similar in pattern and actual measured values to the baseline data established throughout 2008 and 2009. Post the 10<sup>th</sup> June groundwater level around the excavations to the North of the site has reduced by approximately 50-82cm. This is most likely due to the pumping of perched contaminated waters during the remediation. To the south of the site there has been a rise in groundwater level by on average 40cm, this is considered to be a typical fluctuation seen in previous monitoring data. There has not been any change to the pumping regime in this part of the site during the monitoring period.

#### **4.4. Groundwater Sampling and Analysis**

Groundwater samples from 11 monitoring locations on site are taken on a monthly basis. The results for samples taken on 27<sup>th</sup> of May 2010 and the 24<sup>th</sup> June 2010 are presented in Appendix F.

Site groundwater is actively pumped from around the bentonite wall and the High bay warehouse, to prevent groundwater migration towards the Riddy Brook. The concentrations of the contaminants of concern within each of the monitored boreholes have been static on site during the initial works on site.

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The contaminant concentrations present in the samples taken on the 27<sup>th</sup> of May 2010 and 24<sup>th</sup> of June 2010 are very similar to the baseline data collected during the summer of 2008, illustrating that there has been very little change to the groundwater's condition since 2008.

## 5.0 Waste Water Treatment Plant

The Waste Water Treatment Plant (WWTP) is part of the former land holding of Bayer Cropscience and is part of that controlled by Harrow Estates. The WWTP was an integral part of the former Bayer Crop Science site, located to the west of the A10, specifically designed to treat and discharge liquid waste products derived from the production of agrochemicals (both herbicides and pesticides) and sewage from the facility.

The WWTP has been previously operated (until the 15<sup>th</sup> of March 2010) by Alpheus Environmental Ltd. to maintain the required discharge volume generated by the groundwater pumping systems on the main Bayer Cropscience site along the bentonite cut off wall and the high bay warehouse.

Vertase FLI have established a maintenance programme and control procedures to ensure the WWTP is operated within the constraints of the discharge consent. Essential system checks and improvements have been made to the plant to ensure it can treat the volume and concentrations of influent generated by the continued groundwater control and the contaminated water recovered during the remediation activities on the main site.

The composition of the water discharged to the River Cam (Granta) must not exceed the permitted levels in paragraphs 1.7.1, 1.8.1 and 1.8.2 of the discharge consent PR1NF/1744D01 Issued and regulated by the Environment Agency.

The treated effluent is sampled at the specified location as stipulated in the discharge consent. Vertase FLI also sample the influent to the WWTP, along with a sample taken after the primary carbon treatment, this is to assess the performance of main treatment process of the WWTP and highlight potential expiry of the primary carbon vessels.

The fortnightly samples are analytically tested for the water quality parameters and the chemical compounds specified in paragraph 1.7.1 of the discharge consent PR1NF/1744 D 01. The data is tabulated and presented in Appendix H along with the raw data from the laboratory reports.

Throughout the reporting period the WWTP has been successful in treating the compounds listed within paragraph 1.7.1 (consent PR1NF/1744D01) to acceptable levels for discharge to the River Cam (Granta) under the regulated discharge consent.

The Environment Agency carry out independent discharge monitoring at the WWTP on a monthly basis, during the reportable period Vertase FLI and Harrow Estates Plc have not been notified of any unacceptable effluent discharging to the River Cam (Granta) from the operating plant.

## 6.0 Contaminants Not Previously Identified

To fulfil the requirements of condition 4 and condition 9, Planning Condition Document ref:S/2307/06/f Issued 10/02/2010, Vertase FLI are continually undertaking soil characterisation sampling prior to remediation processes to identify the types and concentrations of contaminants present in the specific grid squares across the entire site.

The soil characterisation samples undergo a series of laboratory analyses consisting of targeted analysis, screening against known contaminants and a full GCMS scan to identify any contaminants not previously identified.

All characterisation samples analysed and found to contain previously unidentified contaminants are reported in accordance with condition 9 of the Planning Condition Document ref:S/2307/06/f Issued 10/02/2010.

From the commencement of site works (15/03/2010) to 30/06/2010, twenty characterisation samples have been taken by Vertase FLI in partnership with Atkins to assess the contamination type and concentrations prior to remediation of the materials. Eight characterisation samples analysed contained a total of ten compounds / potential contaminants that had not been previously identified.

A summary table of the soil characterisation testing is presented in Appendix I, the previously unidentified compounds are listed here, with comments regarding the origin and likely usage on site.

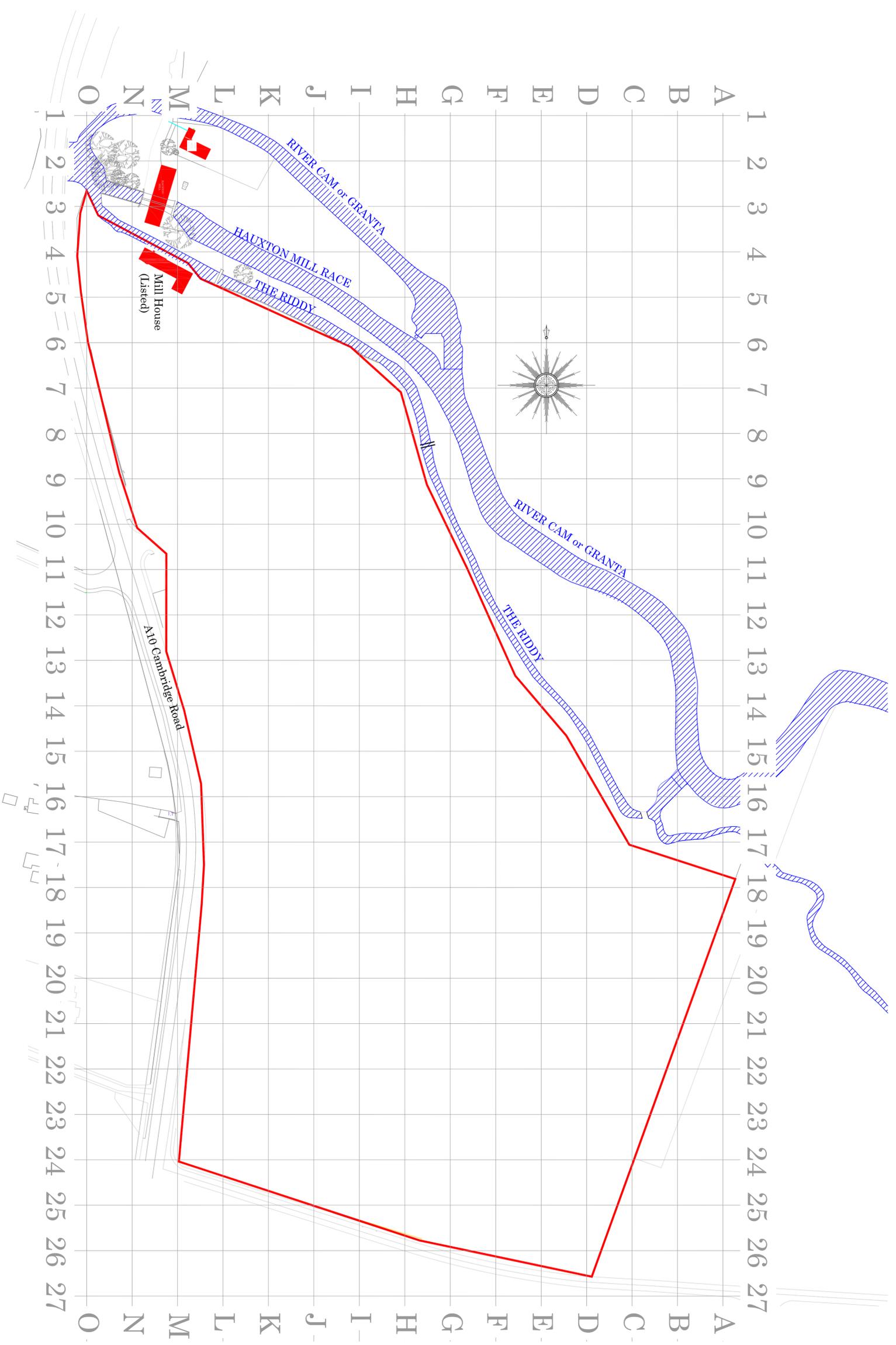
The remediation project consultants Atkins continuously review the soil characterisation analysis and report previously unidentified contaminants in accordance with condition 9, Planning Condition Document ref:S/2307/06/f Issued 10/02/2010.

**Appendix A**

**Drawings**

Legend

- Buildings to Remain
  - Water Course
  - Site Boundary
- Drawing Base : Ref  
LW/HAUX-002/2006



Rev.	Description	Revised By	Date
1	FIRST ISSUE		21 April 2008

**Vertase**  
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Site Address:  
Bayer Site  
Hauxton  
Cambridge

Client: Harrow Estates

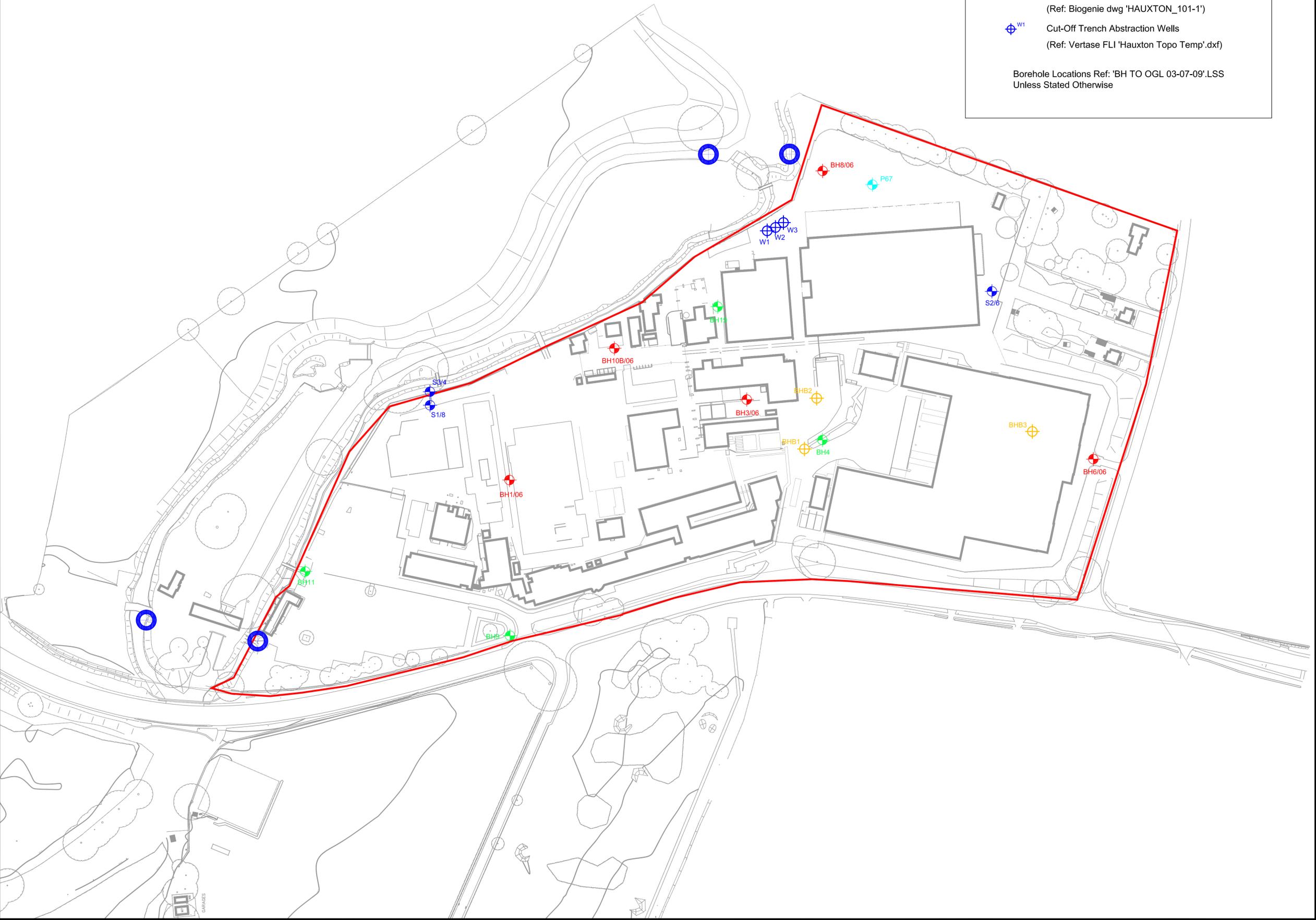
Title: Blank Site Plan with Grid

Drawn: JWH	Checked: MA	Approved: MA
Dwg: 0907_07	Contact: 907BR4	Scale: 1:1000

**Legend**

-  BH1/06 Atkins Exploratory Hole Location
-  BH7, P67 Previous Borehole Location
-  Water Sampling Location
-  BHB1 Biogenie Boreholes  
(Ref: Biogenie dwg 'HAUXTON\_101-1')
-  W1 Cut-Off Trench Abstraction Wells  
(Ref: Vertase FLI 'Hauxton Topo Temp'.dxf)

Borehole Locations Ref: 'BH TO OGL 03-07-09'.LSS  
Unless Stated Otherwise



E	BHB1,BHB2,BHB3, W1,W2,W3,BH3-06 & BH08-06 Added (BH3-06 & BH08-06 Ref:D907_31 Iss 0)	MRG	17-08-09
D	BH1 Removed & BH19 Added	MRG	07-07-08
C	BH1 Added	JWH	11 June 2008
B	BH5/06 Erased S2/6 Added	JWH	09 June 2008
A	Boreholes Erased	JWH	14 May 2008
	FIRST ISSUE		23 April 2008

Rev.	Description	Revised By	Date
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**Vertase F.L.I.**

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- Manchester Office: Tel: 01614 372708 Fax: 01614 376300

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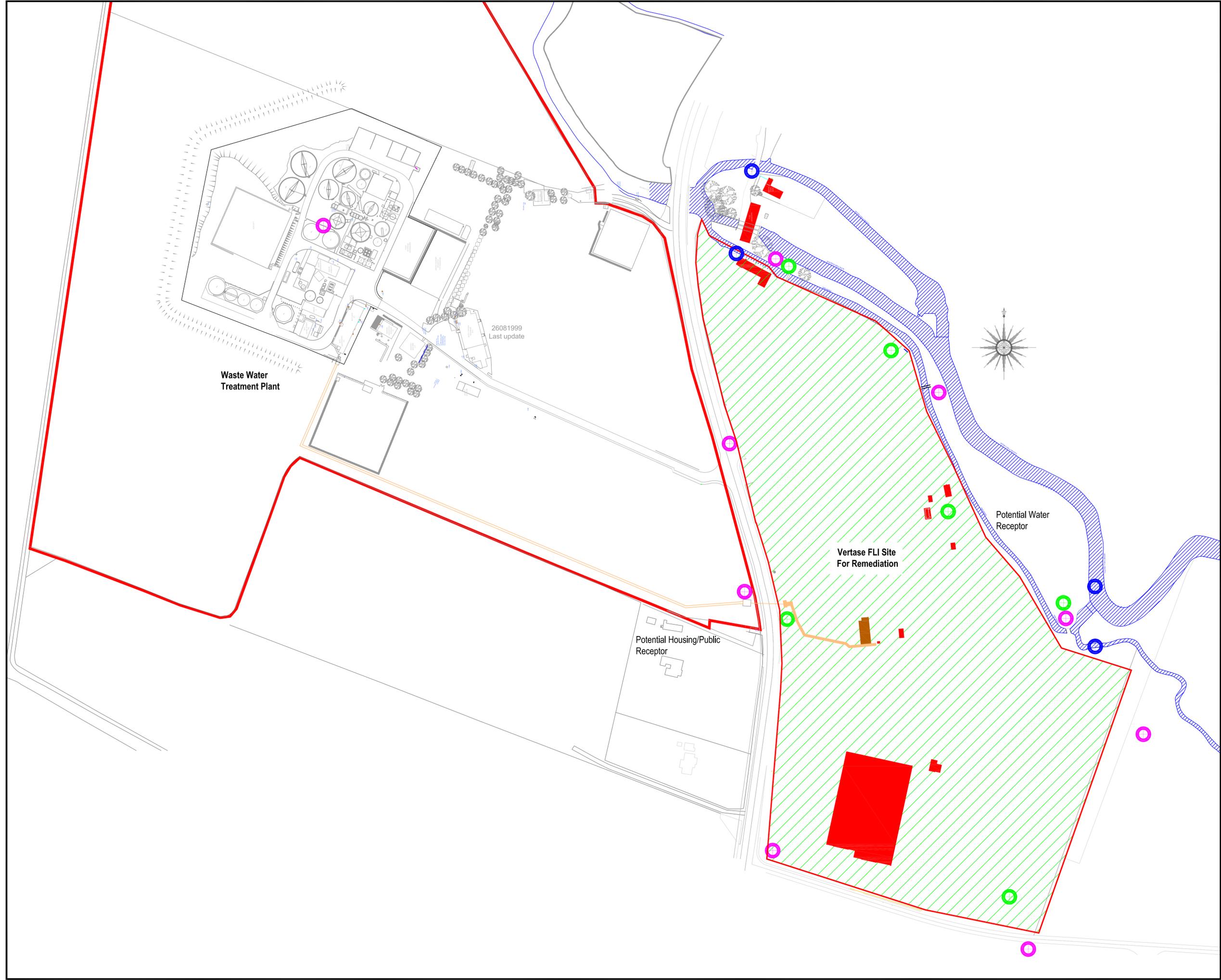
Site Address: Bayer Site Hauxton Cambridge	Rev: <b>E</b>
---	------------------

Title: Retained Boreholes for Monitoring & Reference

Client: Harrow Estates

Drawn: JWH	Checked: MA	Approved: MA
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Dwg: D907_31	Contract: 907BRI	Scale: 1:1000
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**Legend**

- Sub-Station/Buildings to Remain
- Water Course
- Vertase FLI Site for Remediation
- Mobile Treatment Licence Boundary
- Site Effluent Sump and Ducting
- Diffusion Tubes /Monitoring Location
- Dust Monitoring Location
- Water Sampling Location

Drawing Base : Ref  
LW/HAUX-002/2006

Waste Water Treatment Plant

26081999  
Last update

Vertase FLI Site For Remediation

Potential Water Receptor

Potential Housing/Public Receptor

C	Dust Monitoring Locations Amended	MRG	14 July 08
B	Dust Monitoring Location Amended	JWH	09 June 08
A	Water Sampling Points Added Treatment Building Amended FIRST ISSUE	JWH	15 May 2008 21 April 2008
Rev.	Description	Revised By	Date



- Bristol Head Office: Tel: 01275 397600 Fax: 01275 397601
  - Sheffield Office: Tel: 01246 813289 Fax: 01246 812983
  - Hertford Office: Tel: 01992 535757 Fax: 01992 535858
  - Manchester Office: Tel: 01614 372708 Fax: 01614 376300
- email: info@vertasefli.co.uk  
www.vertasefli.com

Site Address:  
Bayer Site  
Hauxton  
Cambridge

Rev:  
C

Title: Environmental Monitoring Plan

Client: Harrow Estates

Drawn: JWH	Checked: MA	Approved: MA
Dwg: D907_33	Contract: 907BRI	Scale: 1:1250

## **Appendix B**

### **Environmental Monitoring Data**









## **Appendix C**

### **Long term Passive VOC Monitoring**

## LABORATORY ANALYSIS REPORT

**REPORT NUMBER** GCMS 4327  
**CUSTOMER** Vertase FLI  
1 Middle Bridge Business Park  
Bristol Road,  
Portishead Avon BS20 6PN  
**GRADKO LAB REFERENCE** GMSE 1086-1096  
**DATE SAMPLES RECEIVED** 16.06.10  
**BOOKING IN REF.** D 3116  
**JOB NUMBER:** 907BR1

### SEMI-QUANTITATIVE ANALYSIS FOR TOP 10 VOC'S ON TENAX DIFFUSION TUBES BY GC/MS

**Tube Number** MI 005359  
**Exposure Time(mins)** 40323  
**Sample ID** North

#### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Toluene	359.38	16.40	4.46
Tetrachloroethylene	280.11	22.79	3.47
Benzene, 1,3-dichloro-	52.15	3.78	0.65
p-Xylene	43.68	2.30	0.54
Benzene, 1,4-dichloro-2-methyl-	30.88	2.45	0.38
Benzene, 1,2,4-trichloro-3-methyl-	18.90	1.82	0.23
Benzothiazole	16.54	1.11	0.21
Ethylbenzene	13.45	0.71	0.17
Benzamide, N,N-dimethyl-	13.03	0.96	0.16
Benzene, 1,2,4-trichloro-4-methyl-	12.16	1.17	0.15

**Tube Number** MI 010907  
**Exposure Time(mins)** 40343  
**Sample ID** North East

#### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Toluene	1256	57	16
Tetrachloroethylene	975.49	79.31	12.09
Benzene, 1,3-dichloro-	324.82	23.51	4.03
p-Xylene	172.60	9.07	2.14

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd.

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L. Gates, Laboratory Supervisor

## LABORATORY ANALYSIS REPORT

Benzene, 1,4-dichloro-2-methyl-	73.71	5.85	0.91
Ethylbenzene	50.48	2.65	0.63
Bis(2-chloroethyl) ether	39.18	2.76	0.49
o-Xylene	38.14	2.00	0.47
Benzene, 1,2,4-trichloro-3-methyl-	37.28	3.59	0.46
Dodecane	25.06	2.11	0.31

**Tube Number** MI 011047  
**Exposure Time(mins)** 40383  
**Sample ID** East

### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Toluene	403.17	18.37	4.99
Tetrachloroethylene	286.91	23.30	3.55
p-Xylene	79.49	4.17	0.98
Benzene, 1,4-dichloro-2-methyl-	71.04	5.63	0.88
Benzene, 1,3-dichloro-	62.99	4.55	0.78
Dodecane	44.72	3.76	0.55
Benzamide, N,N-dimethyl-	39.06	2.88	0.48
1S-.alpha.-Pinene	33.06	2.23	0.41
Tridecane	25.38	2.31	0.31
Benzothiazole	23.12	1.55	0.29

**Tube Number** MI 018517  
**Exposure Time(mins)** 40408  
**Sample ID** South East

### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Toluene	254.46	11.59	3.15
Tetrachloroethylene	147.03	11.93	1.82
Benzene, 1,3-dichloro-	75.40	5.45	0.93
p-Xylene	64.65	3.39	0.80
1,4-Methanoazulene, decahydro-4,8,8-trimethyl-9-methylene-, [1S-(1.alpha.,3a.beta.,4.alpha.,8a.beta.)]-	51.76	5.23	0.64
Dodecane	46.64	3.92	0.58
Tridecane	45.03	4.10	0.56
Benzothiazole	35.79	2.39	0.44

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L. Gates, Laboratory Supervisor

## LABORATORY ANALYSIS REPORT

Benzene, 1,4-dichloro-2-methyl-	34.12	2.70	0.42
Naphthalene	30.55	1.94	0.38

**Tube Number** MI 032542  
**Exposure Time(mins)** 40373  
**Sample ID** South

### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Toluene	148.05	6.75	1.83
Tetrachloroethylene	79.84	6.49	0.99
p-Xylene	37.52	1.97	0.46
Benzene, 1,3-dichloro-	32.17	2.33	0.40
o-Xylene	11.62	0.61	0.14
Cyclohexane, isocyanato-	11.33	0.70	0.14
Ethylbenzene	10.97	0.58	0.14
Phenol	9.45	0.44	0.12
Tridecane	8.81	0.80	0.11
Benzene	7.43	0.29	0.09

**Tube Number** MI 012101  
**Exposure Time(mins)** 40372  
**Sample ID** South West

### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Toluene	662.14	30.18	8.20
Tetrachloroethylene	252.32	20.50	3.12
Benzene, 1,3-dichloro-	80.05	5.79	0.99
p-Xylene	68.60	3.60	0.85
Benzene, 1,4-dichloro-2-methyl-	54.14	4.29	0.67
Ethylbenzene	19.02	1.00	0.24
o-Xylene	17.64	0.93	0.22
Phenol	17.10	0.80	0.21
Benzene, 1,2,4-trichloro-3-methyl-	15.46	1.49	0.19
Benzene, 1,3-dichloro-2-methyl-	14.81	1.17	0.18

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## LABORATORY ANALYSIS REPORT

**Tube Number** MI 012979  
**Exposure Time(mins)** 40383  
**Sample ID** West

### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Toluene	430.75	19.63	5.33
Tetrachloroethylene	275.72	22.39	3.41
Benzene, 1,3-dichloro-	81.77	5.91	1.01
p-Xylene	57.17	3.00	0.71
Benzene, 1,4-dichloro-2-methyl-	37.91	3.00	0.47
Benzothiazole	22.61	1.51	0.28
Benzamide, N,N-dimethyl-	19.57	1.44	0.24
Dodecane	18.63	1.57	0.23
Tridecane	17.23	1.57	0.21
Ethylbenzene	16.85	0.88	0.21

**Tube Number** MI 036528  
**Exposure Time(mins)** 40375  
**Sample ID** North West

### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Toluene	526.69	24.00	6.52
Tetrachloroethylene	468.41	38.05	5.80
Benzene, 1,3-dichloro-	93.71	6.78	1.16
p-Xylene	67.05	3.52	0.83
Benzene, 1,4-dichloro-2-methyl-	42.18	3.34	0.52
Bis(2-chloroethyl) ether	28.33	1.99	0.35
Benzene, 1,2,4-trichloro-3-methyl-	25.21	2.00	0.31
Ethylbenzene	19.13	1.00	0.24
Benzamide, N,N-dimethyl-	19.10	1.41	0.24
o-Xylene	18.58	0.98	0.23

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L. Gates, Laboratory Supervisor

## LABORATORY ANALYSIS REPORT

**Tube Number** GRA 01859  
**Exposure Time(mins)** 40234  
**Sample ID** Church Road

### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Naphthalene	55.33	3.52	0.69
Toluene	47.32	2.16	0.59
Heptadecane	33.12	3.95	0.41
p-Xylene	30.89	1.63	0.38
Benzothiazole	26.42	1.77	0.33
Octadecane	22.79	2.88	0.28
Tetrachloroethylene	21.12	1.72	0.26
o-Xylene	20.99	1.11	0.26
Benzene	19.80	0.77	0.25
Benzene, 1,2,4-trimethyl-	18.56	1.11	0.23

**Tube Number** GRA 02446  
**Exposure Time(mins)** 40273  
**Sample ID** Queens Drive

### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Toluene	32.79	1.50	0.41
p-Xylene	30.43	1.60	0.38
Benzothiazole	23.61	1.58	0.29
o-Xylene	20.85	1.10	0.26
Phenol	20.52	0.96	0.25
Benzamide, N,N-dimethyl-	18.49	1.37	0.23
Benzene, 1,2,4-trimethyl-	15.82	0.94	0.20
Ethylbenzene	14.13	0.74	0.18
Dodecane	13.97	1.18	0.17
Benzene	13.88	0.54	0.17

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L. Gates, Laboratory Supervisor

## LABORATORY ANALYSIS REPORT

**Tube Number** MI 012924  
**Exposure Time(mins)** 40425  
**Sample ID** WTW

### Top 10 VOC's

Compounds	ng on tube	ugm-3*	ppb in air*
Toluene	64.64	2.94	0.80
Tetrachloroethylene	48.93	3.97	0.61
Benzothiazole	29.14	1.95	0.36
Benzene	17.53	0.68	0.22
Phenol	15.72	0.73	0.19
Benzamide, N,N-dimethyl-	15.52	1.14	0.19
p-Xylene	14.34	0.75	0.18
Dodecane	13.19	1.11	0.16
Cyclohexanone	13.12	0.64	0.16
Benzene, 1,3-dichloro-	12.10	0.87	0.15

**Comments: Results greater than 1000ng are outside of our UKAS accredited calibration range. Acetic Acid was present in some of the tubes but not reported, considered as an artefact.**

**MOU 8.24%+-(Unspecified peak-Toluene)**

**Analyst Name** M.Angelova **Date of Analysis** 17.06.10  
**Analyst Signature** **Date of Report** 18.06.10

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Report Number GCMS4327

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## Appendix D

### Directional Dust Monitoring

### Gauge Number - North location 907BRI

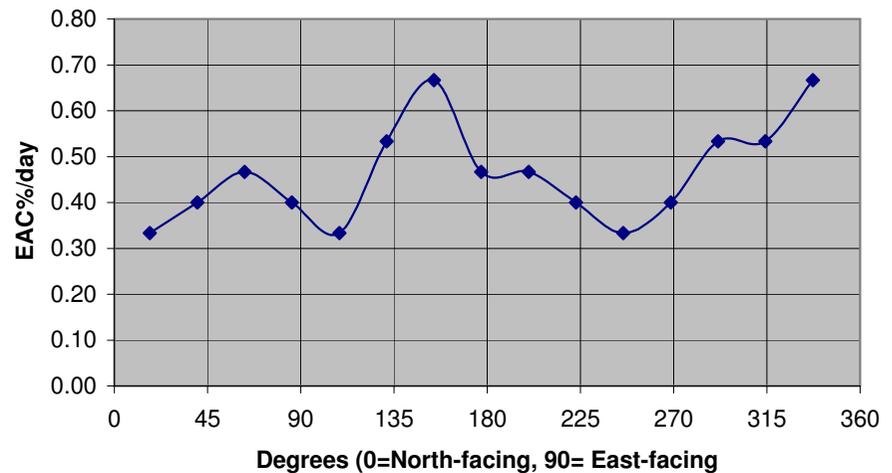
#### Sticky Pad Data

Date On **13/05/2010** Date Off **28/05/2010** Days = 15

Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	80	337	0.67
40	82	314	0.53
60	82	291	0.53
80	84	269	0.40
100	85	246	0.33
120	84	223	0.40
140	83	200	0.47
160	83	177	0.47
180	80	154	0.67
200	82	131	0.53
220	85	109	0.33
240	84	86	0.40
260	83	63	0.47
280	84	40	0.40
300	85	17	0.33

EAC%/day vs Orientation



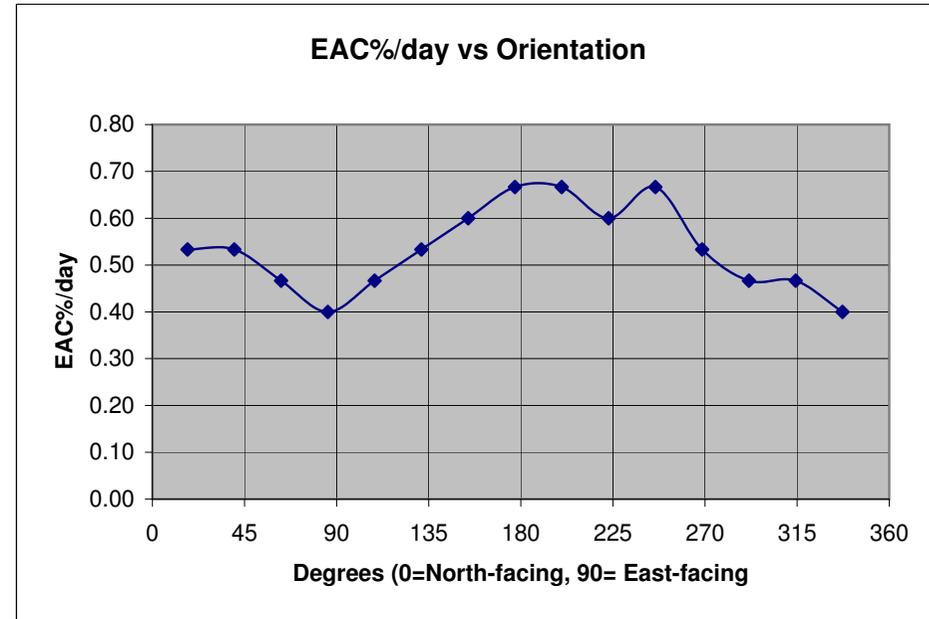
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - NE1 location 907BRI

#### Sticky Pad Data

Date On **13/05/2010** Date Off **28/05/2010** Days = 15  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	84	337	0.40
40	83	314	0.47
60	83	291	0.47
80	82	269	0.53
100	80	246	0.67
120	81	223	0.60
140	80	200	0.67
160	80	177	0.67
180	81	154	0.60
200	82	131	0.53
220	83	109	0.47
240	84	86	0.40
260	83	63	0.47
280	82	40	0.53
300	82	17	0.53



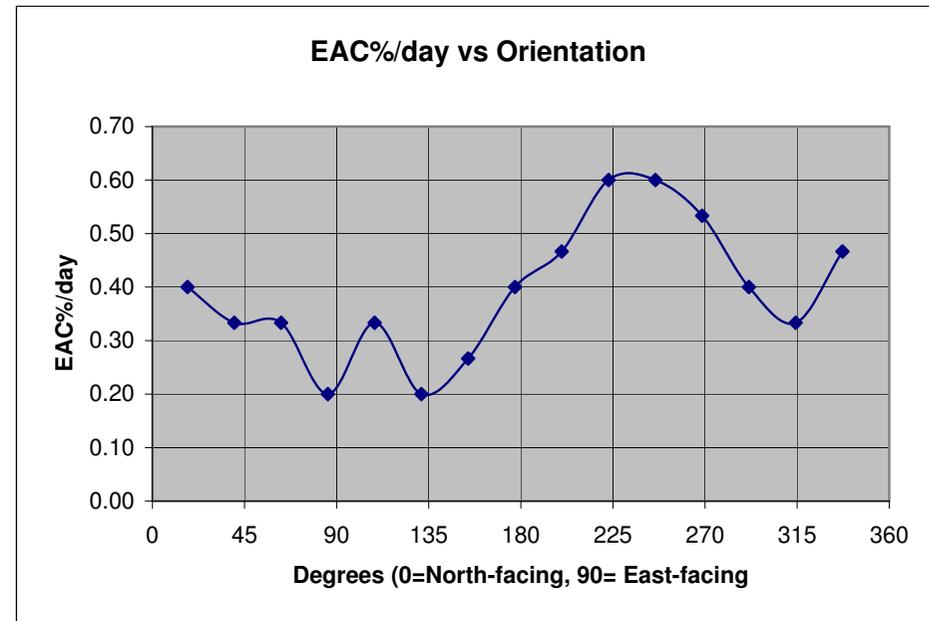
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - NE2 location 907BRI

#### Sticky Pad Data

Date On **13/05/2010** Date Off **28/05/2010** Days = 15  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	83	337	0.47
40	85	314	0.33
60	84	291	0.40
80	82	269	0.53
100	81	246	0.60
120	81	223	0.60
140	83	200	0.47
160	84	177	0.40
180	86	154	0.27
200	87	131	0.20
220	85	109	0.33
240	87	86	0.20
260	85	63	0.33
280	85	40	0.33
300	84	17	0.40



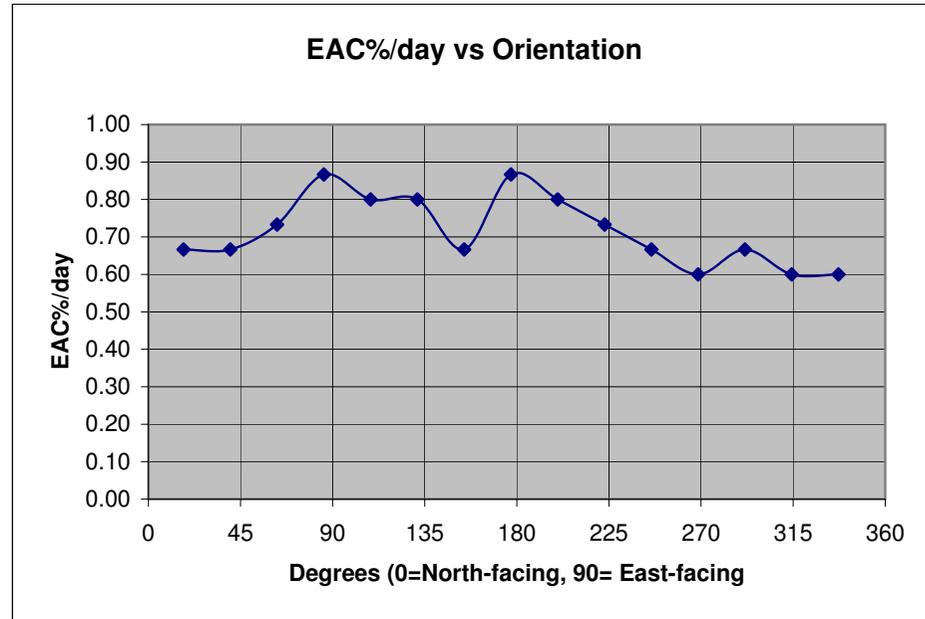
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - South location 907BRI

#### Sticky Pad Data

Date On **13/05/2010** Date Off **28/05/2010** Days = 15  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	81	337	0.60
40	81	314	0.60
60	80	291	0.67
80	81	269	0.60
100	80	246	0.67
120	79	223	0.73
140	78	200	0.80
160	77	177	0.87
180	80	154	0.67
200	78	131	0.80
220	78	109	0.80
240	77	86	0.87
260	79	63	0.73
280	80	40	0.67
300	80	17	0.67



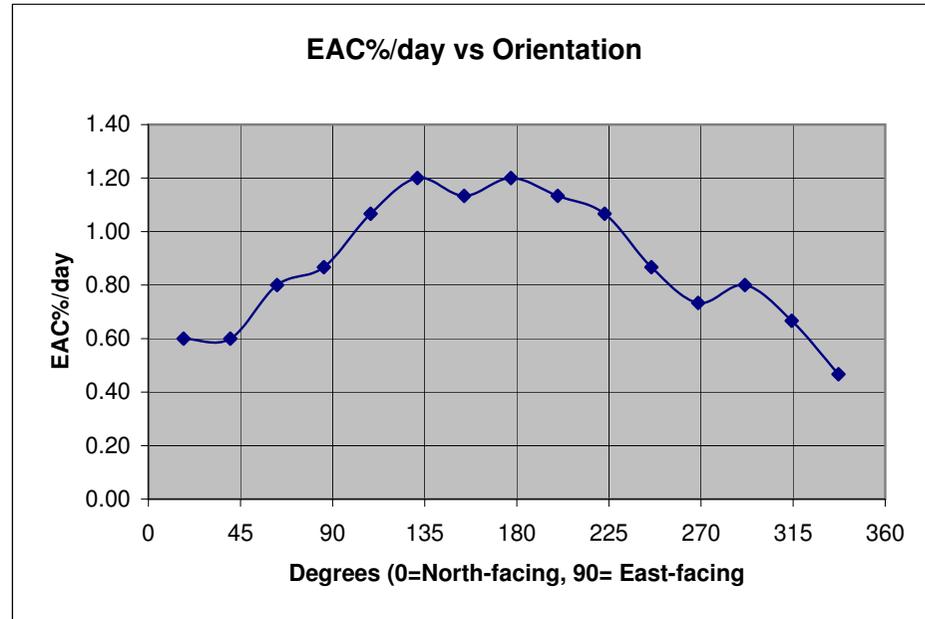
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - West location 907BRI

#### Sticky Pad Data

Date On **13/05/2010** Date Off **28/05/2010** Days = 15  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	<b>83</b>	337	0.47
40	<b>80</b>	314	0.67
60	<b>78</b>	291	0.80
80	<b>79</b>	269	0.73
100	<b>77</b>	246	0.87
120	<b>74</b>	223	1.07
140	<b>73</b>	200	1.13
160	<b>72</b>	177	1.20
180	<b>73</b>	154	1.13
200	<b>72</b>	131	1.20
220	<b>74</b>	109	1.07
240	<b>77</b>	86	0.87
260	<b>78</b>	63	0.80
280	<b>81</b>	40	0.60
300	<b>81</b>	17	0.60



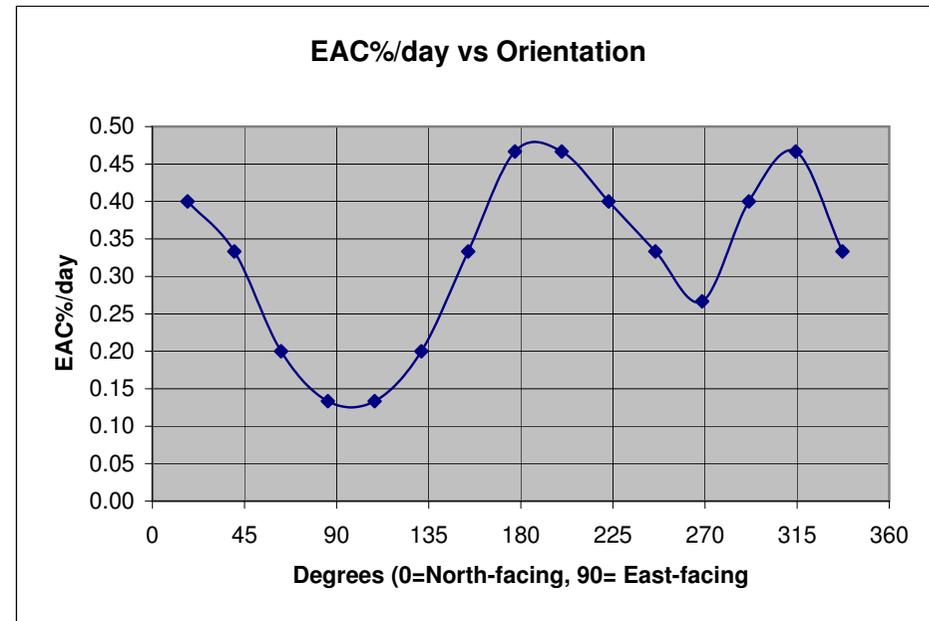
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - East location 907BRI

#### Sticky Pad Data

Date On **13/05/2010** Date Off **28/05/2010** Days = 15  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	85	337	0.33
40	83	314	0.47
60	84	291	0.40
80	86	269	0.27
100	85	246	0.33
120	84	223	0.40
140	83	200	0.47
160	83	177	0.47
180	85	154	0.33
200	87	131	0.20
220	88	109	0.13
240	88	86	0.13
260	87	63	0.20
280	85	40	0.33
300	84	17	0.40



Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

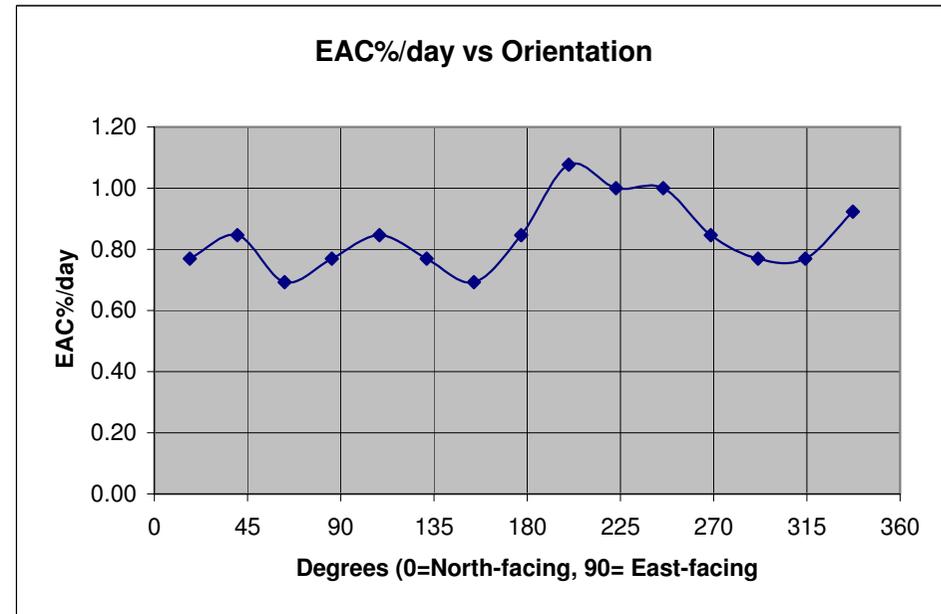
### Gauge Number - North location 907BRI

#### Sticky Pad Data

Date On **28/05/2010** Date Off **10/06/2010** Days = 13

Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	<b>78</b>	337	0.92
40	<b>80</b>	314	0.77
60	<b>80</b>	291	0.77
80	<b>79</b>	269	0.85
100	<b>77</b>	246	1.00
120	<b>77</b>	223	1.00
140	<b>76</b>	200	1.08
160	<b>79</b>	177	0.85
180	<b>81</b>	154	0.69
200	<b>80</b>	131	0.77
220	<b>79</b>	109	0.85
240	<b>80</b>	86	0.77
260	<b>81</b>	63	0.69
280	<b>79</b>	40	0.85
300	<b>80</b>	17	0.77



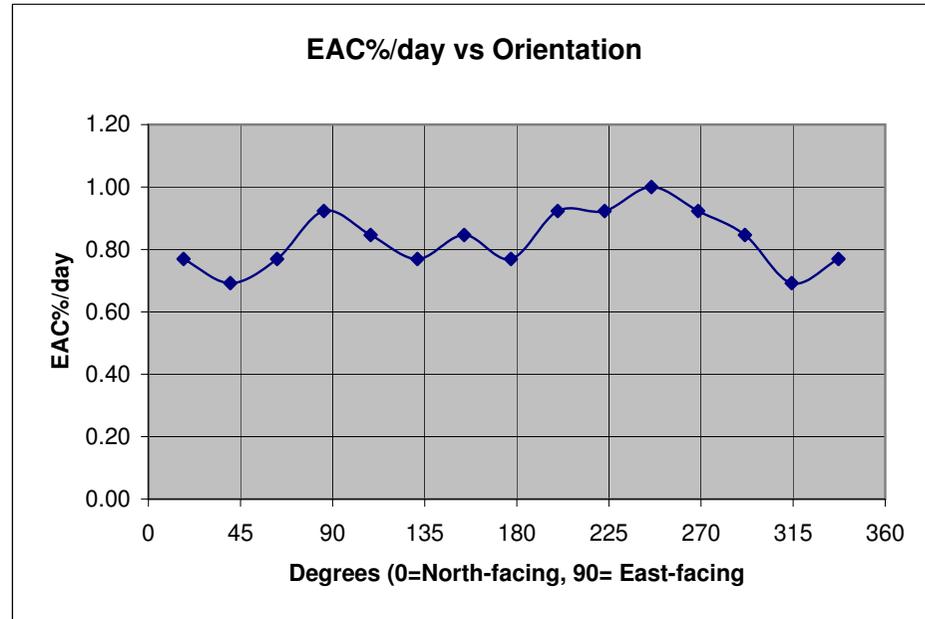
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - NE1 location 907BRI

#### Sticky Pad Data

Date On **28/05/2010** Date Off **10/06/2010** Days = 13  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	80	337	0.77
40	81	314	0.69
60	79	291	0.85
80	78	269	0.92
100	77	246	1.00
120	78	223	0.92
140	78	200	0.92
160	80	177	0.77
180	79	154	0.85
200	80	131	0.77
220	79	109	0.85
240	78	86	0.92
260	80	63	0.77
280	81	40	0.69
300	80	17	0.77



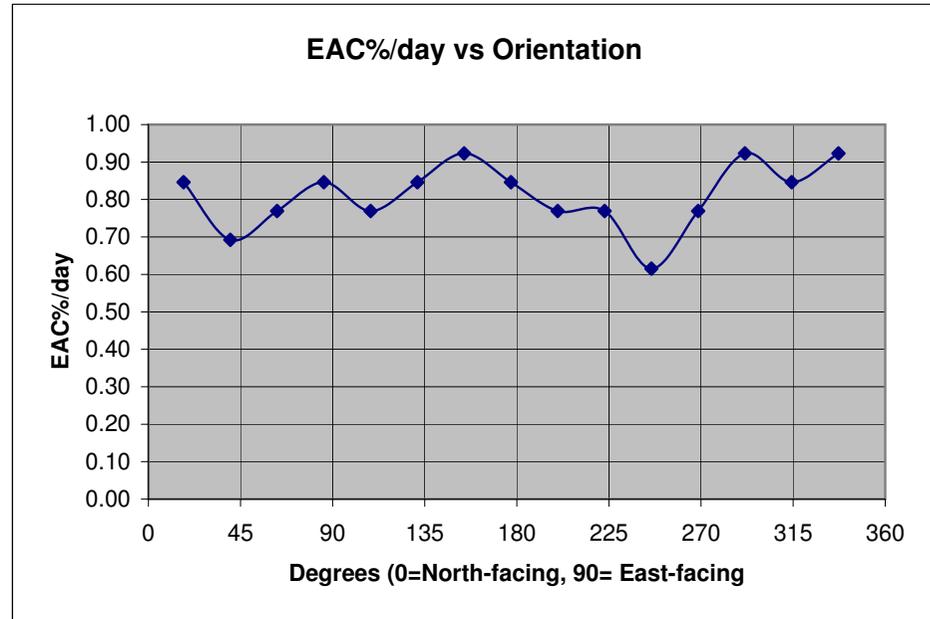
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - South location 907BRI

#### Sticky Pad Data

Date On **28/05/2010** Date Off **10/06/2010** Days = 13  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	78	337	0.92
40	79	314	0.85
60	78	291	0.92
80	80	269	0.77
100	82	246	0.62
120	80	223	0.77
140	80	200	0.77
160	79	177	0.85
180	78	154	0.92
200	79	131	0.85
220	80	109	0.77
240	79	86	0.85
260	80	63	0.77
280	81	40	0.69
300	79	17	0.85



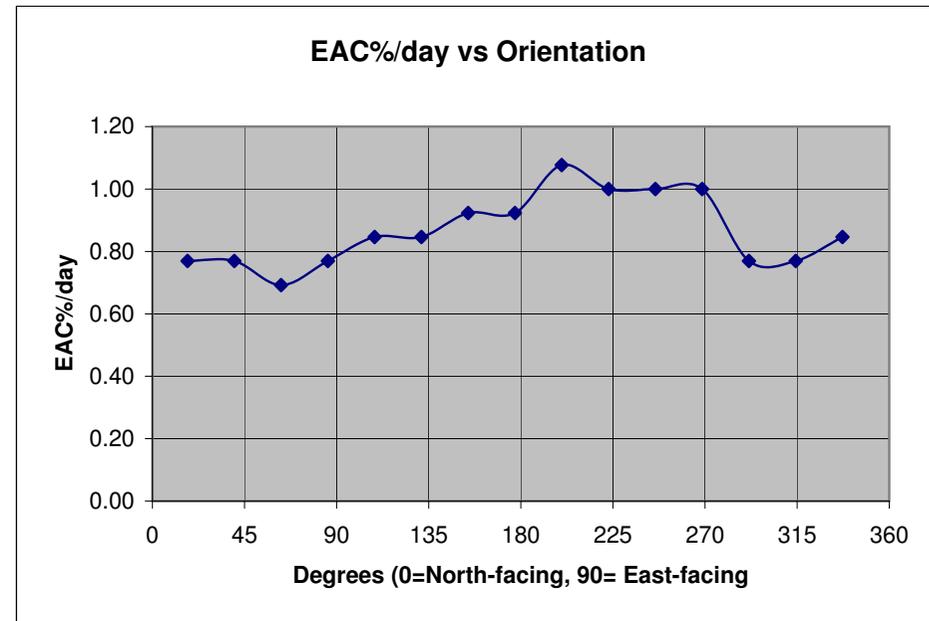
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - West location 907BRI

#### Sticky Pad Data

Date On **28/05/2010** Date Off **10/06/2010** Days = 13  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	79	337	0.85
40	80	314	0.77
60	80	291	0.77
80	77	269	1.00
100	77	246	1.00
120	77	223	1.00
140	76	200	1.08
160	78	177	0.92
180	78	154	0.92
200	79	131	0.85
220	79	109	0.85
240	80	86	0.77
260	81	63	0.69
280	80	40	0.77
300	80	17	0.77



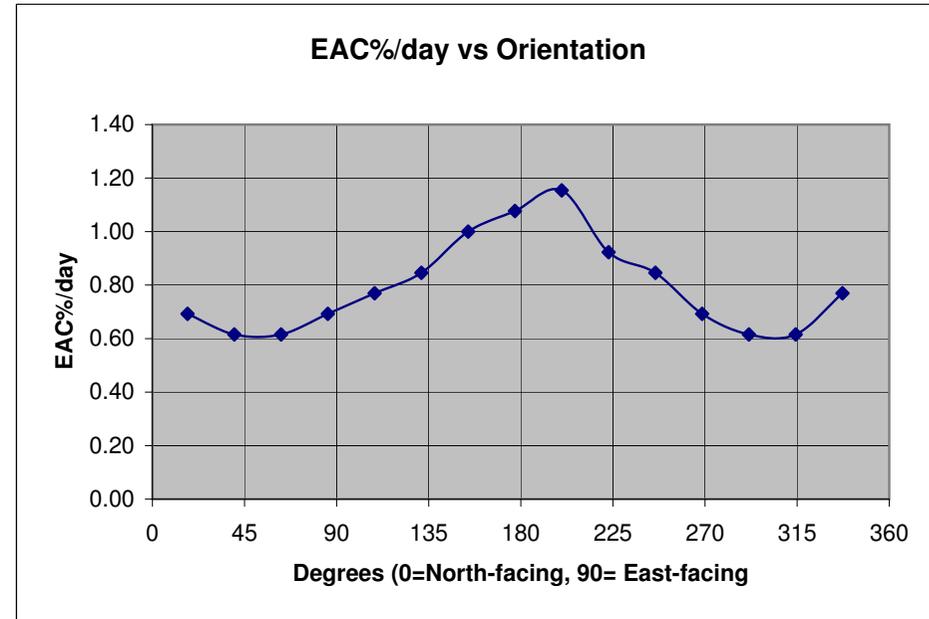
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - East location 907BRI

#### Sticky Pad Data

Date On **28/05/2010** Date Off **10/06/2010** Days = 13  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	80	337	0.77
40	82	314	0.62
60	82	291	0.62
80	81	269	0.69
100	79	246	0.85
120	78	223	0.92
140	75	200	1.15
160	76	177	1.08
180	77	154	1.00
200	79	131	0.85
220	80	109	0.77
240	81	86	0.69
260	82	63	0.62
280	82	40	0.62
300	81	17	0.69



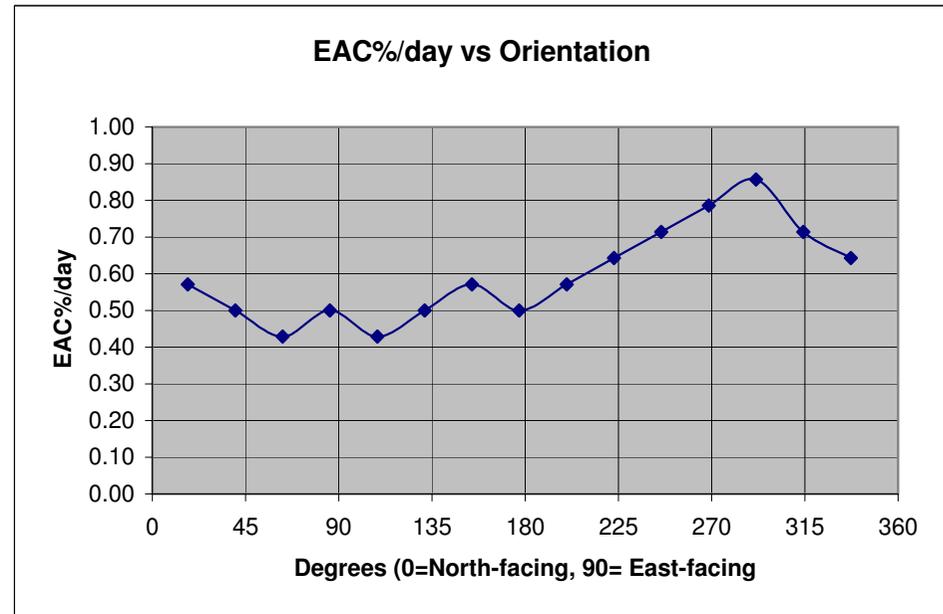
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - North location 907BRI

#### Sticky Pad Data

Date On **10/06/2010** Date Off **24/06/2010** Days = 14  
Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	<b>81</b>	337	0.64
40	<b>80</b>	314	0.71
60	<b>78</b>	291	0.86
80	<b>79</b>	269	0.79
100	<b>80</b>	246	0.71
120	<b>81</b>	223	0.64
140	<b>82</b>	200	0.57
160	<b>83</b>	177	0.50
180	<b>82</b>	154	0.57
200	<b>83</b>	131	0.50
220	<b>84</b>	109	0.43
240	<b>83</b>	86	0.50
260	<b>84</b>	63	0.43
280	<b>83</b>	40	0.50
300	<b>82</b>	17	0.57



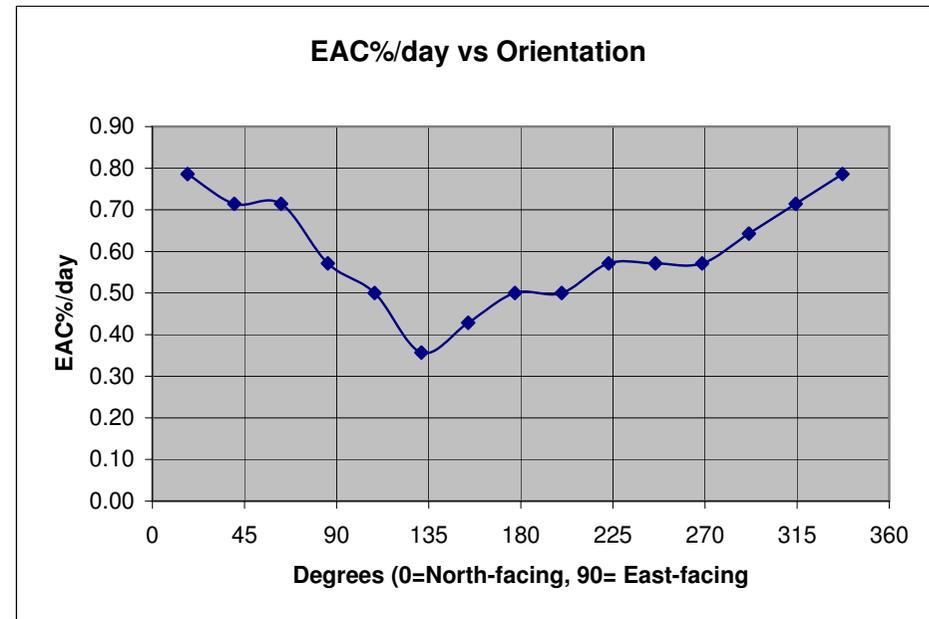
Note: Cells coloured yellow are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - NE1 location 907BRI

#### Sticky Pad Data

Date On 10/06/2010 Date Off 24/06/2010 Days = 14  
Clean = 90

X Axis mm	Meter	Angle deg	EAC%/day
20	79	337	0.79
40	80	314	0.71
60	81	291	0.64
80	82	269	0.57
100	82	246	0.57
120	82	223	0.57
140	83	200	0.50
160	83	177	0.50
180	84	154	0.43
200	85	131	0.36
220	83	109	0.50
240	82	86	0.57
260	80	63	0.71
280	80	40	0.71
300	79	17	0.79



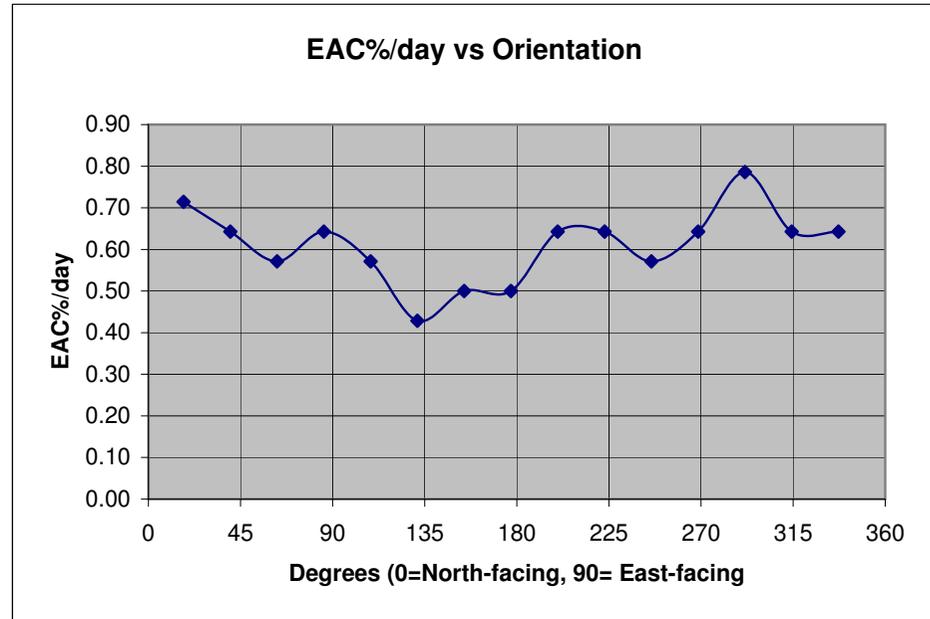
Note: Cells coloured yellow are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - NE2 location 907BRI

#### Sticky Pad Data

Date On **10/06/2010** Date Off **24/06/2010** Days = 14  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	81	337	0.64
40	81	314	0.64
60	79	291	0.79
80	81	269	0.64
100	82	246	0.57
120	81	223	0.64
140	81	200	0.64
160	83	177	0.50
180	83	154	0.50
200	84	131	0.43
220	82	109	0.57
240	81	86	0.64
260	82	63	0.57
280	81	40	0.64
300	80	17	0.71



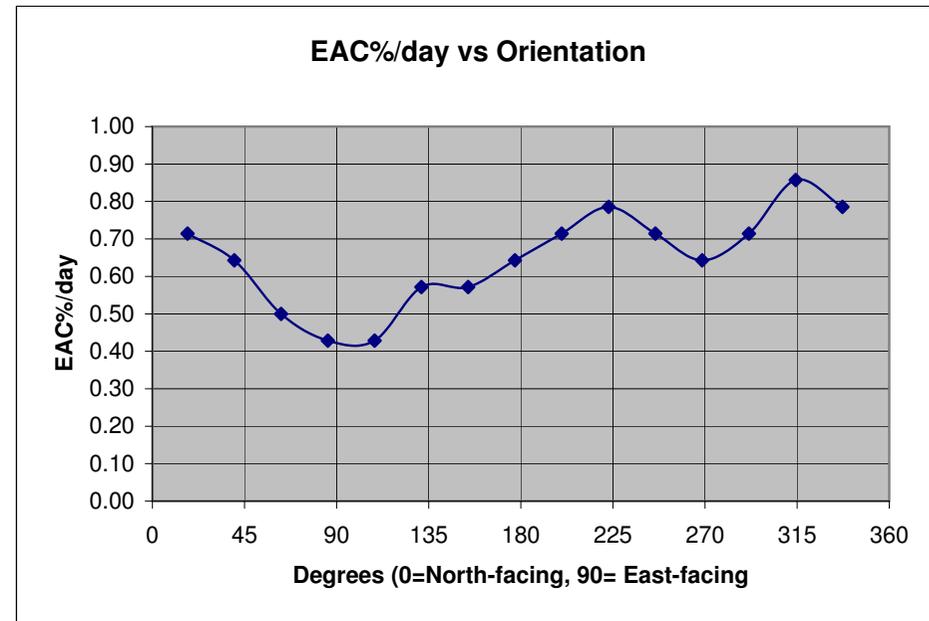
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - South location 907BRI

#### Sticky Pad Data

Date On **10/06/2010** Date Off **24/06/2010** Days = 14  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	79	337	0.79
40	78	314	0.86
60	80	291	0.71
80	81	269	0.64
100	80	246	0.71
120	79	223	0.79
140	80	200	0.71
160	81	177	0.64
180	82	154	0.57
200	82	131	0.57
220	84	109	0.43
240	84	86	0.43
260	83	63	0.50
280	81	40	0.64
300	80	17	0.71



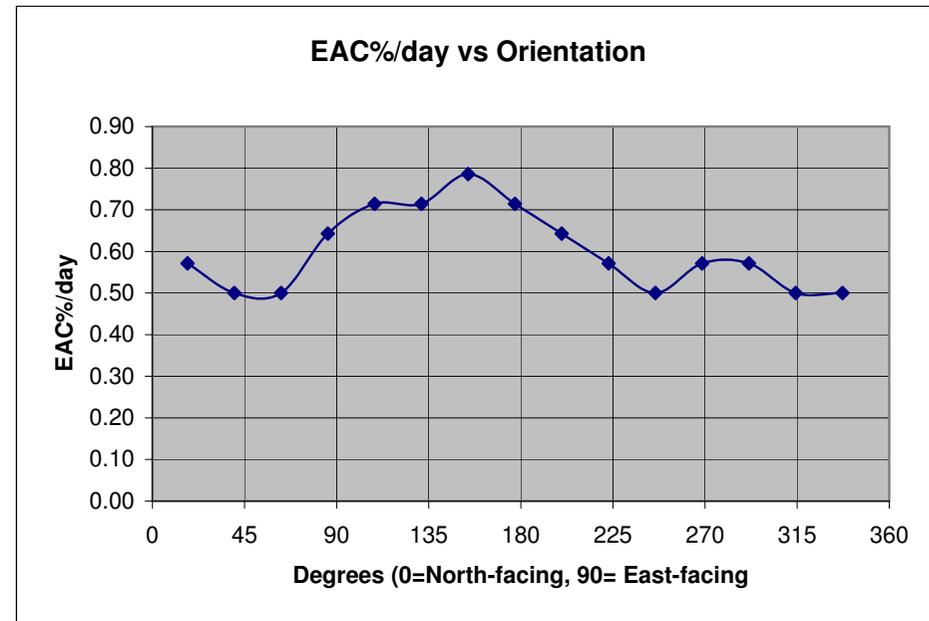
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - West location 907BRI

#### Sticky Pad Data

Date On **10/06/2010** Date Off **24/06/2010** Days = 14  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	83	337	0.50
40	83	314	0.50
60	82	291	0.57
80	82	269	0.57
100	83	246	0.50
120	82	223	0.57
140	81	200	0.64
160	80	177	0.71
180	79	154	0.79
200	80	131	0.71
220	80	109	0.71
240	81	86	0.64
260	83	63	0.50
280	83	40	0.50
300	82	17	0.57



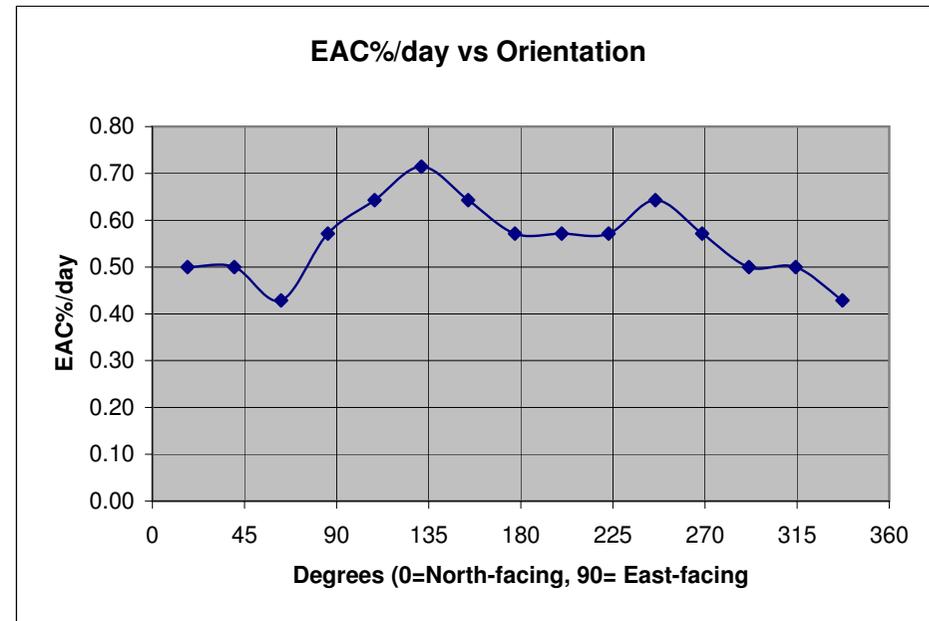
Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

### Gauge Number - East location 907BRI

#### Sticky Pad Data

Date On **10/06/2010** Date Off **24/06/2010** Days = 14  
 Clean = **90**

X Axis mm	Meter	Angle deg	EAC%/day
20	84	337	0.43
40	83	314	0.50
60	83	291	0.50
80	82	269	0.57
100	81	246	0.64
120	82	223	0.57
140	82	200	0.57
160	82	177	0.57
180	81	154	0.64
200	80	131	0.71
220	81	109	0.64
240	82	86	0.57
260	84	63	0.43
280	83	40	0.50
300	83	17	0.50



Note: Cells coloured yellow are inputs.  
 The rest are either constants or calculated values.  
 The calculation is based on taking readings at 40mm intervals along the sticky pad.

**Appendix E**  
**Groundwater Level Data**

Daily Groundwater Level Data (mAOD)

Date	BH6/06	S3/4	BH4	P67**	BH19	BH10B/06	BH9	S1/8	BH11*	S2/6	BH1/06	BH3/06	BH8/06	BHB1	BHB2	BHB3	W1 (n)	W2	W3 (s)	Riddy 1	Riddy 2	Riddy 3	Riddy 4
24/05/2010	9.870	10.560	10.273	Blocked	Lost	10.629	10.584	11.335	9.834	10.742	11.542	10.901	9.999	9.779	9.959	Blocked	10.154	10.191	Blocked	9.190	9.265	9.490	9.639
25/05/2010	9.880	10.560	10.274	Blocked	Lost	10.608	10.589	11.344	9.853	10.753	11.551	10.910	10.002	9.780	9.960	Blocked	10.160	10.090	Blocked	9.193	9.264	9.490	9.639
26/05/2010	9.870	10.560	10.274	Blocked	Lost	10.617	10.589	11.388	9.853	10.743	11.531	10.900	10.001	9.770	9.930	Blocked	10.160	10.092	Blocked	9.194	9.264	9.500	9.644
27/05/2010	9.869	10.554	10.274	Blocked	Lost	10.612	10.569	11.388	9.629	10.723	11.518	10.888	9.999	9.760	9.929	Blocked	10.154	10.092	Blocked	9.196	9.267	9.510	9.649
28/05/2010	9.860	10.560	10.274	Blocked	Lost	10.611	10.569	11.384	9.633	10.733	11.521	10.890	10.002	9.760	9.930	Blocked	10.160	10.090	Blocked	9.189	9.269	9.510	9.639
01/06/2010	9.857	10.569	10.519	Blocked	Lost	10.586	10.558	10.890	9.874	10.689	11.729	10.888	9.518	9.839	Lost	Lost	10.164	10.087	Blocked	9.193	9.273	9.512	9.649
02/06/2010	9.849	10.568	10.322	Blocked	Lost	10.590	10.568	10.838	9.872	10.672	11.399	10.917	9.524	9.837	Lost	Lost	10.159	10.087	Blocked	9.197	9.268	9.549	9.639
03/06/2010	9.847	10.561	10.331	Blocked	Lost	10.592	10.560	10.771	9.844	10.673	11.381	10.927	9.532	9.850	Lost	Lost	10.160	10.084	Blocked	9.189	9.265	9.540	9.639
04/06/2010	9.851	10.567	9.912	Blocked	Lost	10.605	10.561	10.531	9.862	10.733	11.388	10.921	9.578	9.818	Lost	Lost	10.182	10.135	Blocked	9.188	9.282	9.539	9.649
07/06/2010	9.904	10.563	9.777	Blocked	Lost	10.627	10.569	10.391	9.844	10.588	11.391	10.918	9.641	9.798	Lost	Lost	10.212	10.161	10.173	9.159	9.294	9.535	9.654
08/06/2010	9.998	10.565	10.177	Blocked	Lost	10.697	10.571	10.448	9.858	10.634	10.463	12.340	9.673	9.940	Lost	Lost	10.249	10.194	10.228	9.239	9.291	9.558	9.660
09/06/2010	10.065	10.562	10.226	Blocked	Lost	10.829	10.559	10.469	9.850	10.713	11.444	12.340	9.799	9.856	Lost	Lost	10.476	10.431	10.438	9.186	9.298	9.566	9.663
10/06/2010	10.215	10.611	10.523	Blocked	Lost	11.245	10.637	10.268	10.257	10.837	11.719	12.340	9.881	9.576	Lost	Lost	10.339	10.286	10.310	9.218	9.302	9.555	9.666
11/06/2010	10.254	10.589	10.533	Blocked	Lost	11.217	10.627	10.448	10.099	10.848	11.695	12.340	9.886	9.589	Lost	Lost	10.276	10.256	10.254	9.211	9.295	9.555	9.660
14/06/2010	10.260	10.580	10.584	Blocked	Lost	10.981	10.569	10.214	9.883	10.753	11.351	11.590	9.852	9.980	Lost	Lost	10.260	10.210	10.230	9.209	9.294	9.550	9.659
15/06/2010	10.260	10.580	10.604	Blocked	Lost	10.921	10.569	10.184	9.873	10.763	11.281	11.450	9.852	9.980	Lost	Lost	10.250	10.190	10.220	9.209	9.294	9.550	9.659
16/06/2010	10.290	10.600	10.614	Blocked	Lost	10.901	10.559	10.174	9.873	10.763	11.261	covered	9.862	9.990	Lost	Lost	10.250	10.210	10.230	9.209	9.284	9.550	9.659
17/06/2010	10.290	10.590	10.624	Blocked	Lost	10.871	10.549	10.164	9.863	10.973	11.271	covered	9.862	10.000	Lost	Lost	10.260	10.210	10.250	9.209	9.284	9.560	9.649
18/06/2010	10.300	10.575	10.634	Blocked	Lost	10.841	10.539	10.154	9.853	10.773	11.241	covered	9.872	10.000	Lost	Lost	10.260	10.220	10.260	9.209	9.284	9.560	9.649
21/06/2010	10.350	10.570	10.674	Blocked	Lost	10.751	10.539	10.094	9.833	10.963	11.131	covered	9.882	10.020	Lost	Lost	10.280	10.230	10.250	9.209	9.264	9.540	9.639
22/06/2010	10.350	10.570	10.674	Blocked	Lost	10.711	10.529	10.094	9.823	10.973	11.131	covered	9.902	10.020	Lost	Lost	10.290	10.240	10.260	9.199	9.284	9.550	9.629
23/06/2010	10.340	10.555	10.684	Blocked	Lost	10.691	10.519	10.084	9.793	10.993	11.131	covered	9.892	10.030	Lost	Lost	10.290	10.230	10.280	9.199	9.274	9.550	9.639
24/06/2010	10.360	10.560	10.684	Blocked	Lost	10.671	10.509	10.074	9.793	10.783	11.181	covered	9.892	10.030	Lost	Lost	10.300	10.250	10.280	9.209	9.264	9.540	9.639
25/06/2010	10.380	10.570	10.704	Blocked	Lost	10.651	10.519	10.064	9.773	10.963	10.971	covered	9.412	10.040	Lost	Lost	10.230	10.250	10.270	9.199	9.264	9.550	9.629
28/06/2010	10.370	10.550	10.724	Blocked	Lost	10.601	10.499	10.024	9.773	10.963	10.981	covered	9.462	10.040	Lost	Lost	10.310	10.250	10.290	9.199	9.264	9.540	9.629
29/06/2010	10.400	10.550	10.754	Blocked	Lost	10.581	10.499	10.014	9.753	10.973	11.001	covered	9.472	10.060	Lost	Lost	10.310	10.260	10.290	9.209	9.274	9.540	9.639
30/06/2010	10.410	10.550	10.764	Blocked	Lost	10.571	10.489	10.014	9.743	10.963	11.001	covered	9.492	10.080	Lost	Lost	10.320	10.260	10.310	9.219	9.264	9.530	9.639
01/07/2010	10.410	10.550	10.754	Blocked	Lost	10.561	10.499	10.014	9.743	10.963	11.001	covered	9.512	10.060	Lost	Lost	10.330	10.270	10.310	9.209	9.274	9.540	9.639
02/07/2010	10.470	10.550	10.794	Blocked	Lost	10.541	10.509	10.014	9.733	10.963	11.011	covered	9.502	10.100	Lost	Lost	10.340	10.280	10.320	9.199	9.264	9.540	9.629



**Appendix F**  
**Surface Water Analysis Reports**



# Scientific Analysis Laboratories

## Certificate of Analysis

Hadfield House  
Hadfield Street  
Cornbrook  
Manchester  
M16 9FE  
Tel : 0161 874 2400  
Fax : 0161 874 2468

Scientific Analysis Laboratories is a  
limited company registered in England and  
Wales (No 2514788) whose address is at  
Hadfield House, Hadfield Street, Manchester M16 9FE

**Report Number:** 201390-1

**Date of Report:** 04-Jun-2010

**Customer:** VertaseFLI Limited  
19 Napier Court  
Barlborough Links  
Barlborough  
S43 4PZ

**Customer Contact:** The Project Management

**Customer Job Reference:** 907 BRI  
**Date Job Received at SAL:** 28-May-2010  
**Date Analysis Started:** 28-May-2010  
**Date Analysis Completed:** 04-Jun-2010

The results reported relate to samples received in the laboratory  
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation  
This report should not be reproduced except in full without the written approval of the laboratory  
Tests covered by this certificate were conducted in accordance with SAL SOPs



1549

Report checked  
and authorised by :  
Amelia McVennon  
Project Manager

Issued by :  
Amelia McVennon  
Project Manager

## Index to symbols used in 201390-1

Value	Description
AR	As Received
147	Result has been Recovery corrected.
19	Due to high levels the analysis was conducted on a diluted sample
27	Result should be considered as a minimum due to detector saturation.
100	LOD determined by sample aliquot used for analysis
9	LOD raised due to dilution of sample
162	LOD determined by matrix spike recovery
U	Analysis is UKAS accredited
N	Analysis is not accredited

## Method Index

Value	Description
T16	GC/MS
T54	GC/MS (Headspace)
T7	Probe

## Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Electrical Conductivity	T7	AR	10	µS/cm	N	001-008
pH	T7	AR			U	001-008
Dimefox	T16	AR	0.1	µg/l	N	001-008
Ethofumesate	T16	AR	0.1	µg/l	N	001-008
Hempa	T16	AR	0.1	µg/l	N	001-008
Schradan	T16	AR	0.1	µg/l	N	001-008
Simazine	T16	AR	0.01	µg/l	N	001-008
Dicamba	T16	AR	0.1	µg/l	N	001-008
Dichlorprop	T16	AR	0.1	µg/l	N	001-008
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	µg/l	N	001-008
Mecoprop	T16	AR	0.1	µg/l	N	001-008
2,4,6-Trichlorophenol	T16	AR	10	µg/l	U	001-008
2-Methyl-4,6-dinitrophenol	T16	AR	10	µg/l	N	001-008
4-Chloro-2-methylphenol	T16	AR	10	µg/l	N	001-008
Bis (2-chloroethyl) ether	T16	AR	10	µg/l	U	001-008
Phenol	T16	AR	10	µg/l	U	001-008
1,2-Dichlorobenzene	T54	AR	1	µg/l	U	001-008
1,2-Dichloroethane	T54	AR	1	µg/l	U	001-008
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	U	001-008
Cyclohexanone	T54	AR	10	µg/l	N	001-008
Tetrachloroethylene	T54	AR	1	µg/l	U	001-008
Toluene	T54	AR	1	µg/l	U	001-008
Trichloroethylene	T54	AR	1	µg/l	U	001-008
Vinyl chloride	T54	AR	1	µg/l	U	001-008
Xylene (Total)	T54	AR	1	µg/l	U	001-008

SAL Reference: 201390														
Customer Reference: 907 BRI														
Water		Analysed as Water												
Vertase Hauxton Suite														
SAL Reference					201390 001	201390 002	201390 003	201390 004	201390 005	201390 006	201390 007	201390 008		
Customer Sample Reference					BH1 06	BH4	BH6 06	BH8 06	BH10 06	S1 8	S2 6	S3 6		
Determinand	Method	Test Sample	LOD	Units										
Electrical Conductivity	T7	AR	10	µS/cm	2300	2400	920	560	750	2400	820	2700		
pH	T7	AR			7.4	6.9	7.1	7.5	7.3	7.2	7.1	6.9		

SAL Reference: 201390														
Customer Reference: 907 BRI														
Water		Analysed as Water												
Vertase Hauxton OP/ON Suite														
SAL Reference					201390 001	201390 002	201390 003	201390 004	201390 005	201390 006	201390 007	201390 008		
Customer Sample Reference					BH1 06	BH4	BH6 06	BH8 06	BH10 06	S1 8	S2 6	S3 6		
Determinand	Method	Test Sample	LOD	Units										
Dimefox	T16	AR	0.1	µg/l	<sup>(9)</sup> <1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Ethofumesate	T16	AR	0.1	µg/l	300	480	1.4	4.9	30	<sup>(27)</sup> 350	<0.1	<sup>(27)</sup> 230		
Hempa	T16	AR	0.1	µg/l	<sup>(9)</sup> <1.0	<0.1	<0.1	2.0	<0.1	<0.1	<0.1	<0.1		
Schradan	T16	AR	0.1	µg/l	<sup>(9)</sup> <1.0	<0.1	<0.1	3.1	<0.1	<0.1	<0.1	<sup>(27)</sup> 680		
Simazine	T16	AR	0.01	µg/l	0.80	<0.01	<0.01	0.44	2.0	<0.01	0.04	<0.01		

SAL Reference: 201390														
Customer Reference: 907 BRI														
Water		Analysed as Water												
Vertase Hauxton Phenoxy Acid Herbs Suite														
SAL Reference					201390 001	201390 002	201390 003	201390 004	201390 005	201390 006	201390 007	201390 008		
Customer Sample Reference					BH1 06	BH4	BH6 06	BH8 06	BH10 06	S1 8	S2 6	S3 6		
Determinand	Method	Test Sample	LOD	Units										
Dicamba	T16	AR	0.1	µg/l	<sup>(27)</sup> 220	6.2	<0.1	0.1	0.5	16	<0.1	30		
Dichlorprop	T16	AR	0.1	µg/l	<sup>(27)</sup> 340	14	<0.1	<0.1	<0.1	39	0.1	480		
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	µg/l	<sup>(27)</sup> 22000	34	4.6	2.6	6.1	640	3.0	1600		
Mecoprop	T16	AR	0.1	µg/l	<sup>(27)</sup> 390	200	0.6	0.5	8.8	63	0.2	880		

SAL Reference: 201390														
Customer Reference: 907 BRI														
Water		Analysed as Water												
Vertase Hauxton SVOC Suite														
SAL Reference					201390 001	201390 002	201390 003	201390 004	201390 005	201390 006	201390 007	201390 008		
Customer Sample Reference					BH1 06	BH4	BH6 06	BH8 06	BH10 06	S1 8	S2 6	S3 6		
Determinand	Method	Test Sample	LOD	Units										
2,4,6-Trichlorophenol	T16	AR	10	µg/l	11000	<10	<10	<10	12	4600	<10	4300		
2-Methyl-4,6-dinitrophenol	T16	AR	10	µg/l	<sup>(100)</sup> <100	<10	<10	<10	<10	<10	<10	<10		
4-Chloro-2-methylphenol	T16	AR	10	µg/l	3400	1900	390	<10	<10	3800	<10	6600		
Bis (2-chloroethyl) ether	T16	AR	10	µg/l	5800	390	24	<10	<10	3200	<10	29000		
Phenol	T16	AR	10	µg/l	<sup>(147)</sup> 400	<sup>(162)</sup> <50	<sup>(162)</sup> <50	<sup>(162)</sup> <50	<sup>(162)</sup> <50	<sup>(147)</sup> 330	<sup>(162)</sup> <50	<sup>(162)</sup> <50		

SAL Reference: 201390  
 Customer Reference: 907 BRI

Water Analysed as Water  
 Vertase Hauxton VOC Suite

SAL Reference					201390 001	201390 002	201390 003	201390 004	201390 005	201390 006	201390 007	201390 008
Customer Sample Reference					BH1 06	BH4	BH6 06	BH8 06	BH10 06	S1 8	S2 6	S3 6
Determinand	Method	Test Sample	LOD	Units								
1,2-Dichlorobenzene	T54	AR	1	µg/l	<1	2	<1	<1	<1	(19) 4900	<1	(19) 1000
1,2-Dichloroethane	T54	AR	1	µg/l	(19) 34000	<1	<1	<1	<1	(19) 3600	<1	(19) 1200
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	360	(19) 1800	<1	<1	130	(19) 9500	<1	(19) 6000
Cyclohexanone	T54	AR	10	µg/l	<10	<10	<10	<10	<10	(19,9) <200	<10	(9,19) <200
Tetrachloroethylene	T54	AR	1	µg/l	(19) 6200	6	<1	<1	30	(19) 21000	<1	(19) 71000
Toluene	T54	AR	1	µg/l	(19) 18000	21	<1	<1	1	(19) 94000	<1	(19) 29000
Trichloroethylene	T54	AR	1	µg/l	(19) 610	20	<1	<1	51	(19) 2700	<1	(19) 50000
Vinyl chloride	T54	AR	1	µg/l	440	330	<1	<1	13	(19) 2200	<1	(19) 710
Xylene (Total)	T54	AR	1	µg/l	29	310	<1	<1	<1	(19) 5800	<1	(19) 7400





# Scientific Analysis Laboratories

## Certificate of Analysis

Hadfield House  
Hadfield Street  
Cornbrook  
Manchester  
M16 9FE  
Tel : 0161 874 2400  
Fax : 0161 874 2468

Scientific Analysis Laboratories is a  
limited company registered in England and  
Wales (No 2514788) whose address is at  
Hadfield House, Hadfield Street, Manchester M16 9FE

**Report Number:** 201480-1

**Date of Report:** 07-Jun-2010

**Customer:** VertaseFLI Limited  
19 Napier Court  
Barlborough Links  
Barlborough  
S43 4PZ

**Customer Contact:** The Project Management

**Customer Job Reference:** 907 BRI  
**Date Job Received at SAL:** 01-Jun-2010  
**Date Analysis Started:** 01-Jun-2010  
**Date Analysis Completed:** 07-Jun-2010

The results reported relate to samples received in the laboratory  
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation  
This report should not be reproduced except in full without the written approval of the laboratory  
Tests covered by this certificate were conducted in accordance with SAL SOPs



1549

Report checked  
and authorised by :  
Amelia McVennon  
Project Manager

Issued by :  
Amelia McVennon  
Project Manager

## Index to symbols used in 201480-1

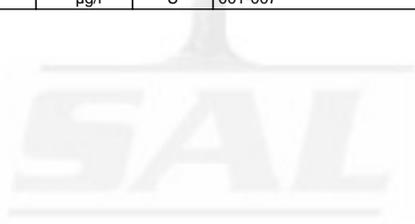
Value	Description
AR	As Received
162	LOD determined by matrix spike recovery
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

## Method Index

Value	Description
T7	Probe
T16	GC/MS
T54	GC/MS (Headspace)

## Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Electrical Conductivity	T7	AR	10	µS/cm	N	001-007
pH	T7	AR			U	001-007
Dimefox	T16	AR	0.1	µg/l	N	001-007
Ethofumesate	T16	AR	0.1	µg/l	N	001-007
Hempa	T16	AR	0.1	µg/l	N	001-007
Schradan	T16	AR	0.1	µg/l	N	001-007
Simazine	T16	AR	0.01	µg/l	N	001-007
Dicamba	T16	AR	0.1	µg/l	N	001-007
Dichlorprop	T16	AR	0.1	µg/l	N	001-007
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	µg/l	N	001-007
Mecoprop	T16	AR	0.1	µg/l	N	001-007
2,4,6-Trichlorophenol	T16	AR	10	µg/l	U	001-007
2-Methyl-4,6-dinitrophenol	T16	AR	10	µg/l	N	001-007
4-Chloro-2-methylphenol	T16	AR	10	µg/l	N	001-007
Bis (2-chloroethyl) ether	T16	AR	10	µg/l	U	001-007
Phenol	T16	AR	10	µg/l	U	001-007
1,2-Dichlorobenzene	T54	AR	1	µg/l	U	001-007
1,2-Dichloroethane	T54	AR	1	µg/l	U	001-007
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	U	001-007
Cyclohexanone	T54	AR	10	µg/l	N	001-007
Tetrachloroethylene	T54	AR	1	µg/l	U	001-007
Toluene	T54	AR	1	µg/l	U	001-007
Trichloroethylene	T54	AR	1	µg/l	U	001-007
Vinyl chloride	T54	AR	1	µg/l	U	001-007
Xylene (Total)	T54	AR	1	µg/l	U	001-007



SAL Reference: 201480											
Customer Reference: 907 BRI											
Water		Analysed as Water									
Vertase Hauxton Suite											
SAL Reference					201480 001	201480 002	201480 003	201480 004	201480 005	201480 006	201480 007
Customer Sample Reference					S3/4	BH9	BH11	River Cam U/S	Riddy Brook U/S	River Cam D/S	Riddy Brook D/S
Determinand	Method	Test Sample	LOD	Units							
Electrical Conductivity	T7	AR	10	µS/cm	3700	2300	650	690	700	700	730
pH	T7	AR			7.3	7.7	7.8	8.3	8.2	8.3	7.9

SAL Reference: 201480											
Customer Reference: 907 BRI											
Water		Analysed as Water									
Vertase Hauxton OP/ON Suite											
SAL Reference					201480 001	201480 002	201480 003	201480 004	201480 005	201480 006	201480 007
Customer Sample Reference					S3/4	BH9	BH11	River Cam U/S	Riddy Brook U/S	River Cam D/S	Riddy Brook D/S
Determinand	Method	Test Sample	LOD	Units							
Dimefox	T16	AR	0.1	µg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethofumesate	T16	AR	0.1	µg/l	0.7	22	6.0	<0.1	<0.1	<0.1	0.2
Hempa	T16	AR	0.1	µg/l	220	0.4	<0.1	<0.1	<0.1	<0.1	<0.1
Schradan	T16	AR	0.1	µg/l	34	0.3	0.2	<0.1	<0.1	<0.1	<0.1
Simazine	T16	AR	0.01	µg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

SAL Reference: 201480											
Customer Reference: 907 BRI											
Water		Analysed as Water									
Vertase Hauxton Phenoxy Acid Herbs Suite											
SAL Reference					201480 001	201480 002	201480 003	201480 004	201480 005	201480 006	201480 007
Customer Sample Reference					S3/4	BH9	BH11	River Cam U/S	Riddy Brook U/S	River Cam D/S	Riddy Brook D/S
Determinand	Method	Test Sample	LOD	Units							
Dicamba	T16	AR	0.1	µg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorprop	T16	AR	0.1	µg/l	10	0.5	<0.1	<0.1	<0.1	<0.1	<0.1
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	µg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mecoprop	T16	AR	0.1	µg/l	55	180	1.8	0.3	0.1	<0.1	<0.1

SAL Reference: 201480											
Customer Reference: 907 BRI											
Water		Analysed as Water									
Vertase Hauxton SVOC Suite											
SAL Reference					201480 001	201480 002	201480 003	201480 004	201480 005	201480 006	201480 007
Customer Sample Reference					S3/4	BH9	BH11	River Cam U/S	Riddy Brook U/S	River Cam D/S	Riddy Brook D/S
Determinand	Method	Test Sample	LOD	Units							
2,4,6-Trichlorophenol	T16	AR	10	µg/l	<10	<10	<10	<10	<10	<10	<10
2-Methyl-4,6-dinitrophenol	T16	AR	10	µg/l	<10	<10	<10	<10	<10	<10	<10
4-Chloro-2-methylphenol	T16	AR	10	µg/l	12	<10	<10	<10	<10	<10	<10
Bis (2-chloroethyl) ether	T16	AR	10	µg/l	3900	1000	<10	<10	<10	<10	<10
Phenol	T16	AR	10	µg/l	(162) <50	(162) <50	(162) <50	(162) <50	(162) <50	(162) <50	(162) <50

SAL Reference: 201480  
 Customer Reference: 907 BRI

Water Analysed as Water  
 Vertase Hauxton VOC Suite

SAL Reference					201480 001	201480 002	201480 003	201480 004	201480 005	201480 006	201480 007
Customer Sample Reference					S3/4	BH9	BH11	River Cam U/S	Riddy Brook U/S	River Cam D/S	Riddy Brook D/S
Determinand	Method	Test Sample	LOD	Units							
1,2-Dichlorobenzene	T54	AR	1	µg/l	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	T54	AR	1	µg/l	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	<1	2	<1	<1	<1	<1	3
Cyclohexanone	T54	AR	10	µg/l	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethylene	T54	AR	1	µg/l	<1	<1	<1	3	2	2	2
Toluene	T54	AR	1	µg/l	94	<1	<1	<1	<1	<1	<1
Trichloroethylene	T54	AR	1	µg/l	<1	<1	<1	<1	<1	<1	4
Vinyl chloride	T54	AR	1	µg/l	<1	<1	<1	<1	<1	<1	<1
Xylene (Total)	T54	AR	1	µg/l	80	<1	<1	<1	<1	<1	<1





# Scientific Analysis Laboratories

## Certificate of Analysis

Hadfield House  
Hadfield Street  
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M16 9FE  
Tel : 0161 874 2400  
Fax : 0161 874 2468

Scientific Analysis Laboratories is a  
limited company registered in England and  
Wales (No 2514788) whose address is at  
Hadfield House, Hadfield Street, Manchester M16 9FE

**Report Number:** 204245-1

**Date of Report:** 02-Jul-2010

**Customer:** VertaseFLI Limited  
19 Napier Court  
Barlborough Links  
Barlborough  
S43 4PZ

**Customer Contact:** The Project Management

**Customer Job Reference:** 907 BRI  
**Date Job Received at SAL:** 25-Jun-2010  
**Date Analysis Started:** 25-Jun-2010  
**Date Analysis Completed:** 02-Jul-2010

The results reported relate to samples received in the laboratory  
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation  
This report should not be reproduced except in full without the written approval of the laboratory  
Tests covered by this certificate were conducted in accordance with SAL SOPs



1549

Report checked  
and authorised by :  
Mr Ross Walker  
Customer Services Manager

Issued by :  
Mr Ross Walker  
Customer Services Manager

## Index to symbols used in 204245-1

Value	Description
AR	As Received
19	Due to high levels the analysis was conducted on a diluted sample
162	LOD determined by matrix spike recovery
13	Results have been blank corrected.
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

### Method Index

Value	Description
T16	GC/MS
T7	Probe
T54	GC/MS (Headspace)

### Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Electrical Conductivity	T7	AR	10	µS/cm	N	001-008
pH	T7	AR			U	001-008
Dimefox	T16	AR	0.1	µg/l	N	001-008
Ethofumesate	T16	AR	0.1	µg/l	N	001-008
Hempa	T16	AR	0.1	µg/l	N	001-008
Schradan	T16	AR	0.1	µg/l	N	001-008
Simazine	T16	AR	0.01	µg/l	N	001-008
Dicamba	T16	AR	0.1	µg/l	N	001-008
Dichlorprop	T16	AR	0.1	µg/l	N	001-008
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	µg/l	N	001-008
Mecoprop	T16	AR	0.1	µg/l	N	001-008
2,4,6-Trichlorophenol	T16	AR	10	µg/l	U	001-008
2-Methyl-4,6-dinitrophenol	T16	AR	10	µg/l	N	001-008
4-Chloro-2-methylphenol	T16	AR	10	µg/l	N	001-008
Bis (2-chloroethyl) ether	T16	AR	10	µg/l	U	001-008
Phenol	T16	AR	10	µg/l	U	001-008
1,2-Dichlorobenzene	T54	AR	1	µg/l	U	001-008
1,2-Dichloroethane	T54	AR	1	µg/l	U	001-008
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	U	001-008
Cyclohexanone	T54	AR	10	µg/l	N	001-008
Tetrachloroethylene	T54	AR	1	µg/l	U	001-008
Toluene	T54	AR	1	µg/l	U	001-008
Trichloroethylene	T54	AR	1	µg/l	U	001-008
Vinyl chloride	T54	AR	1	µg/l	U	001-008
Xylene (Total)	T54	AR	1	µg/l	U	001-008

SAL

<b>SAL Reference:</b> 204245 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton Suite</b>												
<b>SAL Reference</b>					<b>204245 001</b>	<b>204245 002</b>	<b>204245 003</b>	<b>204245 004</b>	<b>204245 005</b>	<b>204245 006</b>	<b>204245 007</b>	<b>204245 008</b>
<b>Customer Sample Reference</b>					<b>Riddy Brook U/S</b>	<b>Riddy Brook D/S</b>	<b>River Cam U/S</b>	<b>River Cam D/S</b>	<b>S3/4</b>	<b>BH9</b>	<b>BH11</b>	<b>S3/6</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>								
Electrical Conductivity	T7	AR	10	µS/cm	<b>820</b>	<b>830</b>	<b>810</b>	<b>810</b>	<b>4000</b>	<b>2800</b>	<b>710</b>	<b>3000</b>
pH	T7	AR			<b>7.9</b>	<b>8.0</b>	<b>8.1</b>	<b>8.2</b>	<b>6.9</b>	<b>7.0</b>	<b>7.0</b>	<b>6.9</b>

<b>SAL Reference:</b> 204245 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton OP/ON Suite</b>												
<b>SAL Reference</b>					<b>204245 001</b>	<b>204245 002</b>	<b>204245 003</b>	<b>204245 004</b>	<b>204245 005</b>	<b>204245 006</b>	<b>204245 007</b>	<b>204245 008</b>
<b>Customer Sample Reference</b>					<b>Riddy Brook U/S</b>	<b>Riddy Brook D/S</b>	<b>River Cam U/S</b>	<b>River Cam D/S</b>	<b>S3/4</b>	<b>BH9</b>	<b>BH11</b>	<b>S3/6</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>								
Dimefox	T16	AR	0.1	µg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethofumesate	T16	AR	0.1	µg/l	<0.1	<b>0.2</b>	<0.1	<0.1	<b>1.2</b>	<b>23</b>	<b>1.4</b>	<b>640</b>
Hempa	T16	AR	0.1	µg/l	<0.1	<0.1	<0.1	<0.1	<b>180</b>	<0.1	<0.1	<0.1
Schradan	T16	AR	0.1	µg/l	<0.1	<0.1	<0.1	<0.1	<b>33</b>	<b>0.3</b>	<0.1	<b>1300</b>
Simazine	T16	AR	0.01	µg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<b>0.12</b>	<0.01

<b>SAL Reference:</b> 204245 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton Phenoxy Acid Herbs Suite</b>												
<b>SAL Reference</b>					<b>204245 001</b>	<b>204245 002</b>	<b>204245 003</b>	<b>204245 004</b>	<b>204245 005</b>	<b>204245 006</b>	<b>204245 007</b>	<b>204245 008</b>
<b>Customer Sample Reference</b>					<b>Riddy Brook U/S</b>	<b>Riddy Brook D/S</b>	<b>River Cam U/S</b>	<b>River Cam D/S</b>	<b>S3/4</b>	<b>BH9</b>	<b>BH11</b>	<b>S3/6</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>								
Dicamba	T16	AR	0.1	µg/l	<0.1	<0.1	<0.1	<0.1	<b>0.4</b>	<0.1	<0.1	<b>22</b>
Dichlorprop	T16	AR	0.1	µg/l	<0.1	<0.1	<0.1	<0.1	<b>12</b>	<b>0.4</b>	<0.1	<b>370</b>
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	µg/l	<b>12</b>	<b>1.1</b>	<0.1	<0.1	<b>7.3</b>	<0.1	<0.1	<b>1200</b>
Mecoprop	T16	AR	0.1	µg/l	<b>4.0</b>	<0.1	<0.1	<0.1	<b>71</b>	<b>160</b>	<b>0.4</b>	<b>670</b>

<b>SAL Reference:</b> 204245 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton SVOC Suite</b>												
<b>SAL Reference</b>					<b>204245 001</b>	<b>204245 002</b>	<b>204245 003</b>	<b>204245 004</b>	<b>204245 005</b>	<b>204245 006</b>	<b>204245 007</b>	<b>204245 008</b>
<b>Customer Sample Reference</b>					<b>Riddy Brook U/S</b>	<b>Riddy Brook D/S</b>	<b>River Cam U/S</b>	<b>River Cam D/S</b>	<b>S3/4</b>	<b>BH9</b>	<b>BH11</b>	<b>S3/6</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>								
2,4,6-Trichlorophenol	T16	AR	10	µg/l	<10	<10	<10	<10	<10	<10	<10	<b>6100</b>
2-Methyl-4,6-dinitrophenol	T16	AR	10	µg/l	<10	<10	<10	<10	<10	<10	<10	<10
4-Chloro-2-methylphenol	T16	AR	10	µg/l	<10	<10	<10	<10	<10	<10	<10	<b>7200</b>
Bis (2-chloroethyl) ether	T16	AR	10	µg/l	<b>17</b>	<10	<10	<10	<b>3500</b>	<b>1100</b>	<10	<b>36000</b>
Phenol	T16	AR	10	µg/l	(162) <50	(162) <50	(162) <50	(162) <50	(162) <50	(162) <50	(162) <50	(162) <50

SAL Reference: 204245  
 Customer Reference: 907 BRI

Water Analysed as Water  
 Vertase Hauxton VOC Suite

SAL Reference					204245 001	204245 002	204245 003	204245 004	204245 005	204245 006	204245 007	204245 008
Customer Sample Reference					Riddy Brook U/S	Riddy Brook D/S	River Cam U/S	River Cam D/S	S3/4	BH9	BH11	S3/6
Determinand	Method	Test Sample	LOD	Units								
1,2-Dichlorobenzene	T54	AR	1	µg/l	<1	<1	<1	<1	<1	<1	<1	(19) 1000
1,2-Dichloroethane	T54	AR	1	µg/l	(13) <1	(13) <1	(13) <1	(13) <1	(13) <1	(13) <1	(13) <1	(13,19) 1200
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	<1	3	<1	<1	<1	5	<1	(19) 6900
Cyclohexanone	T54	AR	10	µg/l	<10	<10	<10	<10	<10	<10	<10	(19) 890
Tetrachloroethylene	T54	AR	1	µg/l	3	2	2	2	<1	<1	<1	(19) 91000
Toluene	T54	AR	1	µg/l	<1	<1	<1	<1	160	<1	<1	(19) 30000
Trichloroethylene	T54	AR	1	µg/l	<1	2	<1	<1	<1	<1	<1	(19) 5700
Vinyl chloride	T54	AR	1	µg/l	<1	<1	<1	<1	<1	<1	<1	(19) 1200
Xylene (Total)	T54	AR	1	µg/l	<1	<1	<1	<1	76	<1	<1	(19) 7700





# Scientific Analysis Laboratories

## Certificate of Analysis

Hadfield House  
Hadfield Street  
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Tel : 0161 874 2400  
Fax : 0161 874 2468

Scientific Analysis Laboratories is a limited company registered in England and Wales (No 2514788) whose address is at Hadfield House, Hadfield Street, Manchester M16 9FE

**Report Number:** 204249-1

**Date of Report:** 02-Jul-2010

**Customer:** VertaseFLI Limited  
19 Napier Court  
Barlborough Links  
Barlborough  
S43 4PZ

**Customer Contact:** The Project Management

**Customer Job Reference:** 907 BRI  
**Date Job Received at SAL:** 25-Jun-2010  
**Date Analysis Started:** 25-Jun-2010  
**Date Analysis Completed:** 02-Jul-2010

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Tests covered by this certificate were conducted in accordance with SAL SOPs



1549

Report checked  
and authorised by :  
Mr Ross Walker  
Customer Services Manager

Issued by :  
Mr Ross Walker  
Customer Services Manager

## Index to symbols used in 204249-1

Value	Description
AR	As Received
19	Due to high levels the analysis was conducted on a diluted sample
162	LOD determined by matrix spike recovery
13	Results have been blank corrected.
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

### Method Index

Value	Description
T16	GC/MS
T54	GC/MS (Headspace)
T7	Probe

### Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Electrical Conductivity	T7	AR	10	µS/cm	N	001-003
pH	T7	AR			U	001-003
Dimefox	T16	AR	0.1	µg/l	N	001-003
Ethofumesate	T16	AR	0.1	µg/l	N	001-003
Hempa	T16	AR	0.1	µg/l	N	001-003
Schradan	T16	AR	0.1	µg/l	N	001-003
Simazine	T16	AR	0.01	µg/l	N	001-003
Dicamba	T16	AR	0.1	µg/l	N	001-003
Dichlorprop	T16	AR	0.1	µg/l	N	001-003
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	µg/l	N	001-003
Mecoprop	T16	AR	0.1	µg/l	N	001-003
2,4,6-Trichlorophenol	T16	AR	10	µg/l	U	001-003
2-Methyl-4,6-dinitrophenol	T16	AR	10	µg/l	N	001-003
4-Chloro-2-methylphenol	T16	AR	10	µg/l	N	001-003
Bis (2-chloroethyl) ether	T16	AR	10	µg/l	U	001-003
Phenol	T16	AR	10	µg/l	U	001-003
1,2-Dichlorobenzene	T54	AR	1	µg/l	U	001-003
1,2-Dichloroethane	T54	AR	1	µg/l	U	001-003
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	U	001-003
Cyclohexanone	T54	AR	10	µg/l	N	001-003
Tetrachloroethylene	T54	AR	1	µg/l	U	001-003
Toluene	T54	AR	1	µg/l	U	001-003
Trichloroethylene	T54	AR	1	µg/l	U	001-003
Vinyl chloride	T54	AR	1	µg/l	U	001-003
Xylene (Total)	T54	AR	1	µg/l	U	001-003

SAL

<b>SAL Reference:</b> 204249 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton Suite</b>								
				<b>SAL Reference</b>		<b>204249 001</b>	<b>204249 002</b>	<b>204249 003</b>
				<b>Customer Sample Reference</b>		<b>BH10B/06</b>	<b>BH8/06</b>	<b>BH4</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>				
Electrical Conductivity	T7	AR	10	µS/cm	<b>940</b>	<b>570</b>	<b>2200</b>	
pH	T7	AR			<b>7.1</b>	<b>7.7</b>	<b>6.6</b>	

<b>SAL Reference:</b> 204249 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton OP/ON Suite</b>								
				<b>SAL Reference</b>		<b>204249 001</b>	<b>204249 002</b>	<b>204249 003</b>
				<b>Customer Sample Reference</b>		<b>BH10B/06</b>	<b>BH8/06</b>	<b>BH4</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>				
Dimefox	T16	AR	0.1	µg/l	<0.1	<0.1	<0.1	
Ethofumesate	T16	AR	0.1	µg/l	<b>200</b>	<b>15</b>	<b>750</b>	
Hempa	T16	AR	0.1	µg/l	<b>8.1</b>	<b>1.7</b>	<0.1	
Schradan	T16	AR	0.1	µg/l	<b>6.5</b>	<b>4.2</b>	<0.1	
Simazine	T16	AR	0.01	µg/l	<b>11</b>	<b>2.2</b>	<0.01	

<b>SAL Reference:</b> 204249 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton Phenoxy Acid Herbs Suite</b>								
				<b>SAL Reference</b>		<b>204249 001</b>	<b>204249 002</b>	<b>204249 003</b>
				<b>Customer Sample Reference</b>		<b>BH10B/06</b>	<b>BH8/06</b>	<b>BH4</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>				
Dicamba	T16	AR	0.1	µg/l	<b>3.0</b>	<b>0.5</b>	<b>11</b>	
Dichlorprop	T16	AR	0.1	µg/l	<b>5.0</b>	<b>0.2</b>	<b>19</b>	
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	µg/l	<b>130</b>	<b>3.4</b>	<b>17</b>	
Mecoprop	T16	AR	0.1	µg/l	<b>21</b>	<b>2.2</b>	<b>240</b>	

<b>SAL Reference:</b> 204249 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton SVOC Suite</b>								
				<b>SAL Reference</b>		<b>204249 001</b>	<b>204249 002</b>	<b>204249 003</b>
				<b>Customer Sample Reference</b>		<b>BH10B/06</b>	<b>BH8/06</b>	<b>BH4</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>				
2,4,6-Trichlorophenol	T16	AR	10	µg/l	<b>110</b>	<10	<b>17</b>	
2-Methyl-4,6-dinitrophenol	T16	AR	10	µg/l	<10	<10	<10	
4-Chloro-2-methylphenol	T16	AR	10	µg/l	<10	<10	<b>3200</b>	
Bis (2-chloroethyl) ether	T16	AR	10	µg/l	<b>14</b>	<10	<b>490</b>	
Phenol	T16	AR	10	µg/l	(162) <50	(162) <50	(162) <50	

SAL Reference: 204249  
 Customer Reference: 907 BRI

Water Analysed as Water  
 Vertase Hauxton VOC Suite

SAL Reference					204249 001	204249 002	204249 003
Customer Sample Reference					BH10B/06	BH8/06	BH4
Determinand	Method	Test Sample	LOD	Units			
1,2-Dichlorobenzene	T54	AR	1	µg/l	1	<1	2
1,2-Dichloroethane	T54	AR	1	µg/l	(13) <1	(13) <1	(13) 18
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	83	<1	(19) 1900
Cyclohexanone	T54	AR	10	µg/l	<10	<10	<10
Tetrachloroethylene	T54	AR	1	µg/l	13	<1	4
Toluene	T54	AR	1	µg/l	<1	<1	18
Trichloroethylene	T54	AR	1	µg/l	25	<1	18
Vinyl chloride	T54	AR	1	µg/l	25	<1	350
Xylene (Total)	T54	AR	1	µg/l	<1	<1	210





# Scientific Analysis Laboratories

## Certificate of Analysis

Hadfield House  
Hadfield Street  
Cornbrook  
Manchester  
M16 9FE  
Tel : 0161 874 2400  
Fax : 0161 874 2468

Scientific Analysis Laboratories is a  
limited company registered in England and  
Wales (No 2514788) whose address is at  
Hadfield House, Hadfield Street, Manchester M16 9FE

**Report Number:** 204254-1

**Date of Report:** 02-Jul-2010

**Customer:** VertaseFLI Limited  
19 Napier Court  
Barlborough Links  
Barlborough  
S43 4PZ

**Customer Contact:** The Project Management

**Customer Job Reference:** 907 BRI  
**Date Job Received at SAL:** 25-Jun-2010  
**Date Analysis Started:** 25-Jun-2010  
**Date Analysis Completed:** 02-Jul-2010

The results reported relate to samples received in the laboratory  
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation  
This report should not be reproduced except in full without the written approval of the laboratory  
Tests covered by this certificate were conducted in accordance with SAL SOPs



1549

Report checked  
and authorised by :  
Mr Ross Walker  
Customer Services Manager

Issued by :  
Mr Ross Walker  
Customer Services Manager

## Index to symbols used in 204254-1

Value	Description
AR	As Received
9	LOD raised due to dilution of sample
175	Results should be viewed with caution due to being outside of the instrument calibration range
100	LOD determined by sample aliquot used for analysis
19	Due to high levels the analysis was conducted on a diluted sample
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

## Method Index

Value	Description
T16	GC/MS
T7	Probe
T54	GC/MS (Headspace)

## Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Electrical Conductivity	T7	AR	10	µS/cm	N	001-004
pH	T7	AR			U	001-004
Dimefox	T16	AR	0.1	µg/l	N	001-004
Ethofumesate	T16	AR	0.1	µg/l	N	001-004
Hempa	T16	AR	0.1	µg/l	N	001-004
Schradan	T16	AR	0.1	µg/l	N	001-004
Simazine	T16	AR	0.01	µg/l	N	001-004
Dicamba	T16	AR	0.1	µg/l	N	001-004
Dichlorprop	T16	AR	0.1	µg/l	N	001-004
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	µg/l	N	001-004
Mecoprop	T16	AR	0.1	µg/l	N	001-004
2,4,6-Trichlorophenol	T16	AR	10	µg/l	U	001-004
2-Methyl-4,6-dinitrophenol	T16	AR	10	µg/l	N	001-004
4-Chloro-2-methylphenol	T16	AR	10	µg/l	N	001-004
Bis (2-chloroethyl) ether	T16	AR	10	µg/l	U	001-004
Phenol	T16	AR	10	µg/l	U	001-004
1,2-Dichlorobenzene	T54	AR	1	µg/l	U	001-004
1,2-Dichloroethane	T54	AR	1	µg/l	U	001-004
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	U	001-004
Cyclohexanone	T54	AR	10	µg/l	N	001-004
Tetrachloroethylene	T54	AR	1	µg/l	U	001-004
Toluene	T54	AR	1	µg/l	U	001-004
Trichloroethylene	T54	AR	1	µg/l	U	001-004
Vinyl chloride	T54	AR	1	µg/l	U	001-004
Xylene (Total)	T54	AR	1	µg/l	U	001-004

<b>SAL Reference:</b> 204254 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton Suite</b>								
<b>SAL Reference</b>					<b>204254 001</b>	<b>204254 002</b>	<b>204254 003</b>	<b>204254 004</b>
<b>Customer Sample Reference</b>					<b>BH1/06</b>	<b>S1/8</b>	<b>BH6/06</b>	<b>S2/6</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>				
Electrical Conductivity	T7	AR	10	µS/cm	<b>7500</b>	<b>4100</b>	<b>940</b>	<b>940</b>
pH	T7	AR			<b>7.2</b>	<b>7.0</b>	<b>7.0</b>	<b>7.0</b>

<b>SAL Reference:</b> 204254 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton OP/ON Suite</b>								
<b>SAL Reference</b>					<b>204254 001</b>	<b>204254 002</b>	<b>204254 003</b>	<b>204254 004</b>
<b>Customer Sample Reference</b>					<b>BH1/06</b>	<b>S1/8</b>	<b>BH6/06</b>	<b>S2/6</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>				
Dimefox	T16	AR	0.1	µg/l	<sup>(9)</sup> <1.0	<sup>(9)</sup> <1.0	<sup>(9)</sup> <1.0	<sup>(9)</sup> <1.0
Ethofumesate	T16	AR	0.1	µg/l	<b>540</b>	<b>1100</b>	<sup>(9)</sup> <1.0	<b>0.6</b>
Hempa	T16	AR	0.1	µg/l	<sup>(9)</sup> <1.0	<b>71</b>	<sup>(9)</sup> <1.0	<sup>(9)</sup> <1.0
Schradan	T16	AR	0.1	µg/l	<sup>(9)</sup> <1.0	<b>94</b>	<sup>(9)</sup> <1.0	<sup>(9)</sup> <1.0
Simazine	T16	AR	0.01	µg/l	<b>58</b>	<b>15</b>	<sup>(9)</sup> <0.10	<sup>(9)</sup> <0.10

<b>SAL Reference:</b> 204254 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton Phenoxy Acid Herbs Suite</b>									
<b>SAL Reference</b>					<b>204254 001</b>	<b>204254 002</b>	<b>204254 003</b>	<b>204254 004</b>	
<b>Customer Sample Reference</b>					<b>BH1/06</b>	<b>S1/8</b>	<b>BH6/06</b>	<b>S2/6</b>	
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>					
Dicamba	T16	AR	0.1	µg/l	<b>40</b>	<b>36</b>	<sup>(100)</sup> <1.0	<sup>(100)</sup> <1.0	
Dichlorprop	T16	AR	0.1	µg/l	<b>80</b>	<b>77</b>	<sup>(100)</sup> <1.0	<sup>(100)</sup> <1.0	
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	µg/l	<b>7900</b>	<b>620</b>	<b>14</b>	<b>14</b>	
Mecoprop	T16	AR	0.1	µg/l	<b>100</b>	<b>170</b>	<sup>(100)</sup> <1.0	<sup>(100)</sup> <1.0	

<b>SAL Reference:</b> 204254 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Vertase Hauxton SVOC Suite</b>								
<b>SAL Reference</b>					<b>204254 001</b>	<b>204254 002</b>	<b>204254 003</b>	<b>204254 004</b>
<b>Customer Sample Reference</b>					<b>BH1/06</b>	<b>S1/8</b>	<b>BH6/06</b>	<b>S2/6</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>				
2,4,6-Trichlorophenol	T16	AR	10	µg/l	<b>1500</b>	<b>5300</b>	<sup>(9)</sup> <100	<sup>(9)</sup> <100
2-Methyl-4,6-dinitrophenol	T16	AR	10	µg/l	<sup>(9)</sup> <100	<sup>(9)</sup> <100	<sup>(9)</sup> <100	<sup>(9)</sup> <100
4-Chloro-2-methylphenol	T16	AR	10	µg/l	<b>290</b>	<b>6900</b>	<sup>(9)</sup> <100	<sup>(9)</sup> <100
Bis (2-chloroethyl) ether	T16	AR	10	µg/l	<b>610</b>	<b>8300</b>	<sup>(9)</sup> <100	<sup>(9)</sup> <100
Phenol	T16	AR	10	µg/l	<sup>(9)</sup> <100	<sup>(9)</sup> <100	<sup>(9)</sup> <100	<sup>(9)</sup> <100

SAL Reference: 204254  
 Customer Reference: 907 BRI

Water Analysed as Water  
 Vertase Hauxton VOC Suite

SAL Reference					204254 001	204254 002	204254 003	204254 004
Customer Sample Reference					BH1/06	S1/8	BH6/06	S2/6
Determinand	Method	Test Sample	LOD	Units				
1,2-Dichlorobenzene	T54	AR	1	µg/l	(19,9) <20	(19) 5000	<1	<1
1,2-Dichloroethane	T54	AR	1	µg/l	(19,175) 22000	(19) 9300	<1	<1
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	(19) 110	(19) 17000	<1	<1
Cyclohexanone	T54	AR	10	µg/l	(19,9) <200	(19,9) <200	<10	<10
Tetrachloroethylene	T54	AR	1	µg/l	(19) 16000	(175,19) 39000	<1	<1
Toluene	T54	AR	1	µg/l	(175,19) 20000	(175,19) 33000	<1	<1
Trichloroethylene	T54	AR	1	µg/l	(19) 930	(19) 8400	<1	<1
Vinyl chloride	T54	AR	1	µg/l	(19) 130	(19) 2400	<1	<1
Xylene (Total)	T54	AR	1	µg/l	(19) 42	(19) 7900	<1	<1

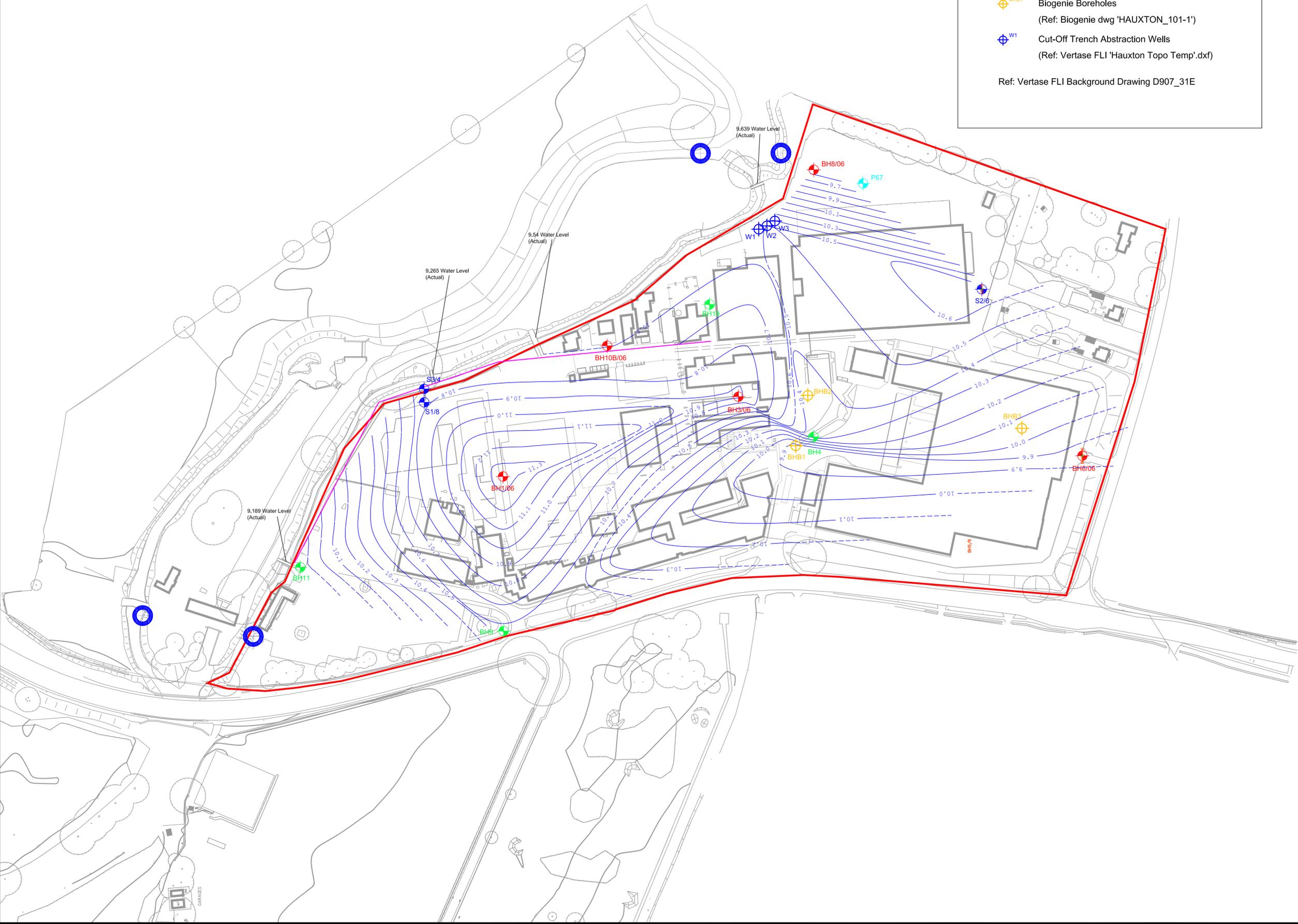


**Appendix G**  
**Groundwater Contour Plots**

**Legend**

- BH1/06 Atkins Exploratory Hole Location
- BH7, P67 Previous Borehole Location
- Water Sampling Location
- BHB1 Biogenie Boreholes  
(Ref: Biogenie dwg 'HAUXTON\_101-1')
- ⊕ W1 Cut-Off Trench Abstraction Wells  
(Ref: Vertase FLI 'Hauxton Topo Temp'.dxf)

Ref: Vertase FLI Background Drawing D907\_31E



Rev.	Description	Revised By	Date
	FIRST ISSUE		15-06-10

**Vertase F.L.I.**

- Bristol Head Office: Tel: 01275 397600 Fax: 01275 397601
- Sheffield Office: Tel: 01246 813289 Fax: 01246 812983
- Hertford Office: Tel: 01992 535757 Fax: 01992 535858
- Manchester Office: Tel: 01614 372708 Fax: 01614 376300

email: info@vertasefli.co.uk  
www.vertasefli.com

Site Address: Bayer Site, Hauxton, Cambridge

Title: Ground Water Contours 03-06-10

Client: Harrow Estates

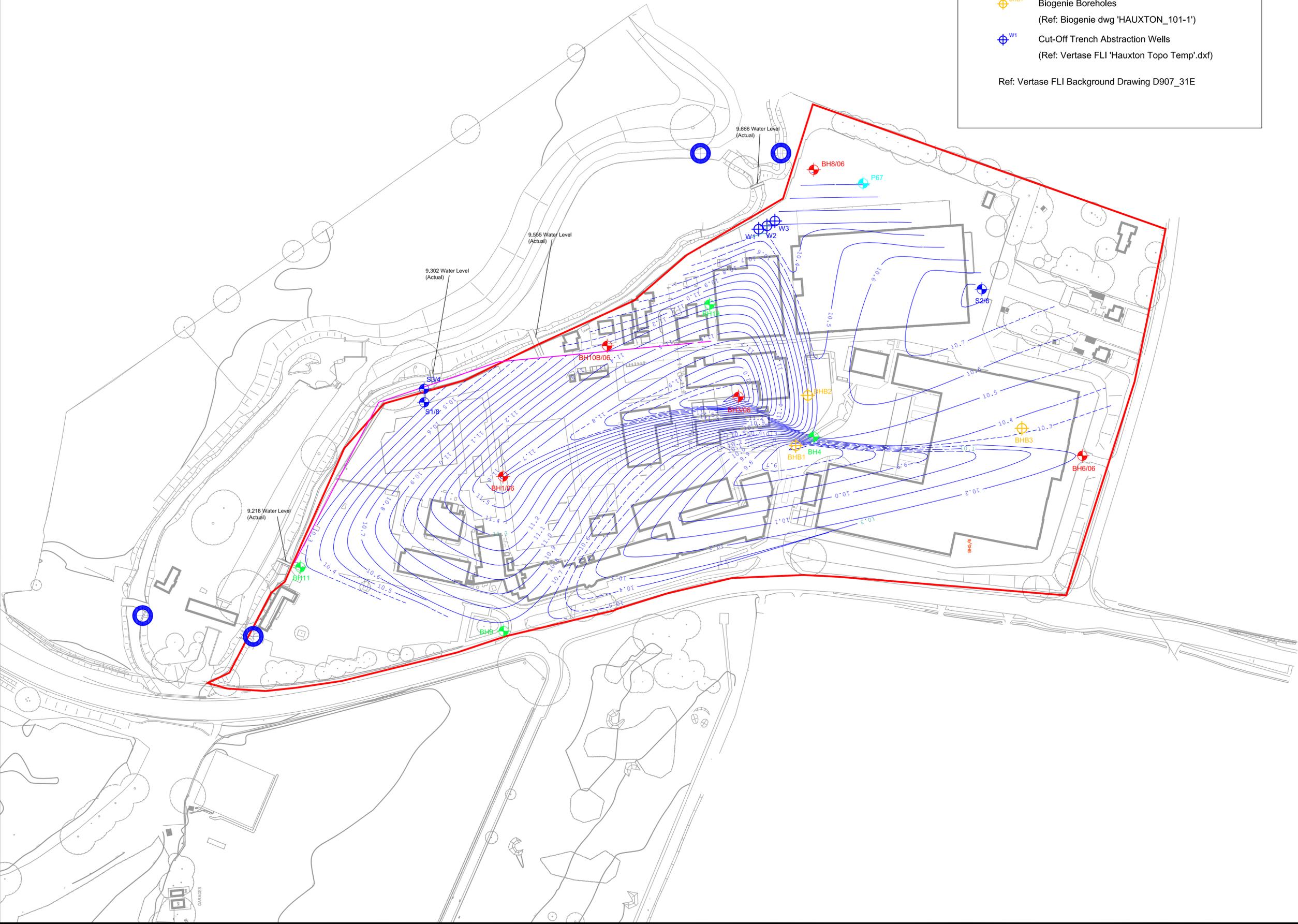
Drawn: MRG    Checked: DL    Approved: MA

Dwg: D907\_80    Contract: 907 BR1    Scale: 1:1000

**Legend**

- BH1/06 Atkins Exploratory Hole Location
- BH7/06 Previous Borehole Location
- Water Sampling Location
- BHB1 Biogenie Boreholes  
(Ref: Biogenie dwg 'HAUXTON\_101-1')
- ⊕ W1 Cut-Off Trench Abstraction Wells  
(Ref: Vertase FLI 'Hauxton Topo Temp'.dxf)

Ref: Vertase FLI Background Drawing D907\_31E



Rev.	Description	Revised By	Date
	FIRST ISSUE		18-06-10

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- Manchester Office: Tel: 01614 372708 Fax: 01614 376300

email: info@vertasefli.co.uk  
www.vertasefli.com

Site Address: Bayer Site Hauxton Cambridge

Title: Ground Water Contours 10-06-10

Client: Harrow Estates

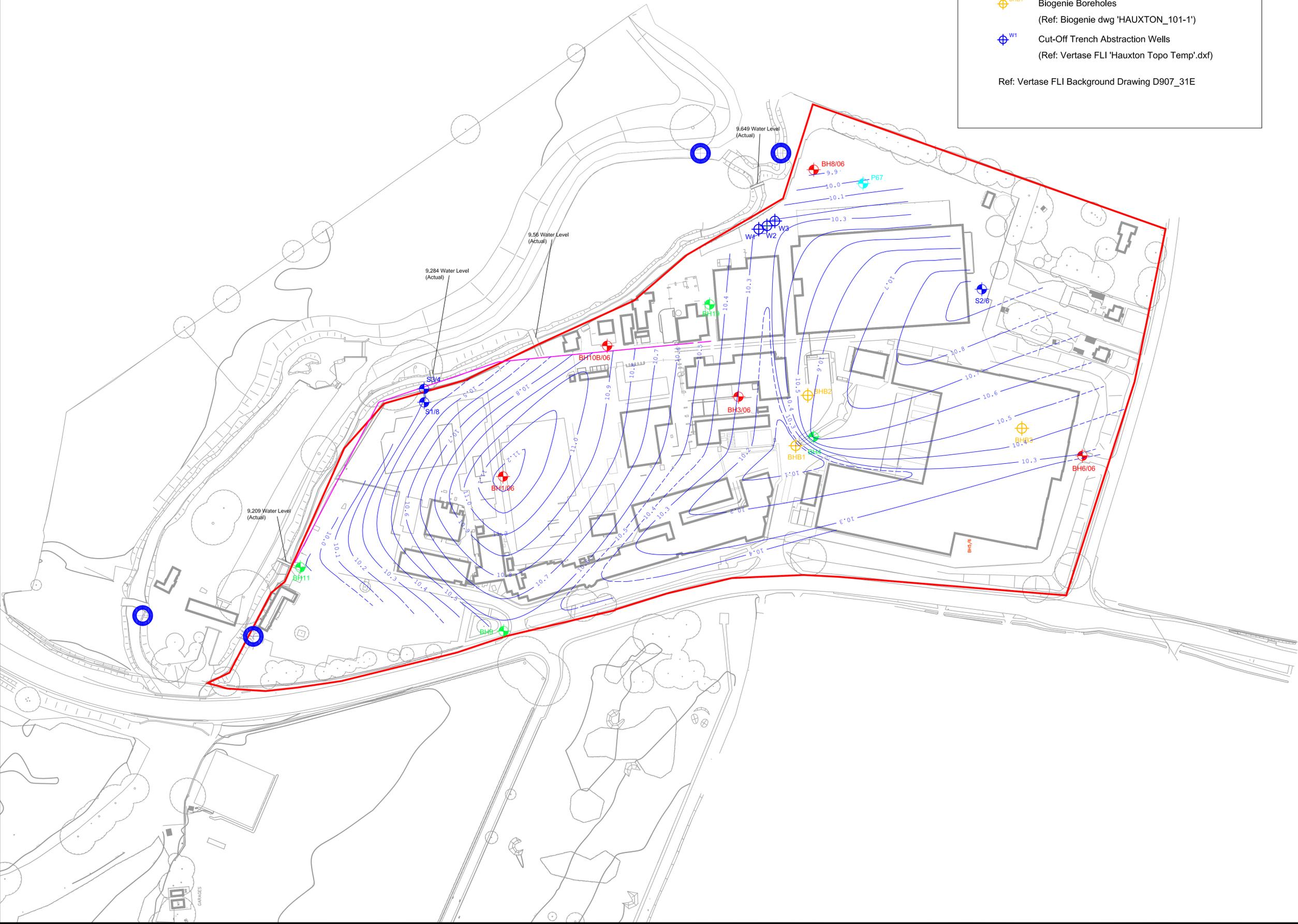
Drawn: MRG Checked: DL Approved: MA

Dwg: D907\_82 Contract: 907 BR1 Scale: 1:1000

**Legend**

- BH1/06 Atkins Exploratory Hole Location
- BH7/06 Previous Borehole Location
- Water Sampling Location
- BHB1 Biogenic Boreholes  
(Ref: Biogenic dwg 'HAUXTON\_101-1')
- ⊕ W1 Cut-Off Trench Abstraction Wells  
(Ref: Vertase FLI 'Hauxton Topo Temp'.dxf)

Ref: Vertase FLI Background Drawing D907\_31E



Rev.	Description	Revised By	Date
	FIRST ISSUE		22-06-10

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email: info@vertasefli.co.uk  
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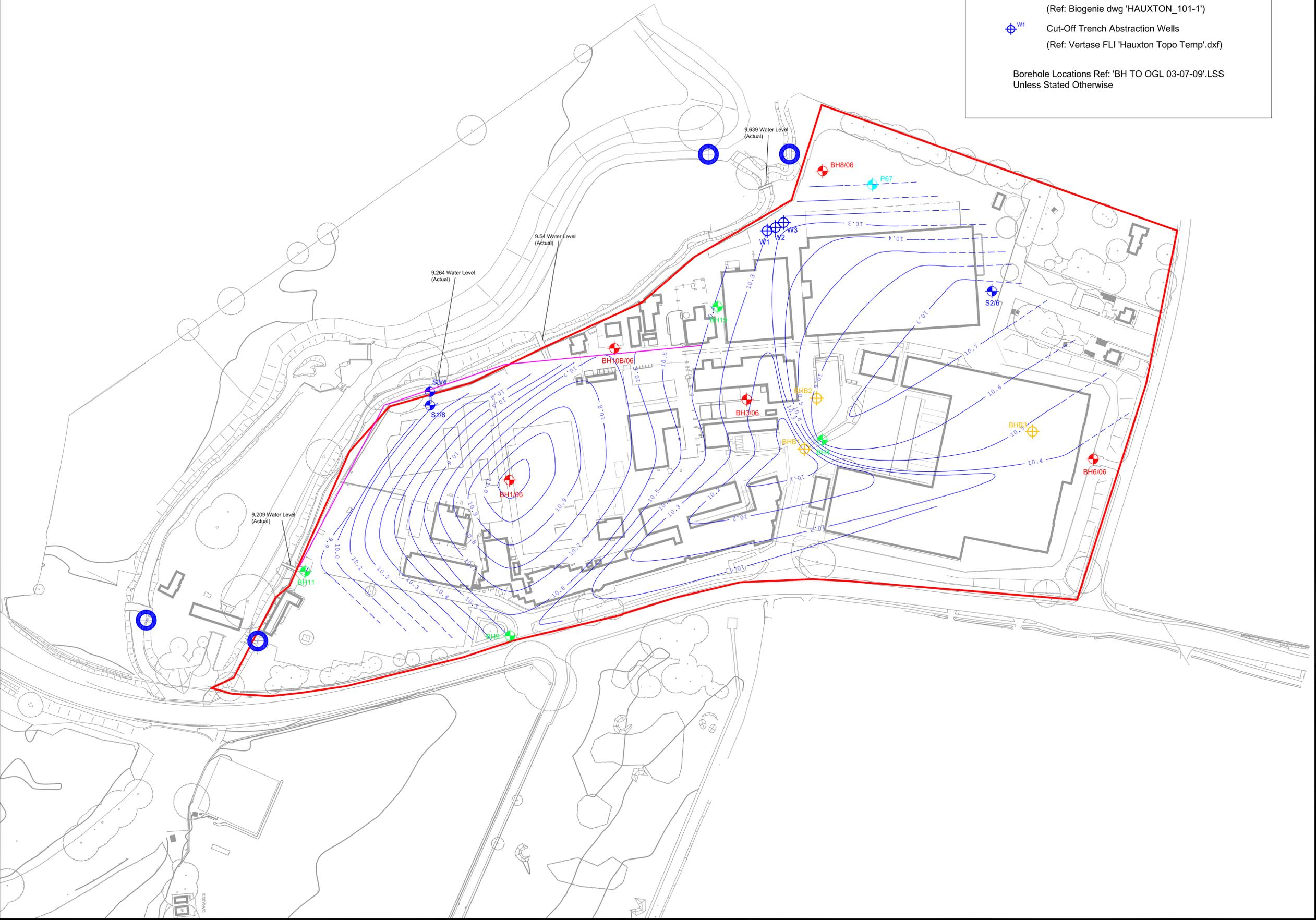
Site Address:	Rev:
Bayer Site Hauxton Cambridge	

Title: Ground Water Contours 17-06-10		
Client: Harrow Estates		
Drawn: MRG	Checked: DL	Approved: MA
Dwg: D907_83	Contract: 907 BR1	Scale: 1:1000

**Legend**

- BH1/06 Atkins Exploratory Hole Location
- BH7, P67 Previous Borehole Location
- Water Sampling Location
- BHB1 Biogenie Boreholes  
(Ref: Biogenie dwg 'HAUXTON\_101-1')
- ⊕ W1 Cut-Off Trench Abstraction Wells  
(Ref: Vertase FLI 'Hauxton Topo Temp'.dxf)

Borehole Locations Ref: 'BH TO OGL 03-07-09'.LSS  
Unless Stated Otherwise



FIRST ISSUE	05-06-10		
Rev.	Description	Revised By	Date

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- Hertford Office: Tel: 01992 535757 Fax: 01992 535858
- Manchester Office: Tel: 01614 372708 Fax: 01614 376300

email: info@vertasefl.com  
www.vertasefl.com

Site Address:	Rev:
Bayer Site Hauxton Cambridge	

Title: Ground Water Contours 24-06-10		
Client: Harrow Estates		
Drawn: MRG	Checked: MA	Approved: MA
Dwg: D907_86	Contract: 907 BR1	Scale: 1:1000

**Appendix H**  
**Waste Water Treatment Plant Discharge Analysis**

Water Quality Analysis of Effluent Discharge Sample

Sample Taken	Report Date	Report Number	Sample Location	Bromide mg/l	Chloride mg/l	Sulphate Ion mg/l	Suspended Solids (Total) mg/l	Ammoniacal Nitrogen mg/l	Biochemical Oxygen Demand mg/l	pH	Atrazine µg/l	Trietazine µg/l	Simazine µg/l	Total Atrazine, Trietazine and Simazine ug/l	Benazolin µg/l	2,3,6-TBA µg/l	Dicamba µg/l	Hempa µg/l	Schradan µg/l
<i>Consented Levels</i>				50	3000	5000	45	15	30	na	<i>Total of all three</i>			250	50	20	50	274	135
01/03/2010	17/03/2010	193447	Discharge Point	0.30	84.00	150.00	<10	<0.05	<3	8.4	<0.02	0.07	<0.01	0.07	<0.1	0.40	<0.1	<0.1	<0.1
30/03/2010	09/04/2010	195429	Discharge Point	0.40	110.00	180.00	<10	<0.05	<3	8.7	<0.01	<0.01	<0.01	0.00	<0.1	0.30	<0.1	0.40	<0.1
08/04/2010	13/04/2010	196139	T99 Circ	<1.0	110.00	190.00	<10	<0.05	<3	8.0	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.1	2.90	0.40
10/04/2010	19/04/2010	196379	T100 Circ	<1.0	110.00	190.00	<10	0.05	<3	7.9	<0.01	0.01	<0.01	0.01	<0.1	<0.1	<0.1	0.90	0.30
12/04/2010	21/04/2010	196517	T100 Circ	<1.0	1100.00	200.00	<10	<0.05	<3	8.2	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.1	1.50	<0.1
28/04/2010	19/05/2010	199291	Discharge Point	<1.0	130.00	200.00	<10	<0.05	<3	8.1	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.1	5.10	1.50
07/05/2010	17/05/2010	199176	T99 Discharge	<1.0	110.00	200.00	<10	<0.05	6.60	8.2	<0.01	<0.01	<0.01	0.00	<0.2	3.00	<0.2	3.30	0.60
18/05/2010	01/06/2010	200382	Discharge Point	<1.0	180.00	280.00	<10	0.09	<3	8.0	<0.01	0.01	<0.01	0.01	0.60	5.20	0.20	6.30	3.80
28/05/2010	17/06/2010	201487	Discharge Point	<1.0	130.00	210.00	<10	<0.05	<3	8.1	<0.01	<0.01	<0.01	0.00	<0.1	1.30	<0.1	4.30	1.10
15/06/2010	28/06/2010	203351	WTW Discharge	2.7	240.00	320.00	<10	0.05	<3	8.1	<0.01	0.02	<0.01	0.02	<0.1	2.40	0.2	4.10	1.00



# Scientific Analysis Laboratories

## Certificate of Analysis

Hadfield House  
Hadfield Street  
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Tel : 0161 874 2400  
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Scientific Analysis Laboratories is a  
limited company registered in England and  
Wales (No 2514788) whose address is at  
Hadfield House, Hadfield Street, Manchester M16 9FE

**Report Number:** 203351-1

**Date of Report:** 28-Jun-2010

**Customer:** VertaseFLI Limited  
19 Napier Court  
Barlborough Links  
Barlborough  
S43 4PZ

**Customer Contact:** The Project Management

**Customer Job Reference:**

**Customer Purchase Order:** 907BRI WWTW

**Date Job Received at SAL:** 17-Jun-2010

**Date Analysis Started:** 17-Jun-2010

**Date Analysis Completed:** 28-Jun-2010

The results reported relate to samples received in the laboratory  
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation  
This report should not be reproduced except in full without the written approval of the laboratory  
Tests covered by this certificate were conducted in accordance with SAL SOPs



1549

Report checked  
and authorised by :  
Amelia McVennon  
Project Manager

Issued by :  
Amelia McVennon  
Project Manager

## Index to symbols used in 203351-1

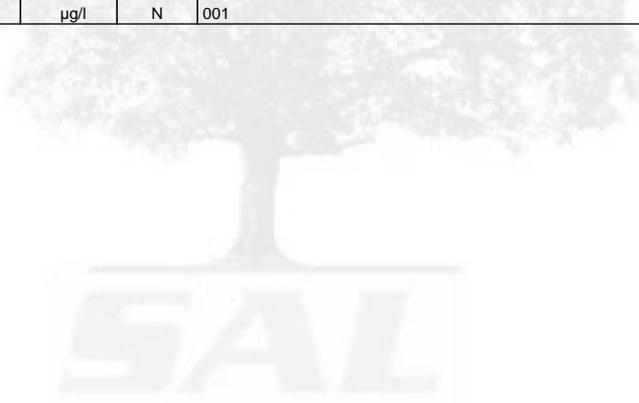
Value	Description
AR	As Received
36	LOD Raised due to low Matrix spike recovery
W	Analysis was performed at another SAL laboratory
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

## Method Index

Value	Description
T2	Grav
T16	GC/MS
T7	Probe
T4	Colorimetry
T253	IC(EID299)

## Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Bromide	T253	AR	100	µg/l	WU	001-002
Chloride	T253	AR	200	µg/l	WU	001-002
Sulphate ion	T253	AR	100	µg/l	WU	001-002
Suspended Solids (Total)	T2	AR	10000	µg/l	N	001-002
Ammoniacal nitrogen	T4	AR	50	µg/l	U	001-002
Biochemical Oxygen Demand	T7	AR	3000	µg/l	N	001-002
pH	T7	AR			U	001
Atrazine	T16	AR	0.01	µg/l	N	001-002
Trietazine	T16	AR	0.01	µg/l	N	001-002
Benazolin	T16	AR	0.1	µg/l	N	001-002
2,3,6-TCB	T16	AR	0.1	µg/l	N	001-002
Dicamba	T16	AR	0.1	µg/l	N	001
Hempa	T16	AR	0.1	µg/l	N	001
Schradan	T16	AR	0.1	µg/l	N	001
Simazine	T16	AR	0.01	µg/l	N	001



<b>SAL Reference:</b> 203351						
<b>Customer Reference:</b>						
<b>Water Suite C</b>		Analysed as Water				
<b>SAL Reference</b>			<b>203351 001</b>		<b>203351 002</b>	
<b>Customer Sample Reference</b>			<b>WTW DISCHARGE</b>		<b>WTW PRE-TREATMENT</b>	
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>		
Bromide	T253	AR	100	µg/l	2700	3400
Chloride	T253	AR	200	µg/l	240000	380000
Sulphate ion	T253	AR	100	µg/l	320000	360000
Suspended Solids (Total)	T2	AR	10000	µg/l	<10000	31000

<b>SAL Reference:</b> 203351						
<b>Customer Reference:</b>						
<b>Water Miscellaneous</b>		Analysed as Water				
<b>SAL Reference</b>			<b>203351 001</b>		<b>203351 002</b>	
<b>Customer Sample Reference</b>			<b>WTW DISCHARGE</b>		<b>WTW PRE-TREATMENT</b>	
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>		
Ammoniacal nitrogen	T4	AR	50	µg/l	50	4200
pH	T7	AR			8.1	7.5
Biochemical Oxygen Demand	T7	AR	3000	µg/l	<3000	5000

<b>SAL Reference:</b> 203351						
<b>Customer Reference:</b>						
<b>Water Suite A</b>		Analysed as Water				
<b>SAL Reference</b>			<b>203351 001</b>		<b>203351 002</b>	
<b>Customer Sample Reference</b>			<b>WTW DISCHARGE</b>		<b>WTW PRE-TREATMENT</b>	
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>		
Atrazine	T16	AR	0.01	µg/l	<0.01	27
Trietazine	T16	AR	0.01	µg/l	0.02	77

<b>SAL Reference:</b> 203351						
<b>Customer Reference:</b>						
<b>Water Suite B</b>		Analysed as Water				
<b>SAL Reference</b>			<b>203351 001</b>		<b>203351 002</b>	
<b>Customer Sample Reference</b>			<b>WTW DISCHARGE</b>		<b>WTW PRE-TREATMENT</b>	
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>		
Benazolin	T16	AR	0.1	µg/l	<0.1	85
2,3,6-TCB	T16	AR	0.1	µg/l	2.4	190



Data received by Atkins	SCDC notified of CNPIs	SSV report to SCDC	Grid square	Contaminant	Conc. (mg/kg)	Likely use/origin
21.04.2010	06.05.2010	N/A	K15	No VOC/SVOC peaks detected		
21.04.2010	06.05.2010	N/A	K16	Series of Aromatic Hydrocarbons circa C <sub>13</sub> -C <sub>16</sub>	17	Potential herbicide degradation products. The structures are smaller and less complex than contaminants of concern and will therefore degrade more readily than the target contaminants and will be captured by the remediation process.
21.04.2010	06.05.2010	08.07.2010	J16	2(1-methylpropyl)-phenol	10	Possibly used in surfactant production or may potentially be degradation product of the 2,6-bis(1-methylpropyl)-phenol listed below.
				2,6-bis(1-methylpropyl)-phenol	100	Commonly used in the manufacture of specialty surfactants used as wetting agents for agrochemicals.
				2,6-bis(1,1-dimethylethyl)-4-(1-methylpropyl)-phenol	6	Commonly used as an antioxidant and stabiliser, also used in oils used in industrial applications.
		N/A	J16	Unidentified branched aromatic alcohol, C <sub>14</sub>	240	Potential herbicide degradation products. The structures are smaller and less complex than contaminants of concern and will therefore degrade more readily than the target contaminants and will be captured by the remediation process.
				Unidentified branched aromatic alcohol, C <sub>18</sub>	290	
21.04.2010	06.05.2010	N/A	K14	Phenanthrene	4.1	Encountered and assessed during site investigation, concentration below target value
				Fluoranthene	4.8	
				Pyrene	3.9	
				Benzo(b/k)Fluoranthene	2.2	
12.05.2010	24.05.2010	N/A	K9	Dodecanoic acid (Lauric acid), isoctyl ester	2.4	Lauric acid - main acid in coconut oil and palm kernel oil, is non-toxic and safe to handle, is used in many soaps, shampoos and body butters.
				Unidentified Aliphatic Hydrocarbon circa C <sub>30</sub>	2.3	Potential herbicide degradation products. The structures are smaller and less complex than contaminants of concern and will therefore degrade more readily than the target contaminants and will be captured by the remediation process.

Data	SCDC	SSV report	Grid	Contaminant	Conc.	Likely use/origin
12.05.2010	24.05.2010	08.07.2010	L8	2,4-Dichloro-o-cresol	9	Potential herbicide degradation product
				Bis(2-ethylhexyl) maleate	3.8	Commonly used as an intermediate in hydrogenation or acetylation reactions, possibly used in agrochemicals manufacture
		N/A		Cyclo octaatomic sulphur	2.8	S <sub>8</sub> is the most common form of sulphur in the solid state, widely used in insecticide and fungicide manufacture
				Dodecanoic acid (Lauric acid), isooctyl ester	7.4	Lauric acid - main acid in coconut oil and palm kernel oil, is non-toxic and safe to handle, is used in many soaps, shampoos and body butters.
				Unidentified aromatic hydrocarbon containing O and Cl circa C <sub>7</sub>	8.4	Potential herbicide degradation products. The structures are smaller and less complex than contaminants of concern and will therefore degrade more readily than the target contaminants and will be captured by the remediation process.
12.05.2010	24.05.2010	N/A	L9	Unidentified Aliphatic Hydrocarbon circa C <sub>30</sub>	2.3	Potential herbicide degradation products. The structures are smaller and less complex than contaminants of concern and will therefore degrade more readily than the target contaminants and will be captured by the remediation process.
14.05.2010	24.05.2010	N/A	H8	No VOC/SVOC peaks detected		
14.05.2010	24.05.2010	08.07.2010	H9	1,2-bis(2,4,6-trichlorophenoxy)ethane	6.9	Potential Prochloraz degradation product
				Prochloraz	9.1	Fungicide
		N/A		Unidentified aromatic hydrocarbon containing Cl circa C <sub>8</sub>	9.4	Potential herbicide degradation products. The structures are smaller and less complex than contaminants of concern and will therefore degrade more readily than the target contaminants and will be captured by the remediation process.
				Unidentified aromatic amine containing Cl circa C <sub>11</sub>	2.1	
14.05.2010	24.05.2010	N/A	I7	No SVOC peaks detected		
				2,4-Dichloro-o-cresol	29	

Data	SCDC	SSV report	Grid	Contaminant	Conc.	Likely use/origin
14.05.2010	24.05.2010	08.07.2010	I9	2,3,6-Trichlorotoluene	47	Potential herbicide degradation product
				1-(2-Chloroethoxy)-2-(o-Tolyloxy)ethane	20	
		N/A		Unidentified aromatic alcohol containing Cl circa C <sub>7</sub>	25.0	Potential herbicide degradation products. The structures are smaller and less complex than contaminants of concern and will therefore degrade more readily than the target contaminants and will be captured by the remediation process.
				Unidentified aromatic hydrocarbon containing O circa C <sub>16-18</sub>	12.0	
14.05.2010	24.05.2010	N/A	J7	No VOC/SVOC peaks detected		
21.05.2010	24.05.2010	N/A	J8	No VOC/SVOC peaks detected		
27.05.2010		N/A	J9	No VOC/SVOC peaks detected		
08.06.2010	16.06.2010	N/A	H7	Dichloromethyl phenol	2.1	Same as 2,4-Dichloro-o-cresol (I9)
09.06.2010	16.06.2010	N/A	K7	1,2-bis(2,4,6-trichlorophenoxy)ethane	2.4	As for H9
09.06.2010	16.06.2010	N/A	K8	No VOC/SVOC peaks detected		
21.06.2010	29.06.2010	08.07.2010	I8	2-methyl phenol	5.5	Potential herbicide degradation product
		N/A		1,2-dichlorobenzene	3.6	Contaminant of concern, already included in the standard validation suite
21.06.2010	29.06.2010	N/A	K10	2,4-Dichloro-o-cresol	550	As for I9 and H7
30.06.2010		N/A	L10	Cyclo octaatomic sulphur	16	As for L8 - Sulphur

**Appendix I**  
**Soil Characterisation Results Summary**