



# Environmental Monitoring Report

Reporting Period  
28/02/2011-03/04/2011



Former Bayer Crop Science Site  
Hauxton  
Cambridgeshire

8<sup>th</sup> April 2011

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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 28<sup>th</sup> of February 2011, until the 3<sup>rd</sup> of April 2011.

### **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 51. Week Commencing 28<sup>th</sup> February 2011**

Excavation of contaminated materials continued in grid squares J5, J6 and H6 removing contaminated Gault Clay to approximately 5m below ground level with treatment beds being created in the east of the site. Turning of treatment beds was undertaken on a number of beds and spent mushroom compost was added to a number of treatment beds to assist the biological processes within the treatment bed. Madeground contaminated by bonded asbestos materials were hauled from site under controlled conditions and disposed of at a suitable off site waste disposal facility, in total ten wagon loads of left the site. Relocating of existing treatment beds and stockpiles was undertaken to create further space for newly created treatment beds.

### **Week 52. Week Commencing 7<sup>th</sup> March 2011**

No excavation undertaken due to wind direction predominantly towards adjacent residential areas. Turning of treatment beds was undertaken on a number of beds and spent mushroom compost was added to a number of treatment beds to assist in the stimulation of the biological process within the treatment bed. The force ventilation vapour extraction plant was extended to increase its capacity to treat highly odorous treatment beds. Non reusable materials comprising of plastics and wood were hauled from site under controlled conditions and disposed of at a suitable off site waste facility, in total six wagon loads of left the site.

### **Week 53. Week Commencing 14<sup>th</sup> March 2011**

No excavation undertaken. Turning of treatment beds was undertaken on a number of beds and spent mushroom compost was added to a number of treatment beds to assist in the stimulation of the biological process within the treatment bed. Uncontaminated tarmac planings were hauled from site recycled and reused at an approved off site location, in total thirty seven wagon loads of left the site. Further treatment beds that require force ventilation vapour extraction treatment were relocated to the force ventilation area, fitted with the pipe work and commissioned for treatment, these works were halted in unfavourable weather conditions to prevent potential site odours affecting local residents.

**Week 54. Week Commencing 21<sup>st</sup> March 2011**

Excavation of contaminated materials undertaken in to grid squares J6, H6, I6 and J5 removing contaminated Gault Clay with treatment beds being created in the east of the site. Turning of treatment beds was undertaken on a number of beds to assist in the biodegradation of the contaminants within the treatment bed. Further treatment beds that require force ventilation vapour extraction treatment were relocated to the force ventilation area, fitted with the pipe work and commissioned for treatment. Relocating of existing treatment beds and stockpiles was undertaken to create space for validation and backfilling.

**Week 55. Week Commencing 28<sup>th</sup> March 2011**

No excavation undertaken. Turning of treatment beds undertaken on a number of beds and spent mushroom compost was added to a number of treatment beds to assist in the stimulation of the biological process within the treatment bed. Turning force ventilation treatment beds to increase vapour extraction potential. Relocating of existing treatment beds and stockpiles was undertaken to create space for validation and backfilling.

### 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.

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. The PID will not function correctly in wet weather conditions, this has prevented real-time monitoring on a number of days and data is missing from the environmental monitoring spreadsheet for this reason. During the reported period VOC's were not detected by the PID (Limit of detection of 0.1ppm) beyond the site boundary.

Long term passive VOC monitoring is carried out at eight compass point locations around the site boundary, in the public accessible areas, further monitoring locations are located within the centre of the waste water treatment works, on Church Road, Hauxton and Queens Close, Harston.

The results for the long term passive VOC monitoring carried out between 17/02/2011 and 17/03/2011 are reported in appendix C. The analysis undertaken for this monitoring period indicates that the majority of the VOC's detected are around the baseline, except for Tetrachloroethene, Toluene which is on occasion slightly raised above the baseline values but are well below the levels considered to be within acceptable limits for published criteria.

The analysis for Church Road, Hauxton and Queens Close, Harston 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 28 day passive VOC monitoring results have been forwarded to the Health Protection Agency for review. The HPA have under taken 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 a number of days and data is 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  $181.60\mu\text{g}/\text{m}^3$ , the average PM10 dust reading around the site is  $108.01\mu\text{g}/\text{m}^3$ . 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.

Dust monitoring undertaken from the 22/02/2011 to 07/03/2011 (6 locations monitored) recorded a maximum dust deposition rate was 0.31%EAC at the north monitoring location. All other locations had a maximum dust deposition rate of 0.23%EAC, or less.

Dust monitoring undertaken from the 07/03/2011 to 21/03/2011 (6 locations monitored) recorded a maximum dust deposition rate was 0.46%EAC at the northeast 2 monitoring location. All other locations had a maximum dust deposition rate of 0.38%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 average acceptable low background level of 61dB. 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 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 have not been any significant changes in levels 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 31<sup>st</sup> March 2011 and are pending and will be presented in a supplemental report.

### **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 northern 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\_155, D907\_156, D907\_157, D907\_158 and D907\_159 (Appendix G) illustrate the weekly groundwater levels for the reported period.

The four contour plots constructed (Appendix G) illustrate that there have been little changes to groundwater levels within the boreholes on site, due to the discontinuous nature of the geology on site and the depth of open excavation, the contour plots do not accurately depict groundwater level across the site.

There has been no recharge of groundwater in the central and northern part of the site where the main excavations have taken place, the base of excavations on site are approximately at 10.00mAOD and remain free of groundwater. 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 31<sup>st</sup> March 2011 are pending and will be presented in a supplemental report.

## 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 03/04/2011, eighty three 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. Thirty Seven characterisation samples analysed contained a total of twenty three 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**



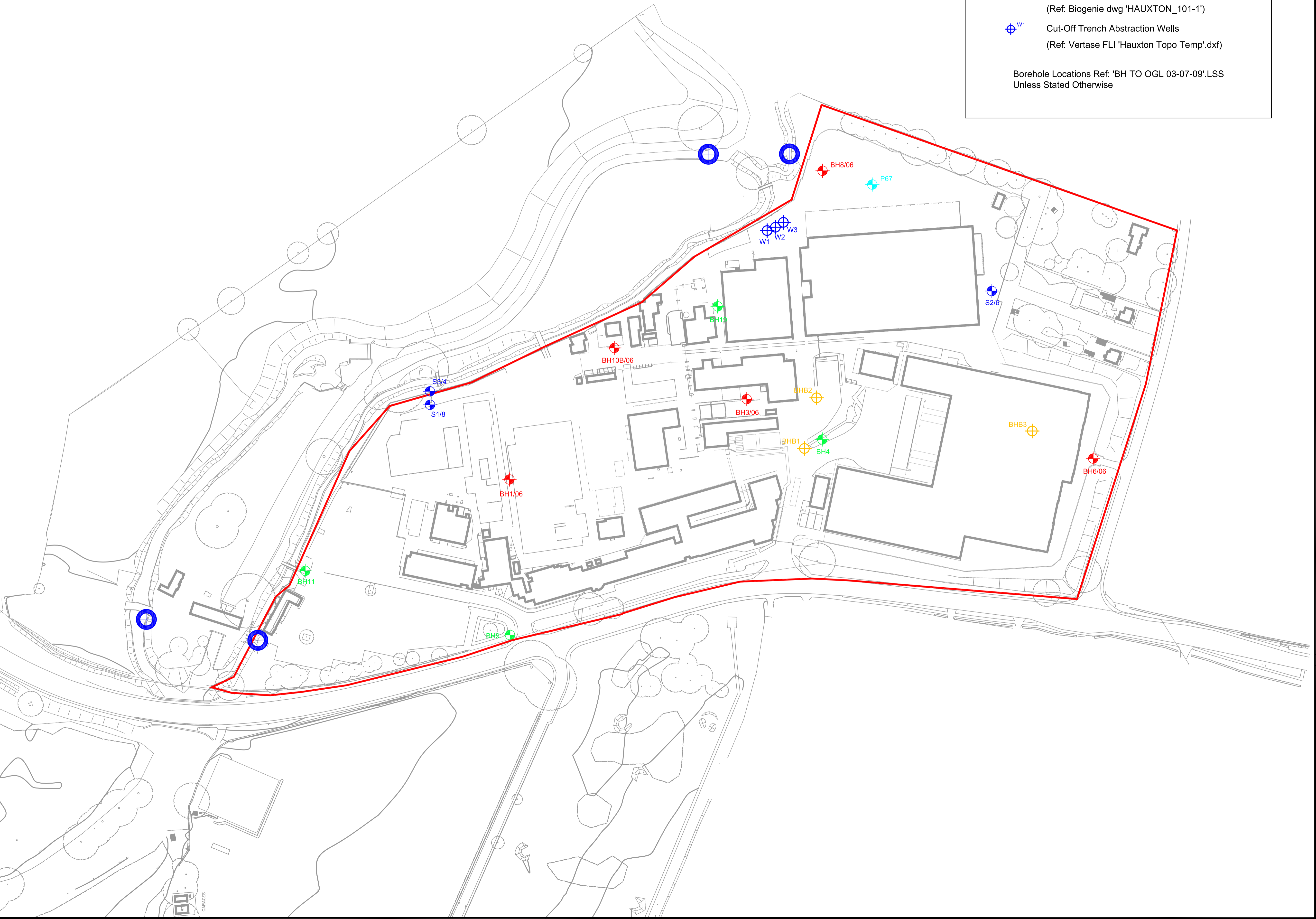




**Legend**

-  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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Site Address: Bayer Site Hauxton Cambridge	Rev: <b>E</b>
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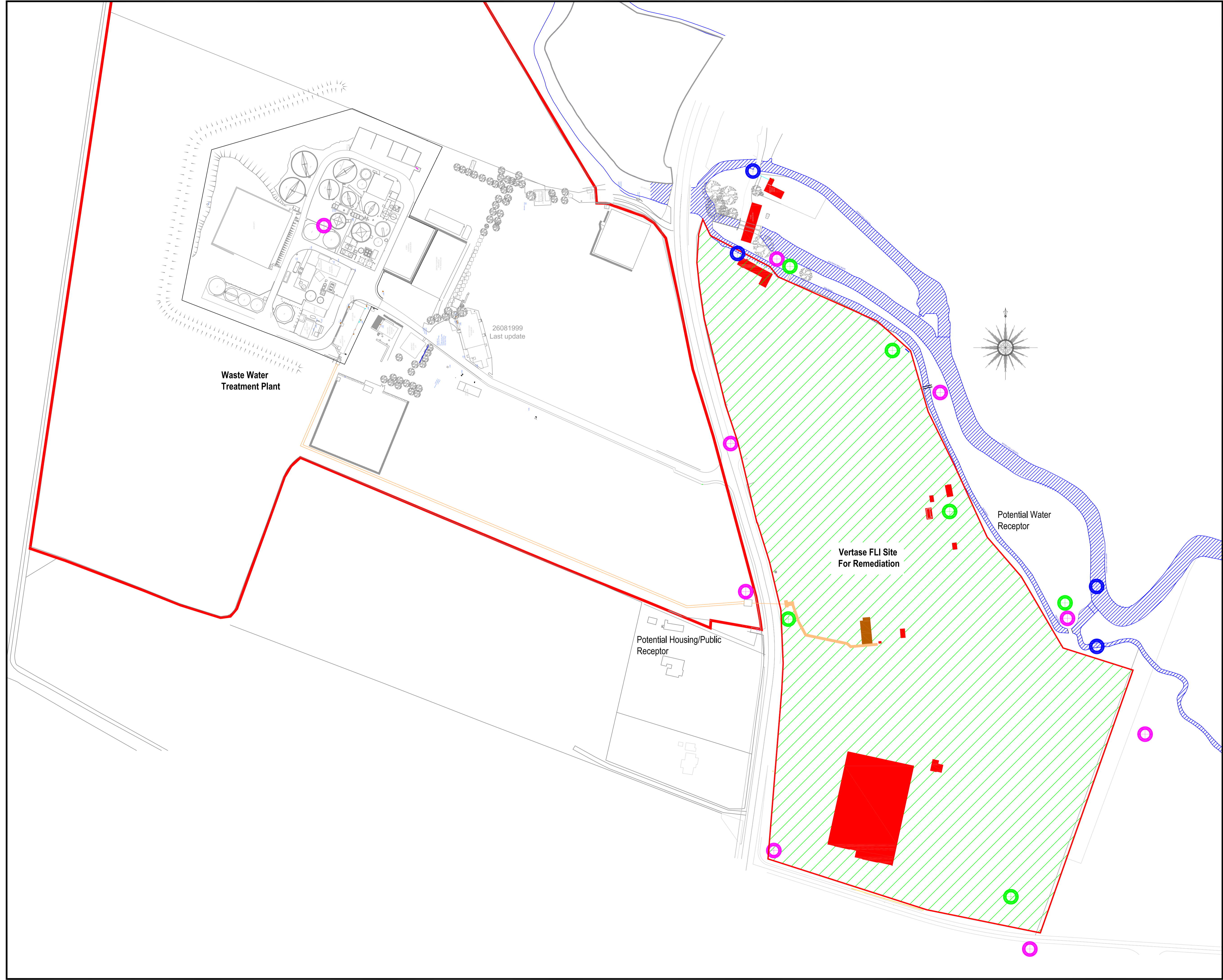
Title: Retained Boreholes for Monitoring & Reference

Client: Harrow Estates

Drawn: JWH	Checked: MA	Approved: MA
------------	-------------	--------------

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
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- email: info@vertasefli.co.uk  
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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

<b>REPORT NUMBER</b>	<b>GCMS 4669</b>
<b>CUSTOMER</b>	<b>Vertase FLI Ltd</b>
<b>GRADKO LAB REFERENCE</b>	<b>GMSF 0433-0442</b>
<b>DATE SAMPLES RECEIVED</b>	<b>21.03.11</b>
<b>DESPATCH REF.NUMBER</b>	<b>SOR004883</b>
<b>JOB NUMBER</b>	<b>907BRI/5311</b>
<b>BOOKING IN REF.</b>	<b>E1486</b>

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

Analysis has been carried out in accordance with in-house method GLM 13

<b>Tube Number</b>	<b>GRA 06374</b>
<b>Exposure Time(mins)</b>	<b>40700</b>
<b>Sample ID</b>	<b>North</b>

#### Top 10 VOC'S

<b>Compounds</b>	<b>ng on tube</b>	<b>ppb in air*</b>
Tetrachloroethylene	132.64	1.63
Nonadecane	56.86	0.70
Toluene	56.18	0.69
Naphthalene	47.15	0.58
Octadecane	42.06	0.52
Heptadecane	24.15	0.30
Methylparaben	23.17	0.28
m/p-Xylene	18.12	0.22
Benzene	16.74	0.21
Propylparaben	14.71	0.18

<b>Tube Number</b>	<b>GRA 04117</b>
<b>Exposure Time(mins)</b>	<b>40690</b>
<b>Sample ID</b>	<b>North East</b>

#### Top 10 VOC'S

<b>Compounds</b>	<b>ng on tube</b>	<b>ppb in air*</b>
Tetrachloroethylene	134.25	1.65
Toluene	52.90	0.65
m/p-Xylene	50.13	0.62

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.

## LABORATORY ANALYSIS REPORT

o-Xylene	29.89	0.37
Trichloroethylene	23.93	0.29
Benzene	18.23	0.22
Ethylbenzene	17.43	0.21
Benzene, 1,2,4-trimethyl-	15.70	0.19
Naphthalene	14.79	0.18
Benzene, 1,2,3-trichloro-4-methyl-	13.07	0.16

**Tube Number** GRA 06066  
**Exposure Time(mins)** 40685  
**Sample ID** East

### Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Tetrachloroethylene	216.54	2.66
Toluene	168.99	2.08
m/p-Xylene	71.07	0.87
o-Xylene	43.11	0.53
Benzene	36.14	0.44
Naphthalene	32.96	0.41
Heptane, 2,2,4,6,6-pentamethyl-	30.61	0.38
Trichloroethylene	27.95	0.34
Ethylbenzene	25.68	0.32
Pentane, 2-methyl-	25.01	0.31

**Tube Number** GRA 05672  
**Exposure Time(mins)** 40685  
**Sample ID** South East

### Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Tetrachloroethylene	163.40	2.01
Toluene	86.54	1.06
m/p-Xylene	24.53	0.30
Trichloroethylene	19.13	0.24
Benzene, 1,2,3-trichloro-4-methyl-	17.49	0.21
Benzene	16.58	0.20
o-Xylene	16.22	0.20

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.

## LABORATORY ANALYSIS REPORT

Phenol	14.08	0.17
Naphthalene	12.92	0.16
Pentadecane	9.67	0.12

**Tube Number** GRA 04505  
**Exposure Time(mins)** 40685  
**Sample ID** South

### Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Tetrachloroethylene	53.44	0.66
Toluene	34.44	0.42
Benzene	26.14	0.32
Phenol	23.11	0.28
m/p-Xylene	20.34	0.25
o-Xylene	13.02	0.16
Trichloroethylene	8.54	0.10
Ethylbenzene	6.80	0.08
Dodecane	6.31	0.08
Benzonitrile	6.02	0.07

**Tube Number** GRA 05944  
**Exposure Time(mins)** 40675  
**Sample ID** South West

### Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Tetrachloroethylene	233.88	2.88
Toluene	108.97	1.34
m/p-Xylene	32.54	0.40
Trichloroethylene	30.09	0.37
Benzene, 1,2,3-trichloro-4-methyl-	24.98	0.31
Benzene	23.95	0.29
o-Xylene	16.62	0.20
Benzene, 1,2,4-trichloro-3-methyl-	12.54	0.15
Bis(2-chloroethyl) ether	12.36	0.15
Phenol	12.22	0.15

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.

## LABORATORY ANALYSIS REPORT

**Tube Number** GRA 02841  
**Exposure Time(mins)** 40635  
**Sample ID** WWTW

### Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	21.25	0.26
Benzene	21.18	0.26
Tetrachloroethylene	17.01	0.21
Phenol	15.51	0.19
m/p-Xylene	13.32	0.16
o-Xylene	12.33	0.15
Pentadecane	8.34	0.10
Benzamide, N,N-dimethyl-	7.85	0.10
Hexadecane	7.23	0.09
Undecane	7.08	0.09

**Tube Number** GRA 05635  
**Exposure Time(mins)** 40650  
**Sample ID** North West

### Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Tetrachloroethylene	119.19	1.47
Toluene	81.77	1.01
m/p-Xylene	62.50	0.77
o-Xylene	26.66	0.33
Trichloroethylene	24.73	0.30
Benzene	20.68	0.25
Ethylbenzene	19.57	0.24
Benzene, 1,2,3-trichloro-4-methyl-	18.03	0.22
Phenol	17.07	0.21
Naphthalene, 2-methyl-	15.52	0.19

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.

REPORT OFFICIALLY CHECKED

Gradko International Ltd  
This signature confirms the authenticity of these results  
Signed.....*L. Gates*.....  
L. Gates, Laboratory Supervisor

## LABORATORY ANALYSIS REPORT

**Tube Number** GRA 03895  
**Exposure Time(mins)** 40560  
**Sample ID** Church Road

### Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Naphthalene	97.33	1.20
Toluene	24.55	0.30
Benzene	21.60	0.27
Tetrachloroethylene	18.14	0.22
m/p-Xylene	17.66	0.22
Naphthalene, 2-methyl-	17.10	0.21
Phenol	16.20	0.20
o-Xylene	15.10	0.19
Tetradecane	11.52	0.14
Naphthalene, 1-methyl-	10.14	0.12

**Tube Number** GRA 05270  
**Exposure Time(mins)** 40680  
**Sample ID** Queen's Close

### Top 10 VOC'S

Compounds	ng on tube	ppb in air*
m/p-Xylene	44.22	0.54
Toluene	40.07	0.49
Ethylbenzene	26.23	0.32
o-Xylene	25.26	0.31
Benzene	22.53	0.28
Phenol	15.60	0.19
Naphthalene	12.03	0.15
Benzene, 1,2,4-trimethyl-	11.25	0.14
Undecane	8.37	0.10
Tetrachloroethylene	8.32	0.10

**Semi-quantitative results for ng on tube are calculated using toluene standards.**

**Analysts Name** M.Angelova **Date of Analysis** 23.03.11  
**Date of Report** 24.03.11

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.

REPORT OFFICIALLY CHECKED

Gradko International Ltd  
This signature confirms the authenticity of these results  
Signed.....*L. Gates*.....  
L. Gates, Laboratory Supervisor



## **Appendix D**

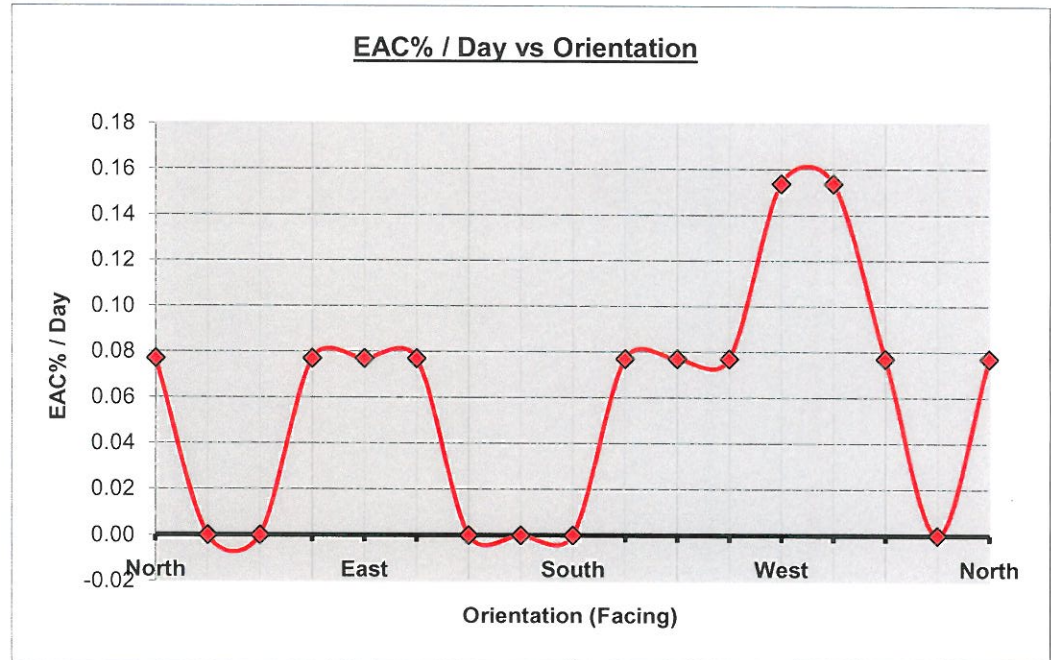
### **Directional Dust Monitoring**

**Gauge Number-North Location 907BRI**

**Sticky Pad Data**

Date On 22/02/2011 Date Off 07/03/2011 Days = 13  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	89	360	North	0.08
20	90	337		0.00
40	89	314		0.08
60	88	291		0.15
80	88	269	West	0.15
100	89	246		0.08
120	89	223		0.08
140	89	200		0.08
160	90	177	South	0.00
180	90	154		0.00
200	90	131		0.00
220	89	109		0.08
240	89	86	East	0.08
260	89	63		0.08
280	90	40		0.00
300	90	17		0.00
315	89	0	North	0.08



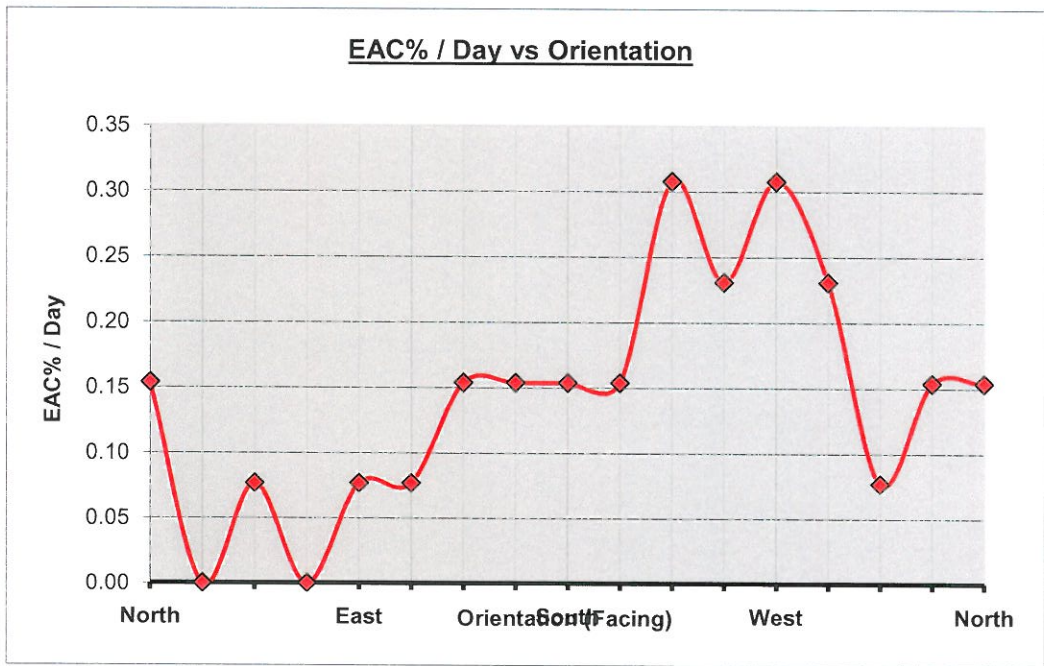
Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

**Gauge Number-East Location 907BRI**

**Sticky Pad Data**

Date On 22/02/2011 Date Off 07/03/2011 Days = 13  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	88	360	North	0.15
20	88	337		0.15
40	89	314		0.08
60	87	291		0.23
80	86	269	West	0.31
100	87	246		0.23
120	86	223		0.31
140	88	200		0.15
160	88	177	South	0.15
180	88	154		0.15
200	88	131		0.15
220	89	109		0.08
240	89	86	East	0.08
260	90	63		0.00
280	89	40		0.08
300	90	17		0.00
315	88	0	North	0.15



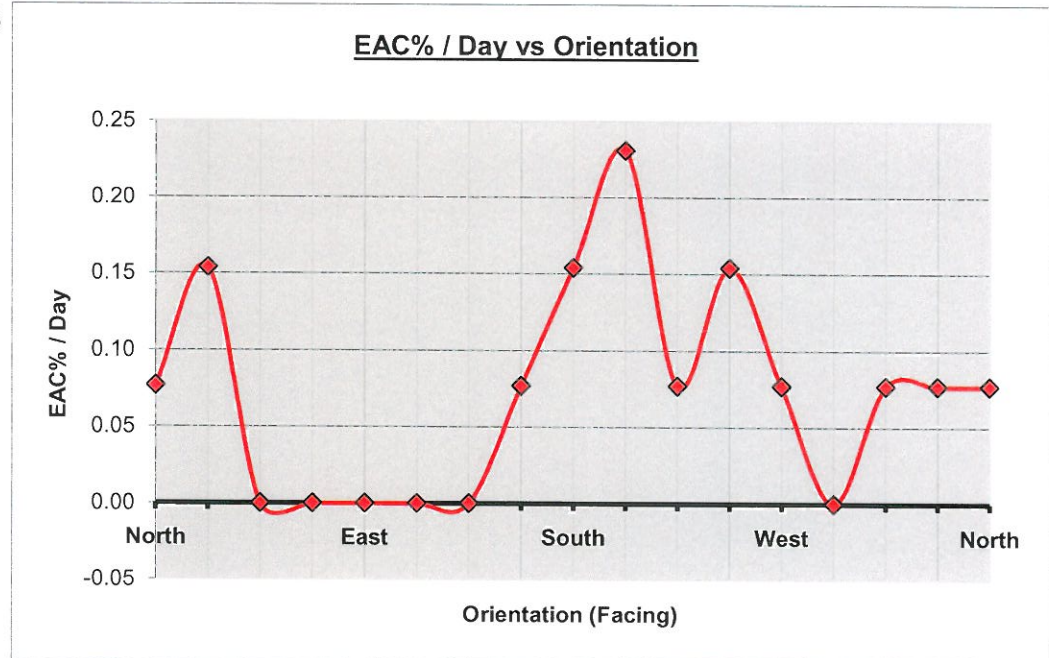
Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

**Gauge Number-West Location 907BRI**

**Sticky Pad Data**

Date On 22/02/2011 Date Off 07/03/2011 Days = 13  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	89	360	North	0.08
20	89	337		0.08
40	89	314		0.08
60	90	291		0.00
80	89	269	West	0.08
100	88	246		0.15
120	89	223		0.08
140	87	200		0.23
160	88	177	South	0.15
180	89	154		0.08
200	90	131		0.00
220	90	109		0.00
240	90	86	East	0.00
260	90	63		0.00
280	90	40		0.00
300	88	17		0.15
315	89	0	North	0.08



Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

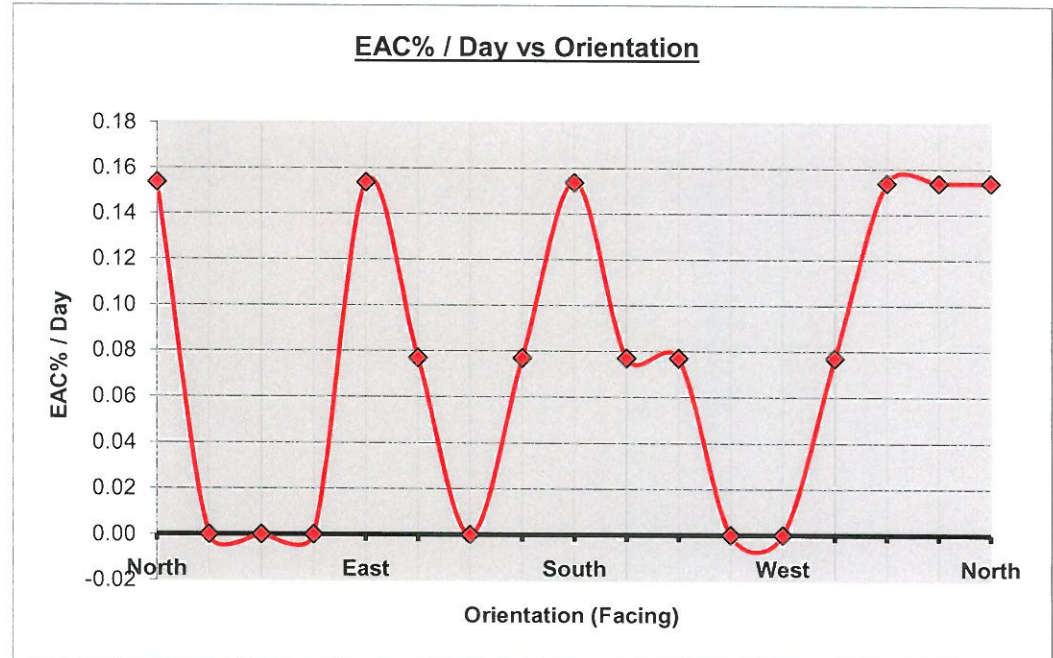


**Gauge Number-NE1 Location 907BRI**

**Sticky Pad Data**

Date On 22/02/2011 Date Off 07/03/2011 Days = 13  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	88	360	North	0.15
20	88	337		0.15
40	88	314		0.15
60	89	291		0.08
80	90	269	West	0.00
100	90	246		0.00
120	89	223		0.08
140	89	200		0.08
160	88	177	South	0.15
180	89	154		0.08
200	90	131		0.00
220	89	109		0.08
240	88	86	East	0.15
260	90	63		0.00
280	90	40		0.00
300	90	17		0.00
315	88	0	North	0.15



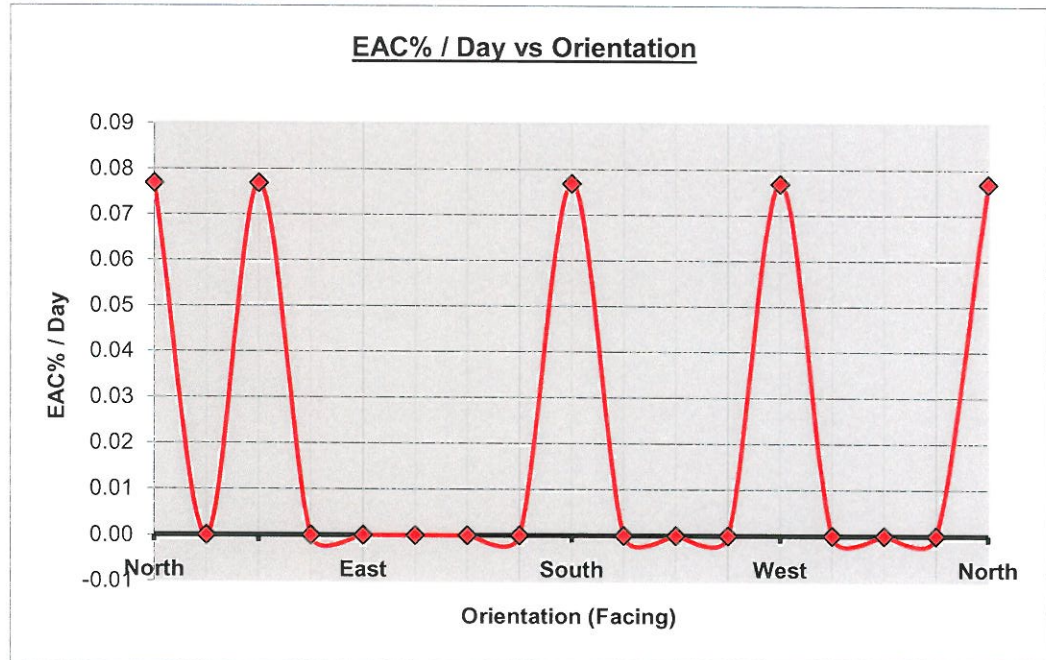
Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

**Gauge Number-NE2 Location 907BRI**

**Sticky Pad Data**

Date On 22/02/2011 Date Off 07/03/2011 Days = 13  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	89	360	North	0.08
20	90	337		0.00
40	90	314		0.00
60	90	291		0.00
80	89	269	West	0.08
100	90	246		0.00
120	90	223		0.00
140	90	200		0.00
160	89	177	South	0.08
180	90	154		0.00
200	90	131		0.00
220	90	109		0.00
240	90	86	East	0.00
260	90	63		0.00
280	89	40		0.08
300	90	17		0.00
315	89	0	North	0.08



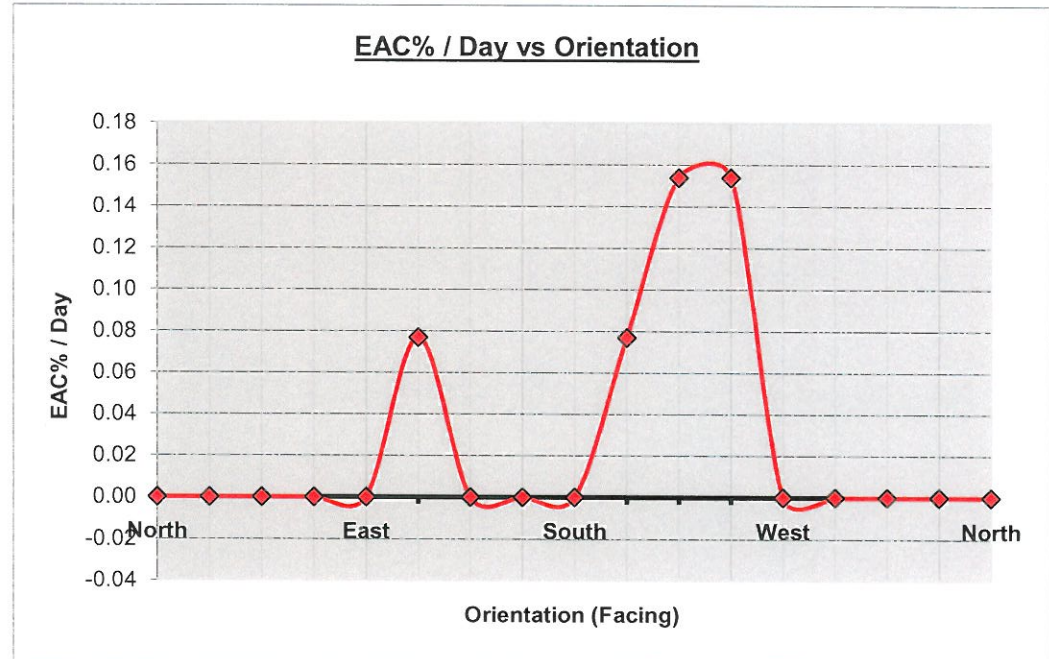
Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

**Gauge Number-South Location 907BRI**

**Sticky Pad Data**

Date On 22/02/2011 Date Off 07/03/2011 Days = 13  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	90	360	North	0.00
20	90	337		0.00
40	90	314		0.00
60	90	291		0.00
80	90	269	West	0.00
100	88	246		0.15
120	88	223		0.15
140	89	200		0.08
160	90	177	South	0.00
180	90	154		0.00
200	90	131		0.00
220	89	109		0.08
240	90	86	East	0.00
260	90	63		0.00
280	90	40		0.00
300	90	17		0.00
315	90	0	North	0.00



Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

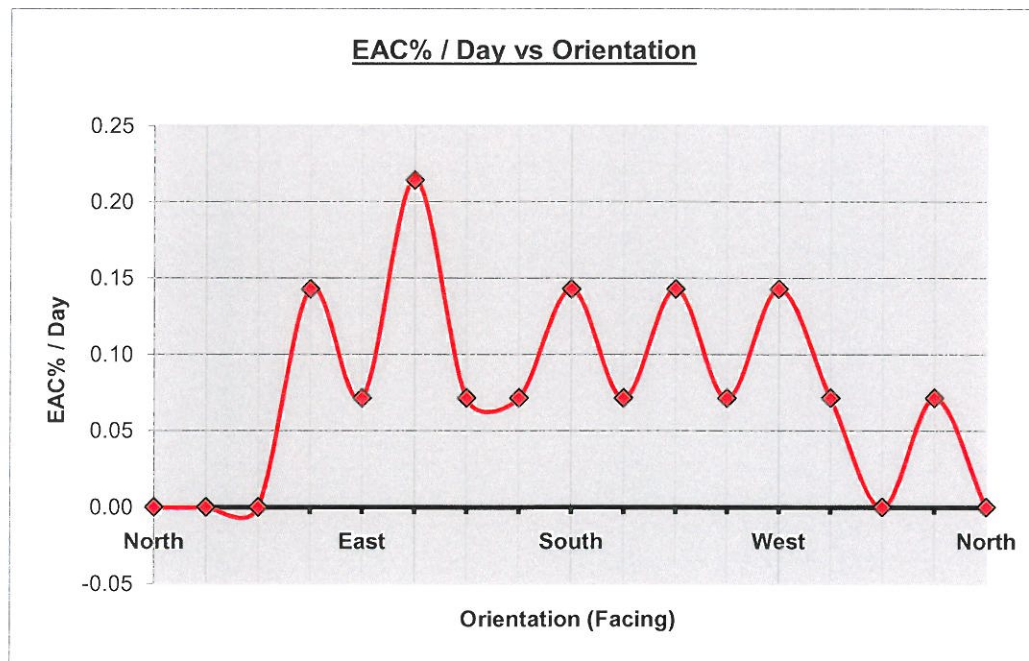


**Gauge Number-North Location 907BRI**

**Sticky Pad Data**

Date On 07/03/2011 Date Off 21/03/2011 Days = 14  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	90	360	North	0.00
20	89	337		0.07
40	90	314		0.00
60	89	291		0.07
80	88	269	West	0.14
100	89	246		0.07
120	88	223		0.14
140	89	200		0.07
160	88	177	South	0.14
180	89	154		0.07
200	89	131		0.07
220	87	109		0.21
240	89	86	East	0.07
260	88	63		0.14
280	90	40		0.00
300	90	17		0.00
315	90	0	North	0.00



Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

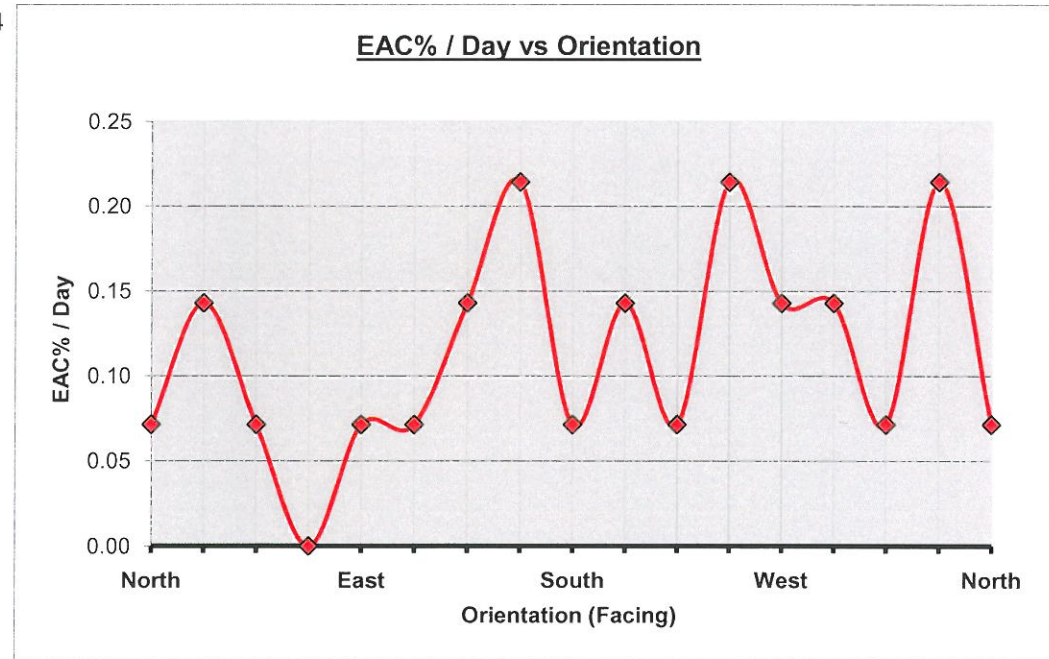


**Gauge Number-East Location 907BRI**

**Sticky Pad Data**

Date On 07/03/2011 Date Off 21/03/2011 Days = 14  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	89	360	North	0.07
20	87	337		0.21
40	89	314		0.07
60	88	291		0.14
80	88	269	West	0.14
100	87	246		0.21
120	89	223		0.07
140	88	200		0.14
160	89	177	South	0.07
180	87	154		0.21
200	88	131		0.14
220	89	109		0.07
240	89	86	East	0.07
260	90	63		0.00
280	89	40		0.07
300	88	17		0.14
315	89	0	North	0.07



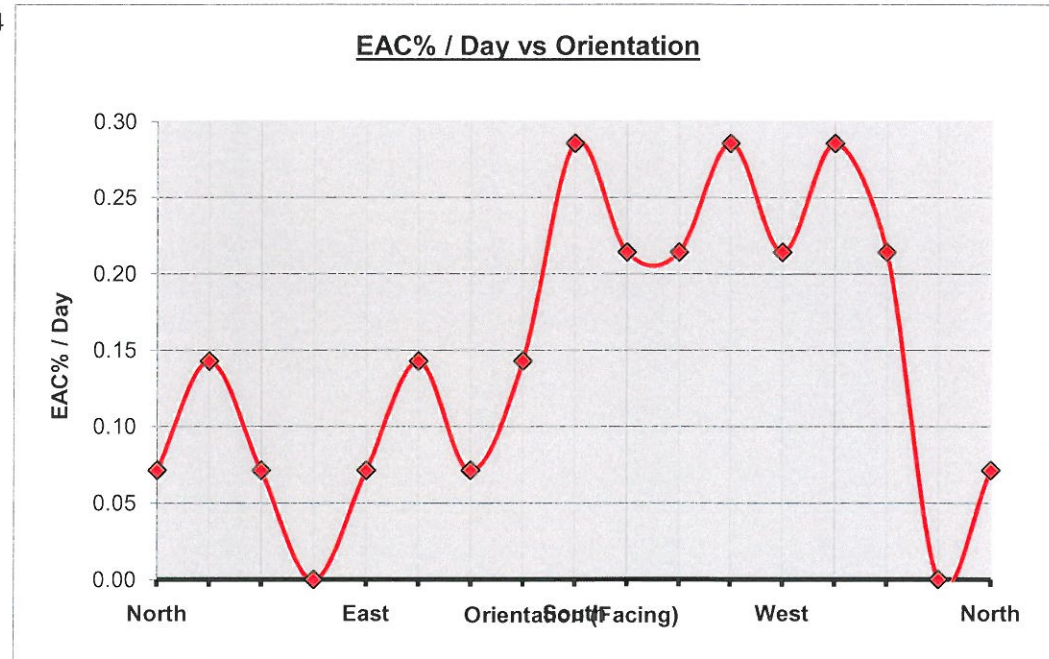
Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

**Gauge Number-West Location 907BRI**

**Sticky Pad Data**

Date On 07/03/2011 Date Off 21/03/2011 Days = 14  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	89	360	North	0.07
20	90	337		0.00
40	87	314		0.21
60	86	291		0.29
80	87	269	West	0.21
100	86	246		0.29
120	87	223		0.21
140	87	200		0.21
160	86	177	South	0.29
180	88	154		0.14
200	89	131		0.07
220	88	109		0.14
240	89	86	East	0.07
260	90	63		0.00
280	89	40		0.07
300	88	17		0.14
315	89	0	North	0.07



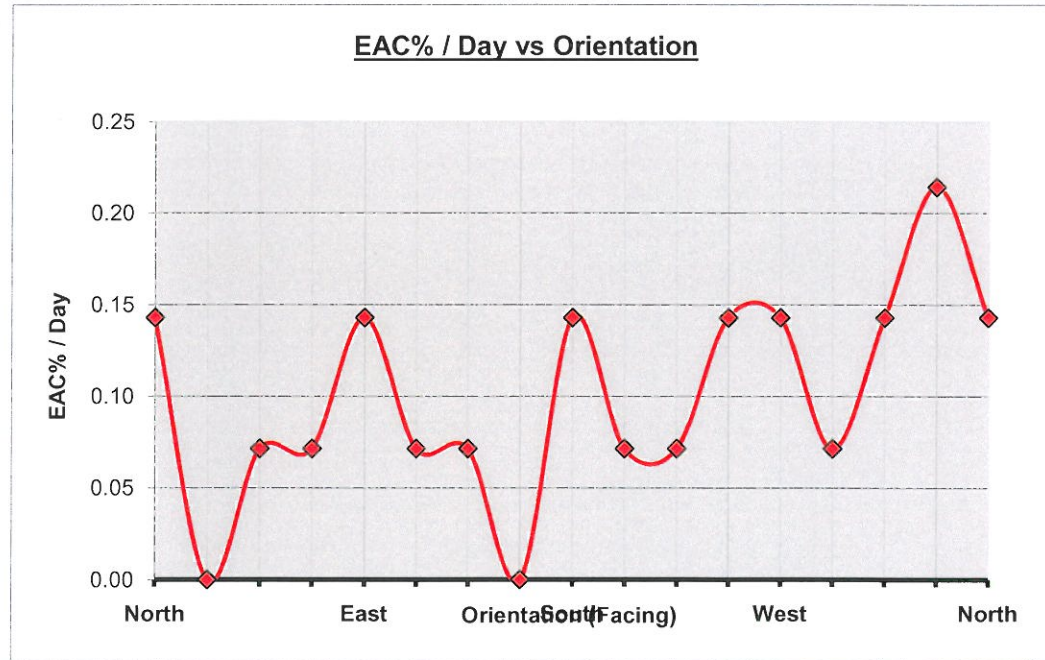
Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

**Gauge Number-NE1 Location 907BRI**

**Sticky Pad Data**

Date On 07/03/2011 Date Off 21/03/2011 Days = 14  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	88	360	North	0.14
20	87	337		0.21
40	88	314		0.14
60	89	291		0.07
80	88	269	West	0.14
100	88	246		0.14
120	89	223		0.07
140	89	200		0.07
160	88	177	South	0.14
180	90	154		0.00
200	89	131		0.07
220	89	109		0.07
240	88	86	East	0.14
260	89	63		0.07
280	89	40		0.07
300	90	17		0.00
315	88	0	North	0.14



Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

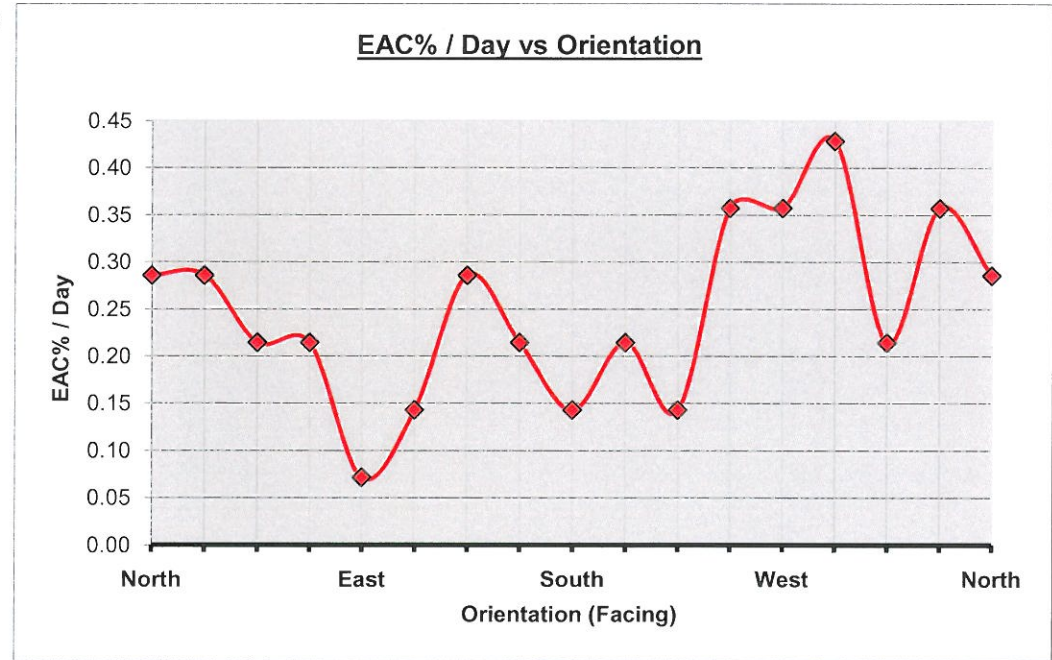


**Gauge Number-NE2 Location 907BRI**

**Sticky Pad Data**

Date On 07/03/2011 Date Off 21/03/2011 Days = 14  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	86	360	North	0.29
20	85	337		0.36
40	87	314		0.21
60	84	291		0.43
80	85	269	West	0.36
100	85	246		0.36
120	88	223		0.14
140	87	200		0.21
160	88	177	South	0.14
180	87	154		0.21
200	86	131		0.29
220	88	109		0.14
240	89	86	East	0.07
260	87	63		0.21
280	87	40		0.21
300	86	17		0.29
315	86	0	North	0.29



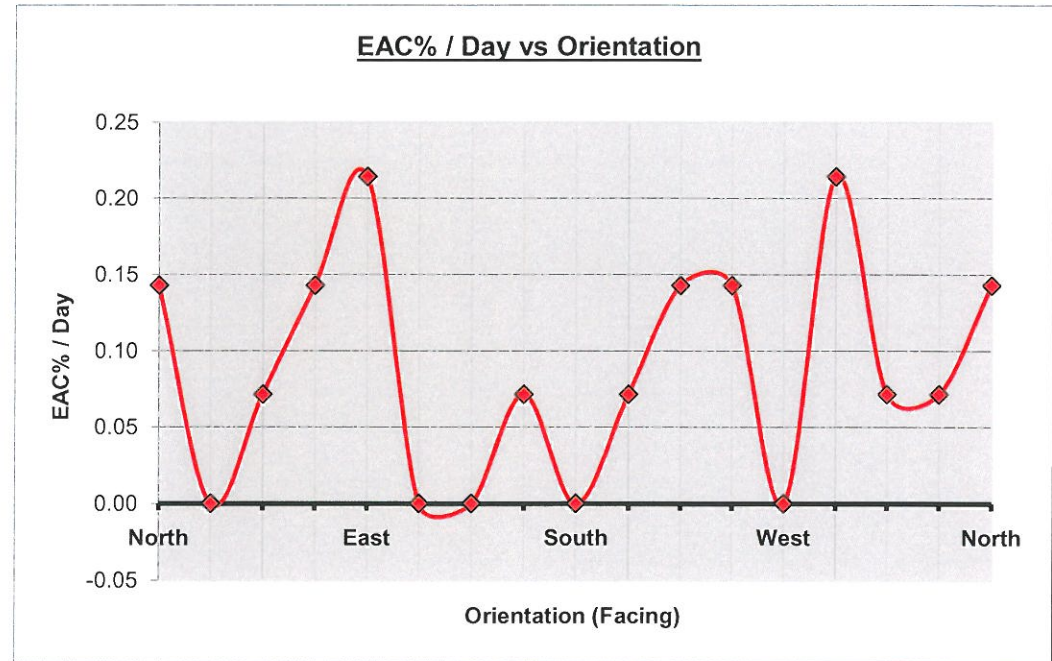
Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

**Gauge Number-South Location 907BRI**

**Sticky Pad Data**

Date On 07/03/2011 Date Off 21/03/2011 Days = 14  
Clean = 90

X Axis mm	Meter	Angle Deg	Orientation	EAC% / Day
0	88	360	North	0.14
20	89	337		0.07
40	89	314		0.07
60	87	291		0.21
80	90	269	West	0.00
100	88	246		0.14
120	88	223		0.14
140	89	200		0.07
160	90	177	South	0.00
180	89	154		0.07
200	90	131		0.00
220	90	109		0.00
240	87	86	East	0.21
260	88	63		0.14
280	89	40		0.07
300	90	17		0.00
315	88	0	North	0.14



Note: Cells coloured red are inputs.  
The rest are either constants or calculated values.  
The calculation is based on taking readings at 20mm intervals along the sticky pad.

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

Date	BH6/06	S3/4	BH4	BH10B/06	BH9	S1/8	BH11*	S2/6	BHB1	W1 (n)	W2	W3 (s)	Riddy 1	Riddy 2	Riddy 3	Riddy 4	V F12	V N3	WS16	P107	P73
28/02/2011	10.170	10.410	9.814	Covered	10.638	Lost	9.761	Covered	9.300	No Access	No Access	9.761	9.195	9.295	9.549	9.645	10.130	10.200	No Access	No Access	No Access
01/03/2011	10.293	10.398	9.953	Covered	10.628	Lost	9.744	Covered	9.389	No Access	No Access	9.747	9.194	9.301	9.549	9.647	10.075	10.200	10.216	10.282	10.513
02/03/2011	10.290	10.393	9.944	Covered	10.617	Lost	9.744	Covered	9.411	No Access	No Access	9.740	9.194	9.299	9.549	9.648	10.067	10.194	No Access	No Access	No Access
03/03/2011	10.281	10.371	9.934	Covered	10.612	Lost	9.741	Covered	9.430	No Access	No Access	9.737	9.196	9.298	9.550	9.646	10.063	10.192	No Access	No Access	No Access
04/03/2011	10.280	10.390	9.924	Covered	10.610	Lost	9.722	Covered	9.500	No Access	No Access	9.733	9.194	9.298	9.548	9.649	10.058	10.197	10.212	10.225	10.468
07/03/2011	10.249	10.388	9.874	Covered	10.607	Lost	9.702	Covered	9.540	No Access	No Access	9.681	9.195	9.292	9.550	9.649	10.048	10.186	10.212	10.215	10.470
08/03/2011	10.241	10.381	9.873	Covered	10.577	Lost	9.692	Covered	9.538	No Access	No Access	9.674	9.197	9.286	9.536	9.638	10.005	10.170	10.205	10.206	10.458
09/03/2011	10.240	10.370	9.874	Covered	10.566	Lost	9.705	Covered	9.536	No Access	No Access	9.660	9.196	9.285	9.535	9.639	10.002	10.161	10.182	10.270	10.093
10/03/2011	10.230	10.378	9.885	Covered	10.558	Lost	9.690	Covered	9.309	No Access	No Access	9.617	9.194	9.287	9.533	9.632	10.015	10.149	10.187	10.261	10.451
11/03/2011	10.250	10.376	9.894	Covered	10.558	Lost	9.690	Covered	9.310	No Access	No Access	9.610	9.190	9.284	9.530	9.634	10.016	10.087	10.164	10.201	10.455
14/03/2011	10.270	10.374	9.894	Covered	10.559	Lost	9.693	Covered	9.300	No Access	No Access	9.610	9.190	9.284	9.530	9.629	10.016	10.087	10.164	10.202	10.456
15/03/2011	10.260	10.373	9.884	Covered	10.551	Lost	9.693	Covered	9.310	No Access	No Access	9.620	9.194	9.284	9.536	9.631	10.017	10.089	10.165	10.203	10.456
16/03/2011	10.203	10.373	9.884	Covered	10.539	Lost	9.683	Covered	9.280	No Access	No Access	9.623	9.194	9.284	9.530	9.629	10.013	10.089	10.146	10.183	10.444
17/03/2011	10.208	10.373	9.864	Covered	10.528	Lost	9.678	Covered	9.278	No Access	No Access	9.620	9.193	9.286	9.530	9.629	9.993	10.095	10.146	10.173	10.434
18/03/2011	10.210	10.372	9.874	Covered	10.487	Lost	9.669	Covered	9.279	No Access	No Access	9.622	9.188	9.289	9.529	9.631	9.998	10.099	10.115	10.162	10.373
21/03/2011	10.178	10.404	9.894	Covered	10.480	Lost	9.654	Covered	9.220	No Access	No Access	9.611	9.189	9.289	9.530	9.632	9.978	10.089	10.103	10.143	10.369
22/03/2011	10.119	10.440	9.806	Covered	10.470	Lost	9.644	Covered	9.210	No Access	No Access	9.610	9.190	9.291	9.530	9.632	9.962	10.073	10.090	10.132	10.366
23/03/2011	10.159	10.430	9.795	Covered	10.470	Lost	9.642	Covered	9.200	No Access	No Access	9.600	9.191	9.284	9.530	9.632	9.965	10.079	10.102	10.133	10.424
24/03/2011	10.017	10.428	9.795	Covered	10.469	Lost	9.643	Covered	9.190	No Access	No Access	9.580	9.189	9.284	9.530	9.631	9.965	10.075	10.101	10.173	10.424
25/03/2011	10.116	10.426	9.794	Covered	10.468	Lost	9.641	Covered	9.300	No Access	No Access	9.560	9.191	9.284	9.530	9.632	9.981	10.082	10.106	10.123	10.384
28/03/2011	10.016	10.378	9.921	Covered	10.448	Lost	9.631	Covered	9.307	No Access	No Access	9.613	9.190	9.291	9.529	9.631	9.955	10.060	10.078	10.124	10.327
29/03/2011	10.015	10.378	9.921	Covered	10.447	Lost	9.630	Covered	9.307	No Access	No Access	9.613	9.190	9.284	9.530	9.632	10.144	10.061	10.077	10.116	10.320
30/03/2011	10.147	10.368	9.894	Covered	10.456	Lost	9.634	Covered	10.297	No Access	No Access	12.510	9.191	9.284	9.529	9.632	9.956	10.055	10.066	10.116	10.319
31/03/2011	10.035	10.365	9.873	Covered	10.467	Lost	9.640	Covered	9.281	No Access	No Access	9.615	9.190	9.295	9.529	9.631	9.936	10.051	10.057	10.118	10.319
01/04/2011	10.249	10.362	9.873	Covered	10.467	Lost	9.640	Covered	9.251	No Access	No Access	9.620	9.190	9.295	9.529	9.631	9.936	10.050	10.057	10.118	10.320

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



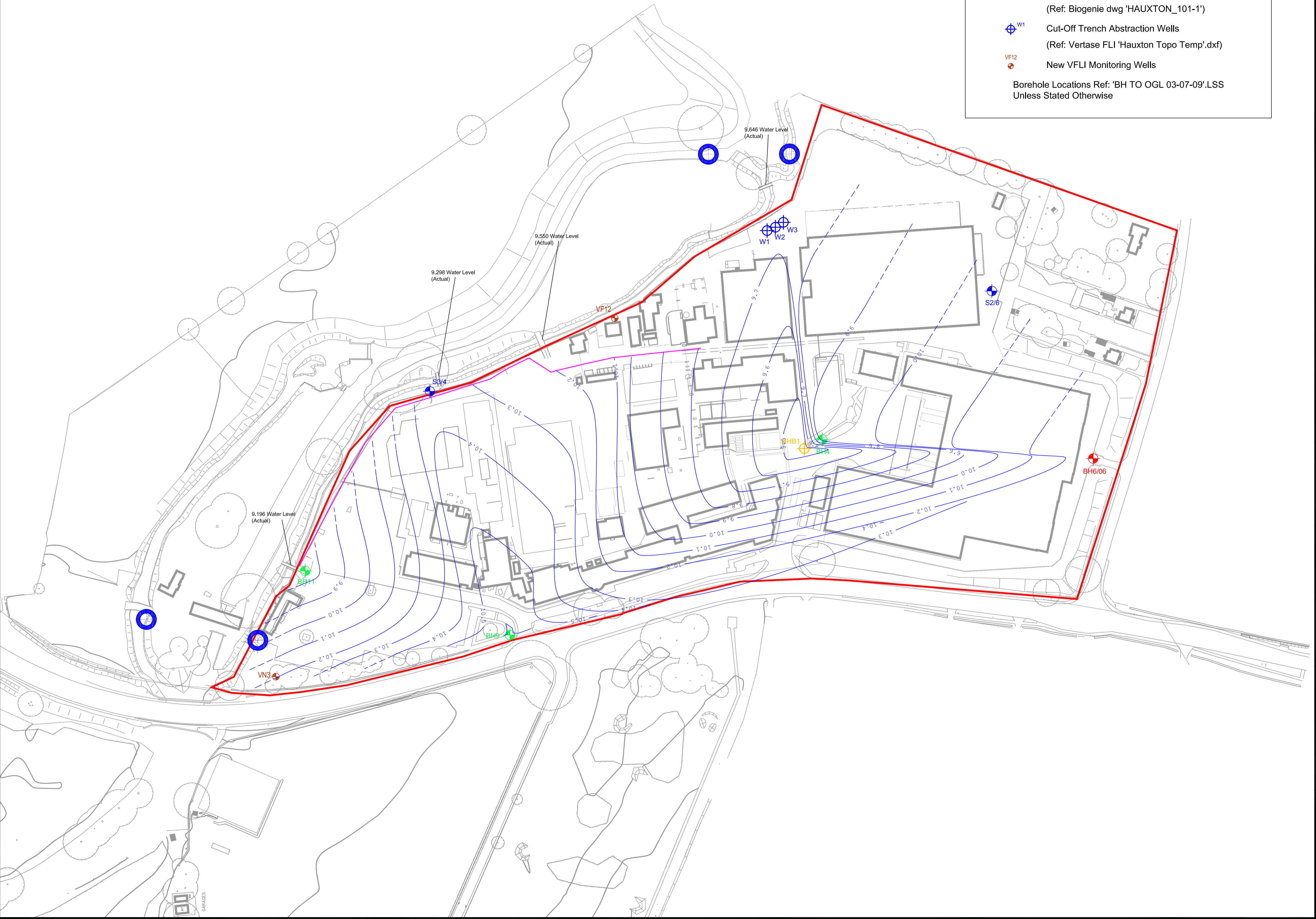
Results Pending

**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)
- VF12 New VFLI Monitoring Wells

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



FIRST ISSUE	24-03-11		
Rev.	Description	Revised By	Date

**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

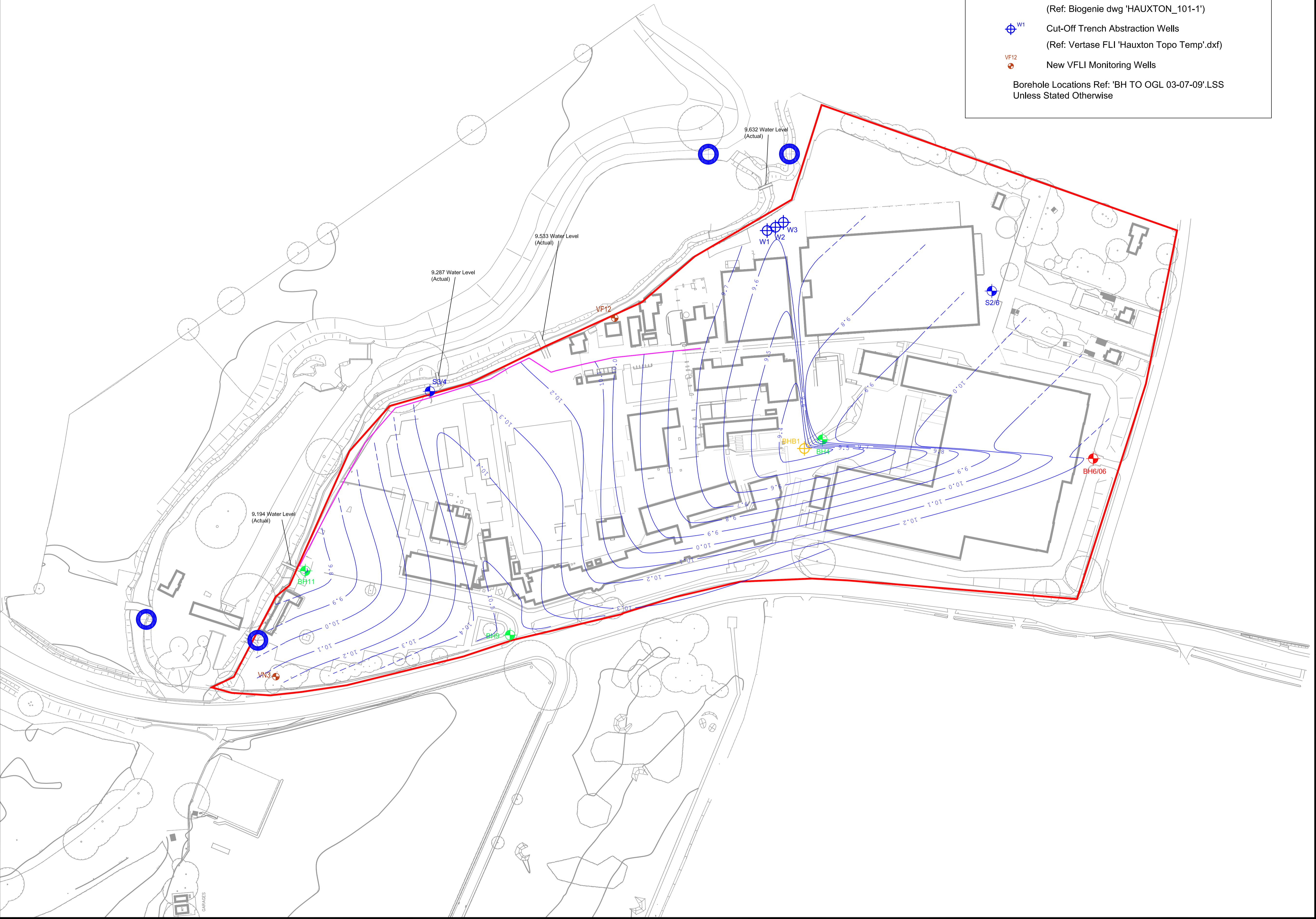
Site Address:	Rev:	
Bayer Site Hauxton Cambridge		
Title: Ground Water Contours 03-03-11		
Client: Harrow Estates		
Drawn: MRG	Checked: MA	Approved: MA
Dwg: D907_155	Contract: 907 BR1	Scale: 1:1000



**Legend**

-  BH1/06 Atkins Exploratory Hole Location
-  BH7, PS7 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)
-  VF12 New VFLI Monitoring Wells

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



Rev.	Description	Revised By	Date
	FIRST ISSUE		24-03-11

**Vertase F.L.I.**

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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 10-03-11

Client: Harrow Estates

Drawn: MRG    Checked: MA    Approved: MA

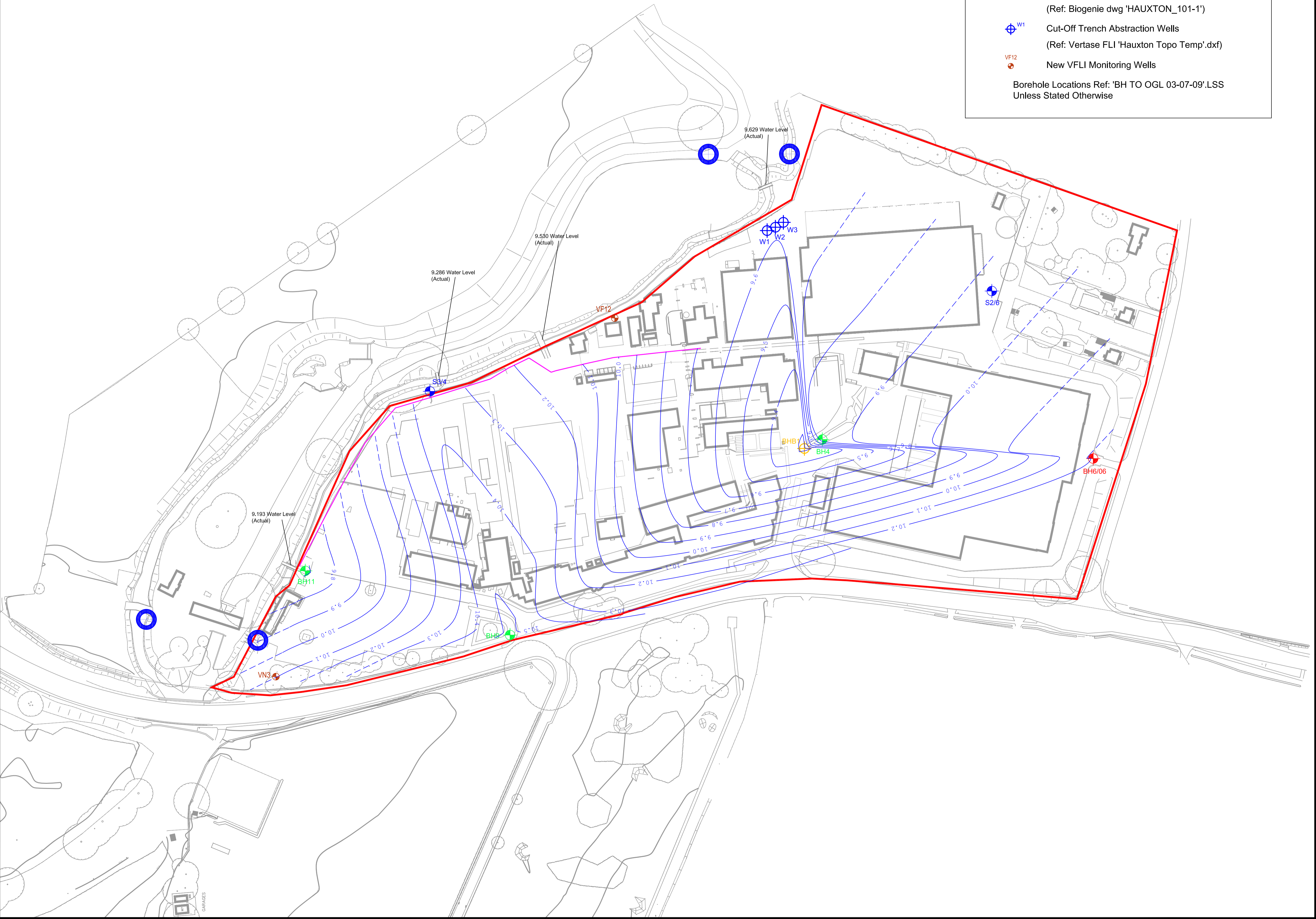
Dwg: D907\_156    Contract: 907 BR1    Scale: 1:1000



**Legend**

- BH1/06 Atkins Exploratory Hole Location
- BH7, ● PS7 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)
- VF12 New VFLI Monitoring Wells

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



FIRST ISSUE	24-03-11		
Rev.	Description	Revised By	Date

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

Title: Ground Water Contours 17-03-11

Client: Harrow Estates

Drawn: MRG    Checked: MA    Approved: MA

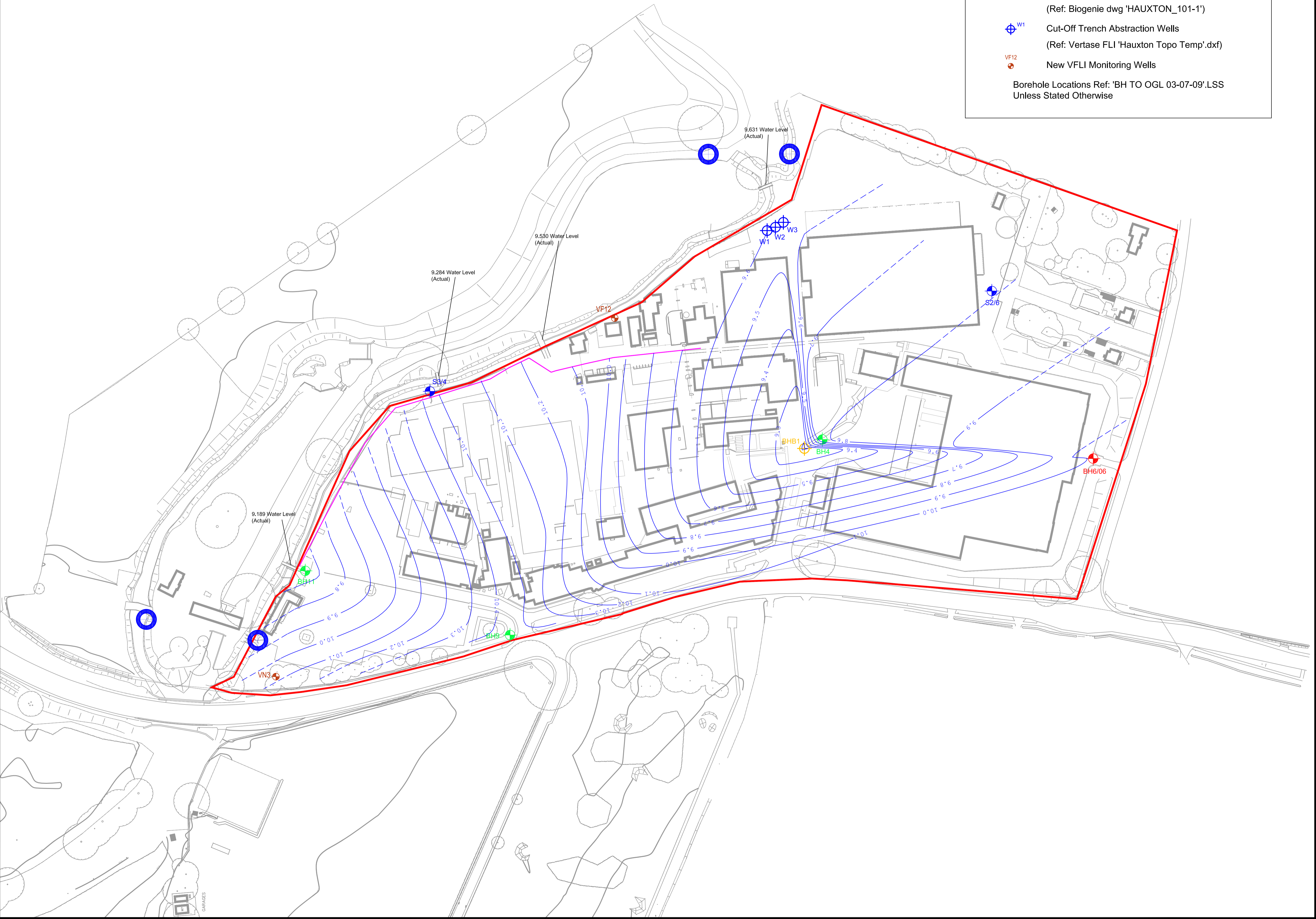
Dwg: D907\_157    Contract: 907 BR1    Scale: 1:1000



**Legend**

- BH1/06 Atkins Exploratory Hole Location
- BH7, ● PS7 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)
- VF12 New VFLI Monitoring Wells

Borehole Locations Ref: 'BH TO OGL 03-07-09'.LSS  
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Rev.	Description	Revised By	Date
	FIRST ISSUE		30-03-11

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

Site Address: Bayer Site, Hauxton, Cambridge

Title: Ground Water Contours 24-03-11







Client: Harrow Estates

Drawn: MRG    Checked: MA    Approved: MA

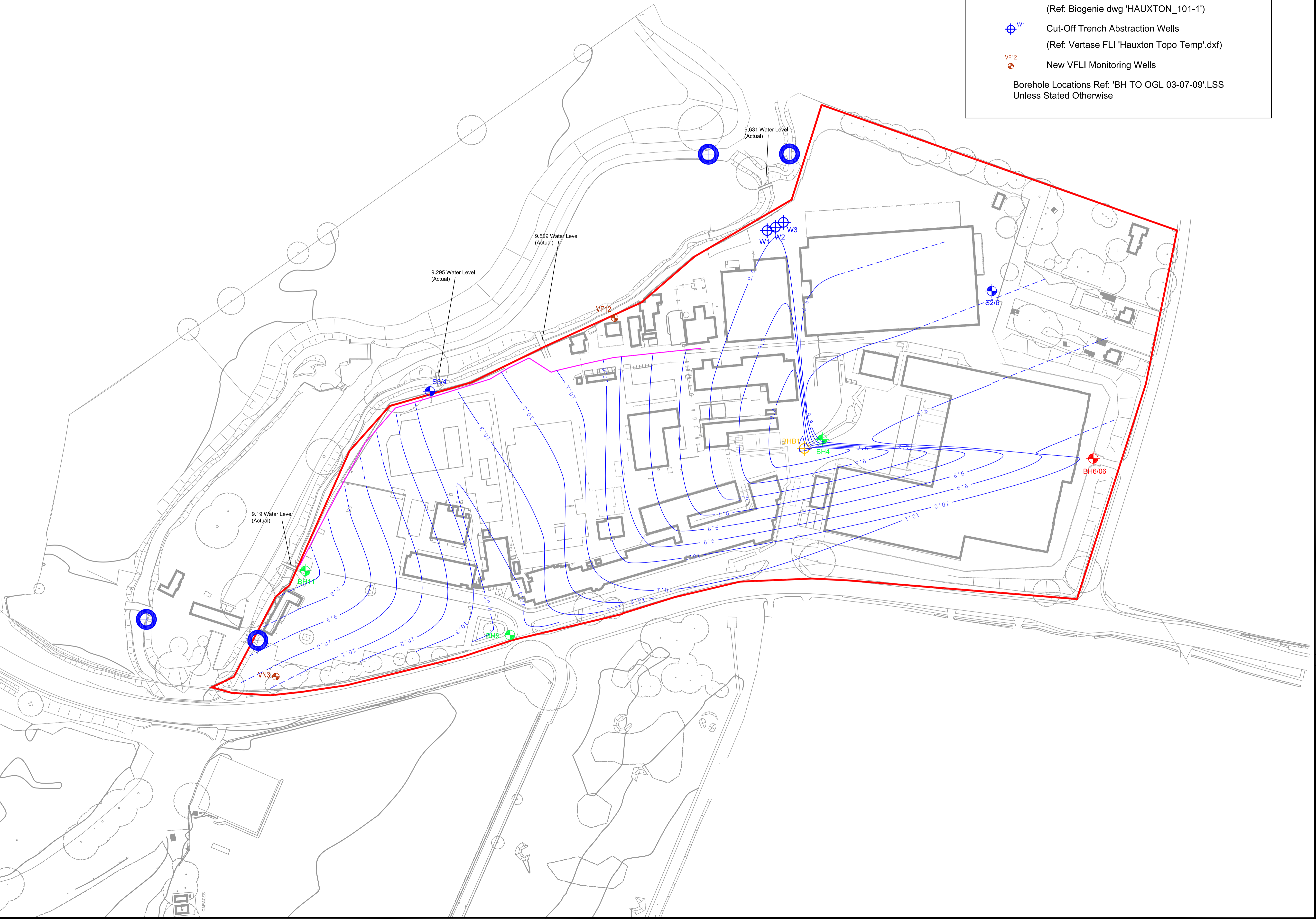
Dwg: D907\_158    Contract: 907 BR1    Scale: 1:1000



**Legend**

-  BH1/06 Atkins Exploratory Hole Location
-  BH7, PS7 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)
-  VF12 New VFLI Monitoring Wells

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



FIRST ISSUE	07-04-11		
Rev.	Description	Revised By	Date

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

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

Site Address:	Rev:
Bayer Site Hauxton Cambridge	

Title: Ground Water Contours 31-03-11		
Client: Harrow Estates		
Drawn: MRG	Checked: MA	Approved: MA
Dwg: D907_159	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	6.6	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
01/07/2010	19/07/2010	205613	WWTW Discharge	3.3	290.00	370.00	13	0.07	<3	8.1	<0.01	<0.01	<0.01	0.00	<0.1	0.40	<0.1	<0.1	<0.1
05/08/2010	16/08/2010	208693	WWTW Discharge	<1.0	160.00	300.00	<10	<0.05	<3	8.0	0.02	0.09	0.02	0.13	<0.5	0.40	<0.1	<0.1	<0.1
19/08/2010	26/08/2010	209961	WWTW Discharge	<0.1	160.00	260.00	<10	<0.05	<3	7.7	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.1	<0.1	<0.1
01/09/2010	09/09/2010	211356	WWTW Discharge	2.6	180.00	280.00	<10	<0.05	5	8.1	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.1	2.9	<0.1
16/09/2010	29/09/2010	212901	WWTW Discharge	<0.1	86.00	170.00	<10	0.08	<3	7.9	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.1	24	3.5
24/09/2010	04/10/2010	213745	WWTW Discharge	<0.1	160.00	340.00	35	<0.05	<3	8.0	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.1	24	0.6
08/10/2010	21/10/2010	215625	WWTW Discharge	<0.1	150.00	270.00	<10	<0.05	<3	8.2	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.1	52	2.2
21/10/2010	01/11/2010	216826	WWTW Discharge	<0.1	200.00	240.00	11	<0.05	<3	7.7	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.1	24	9.4
10/11/2010	22/11/2010	218850	WWTW Discharge	<0.1	81.00	120.00	<10	<0.05	<3	8.1	<0.01	0.03	<0.01	0.03	<0.1	0.7	<0.1	15	6.2
16/11/2010	23/11/2010	219447	WWTW Discharge	<0.1	150.00	160.00	<10	<0.05	<3	8.0	<0.01	<0.01	<0.01	0.00	<0.1	0.9	0.1	14	24
09/12/2010	23/12/2010	222558	WWTW Discharge	<0.2	64.00	120.00	<10	0.73	<3	8.1	<0.01	<0.01	<0.01	0.00	<0.1	2.9	0.3	10	5.1
22/12/2010	13/01/2011	223307	WWTW Discharge	<0.1	66.00	100.00	<10	<0.05	<3	8.0	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.01	11	8.5
13/01/2011	25/01/2011	224623	WWTW Discharge	<0.2	92.00	140.00	<10	0.38	<3	7.6	<0.01	0.05	<0.01	0.05	<0.1	<0.1	0.1	15	6.5
15/02/2011	23/02/2011	228099	WWTW Discharge	<0.1	170.00	220.00	<10	0.08	<3	9.1	<0.01	<0.01	<0.01	0.00	1.1	<0.1	<0.01	<0.1	<0.1
02/03/2011	15/03/2011	229789	WWTW Discharge	<0.1	220.00	290.00	<10	<0.05	<3	8.2	<0.01	0.02	<0.01	0.02	<0.1	0.4	<0.1	0.9	0.4
23/03/2011	01/04/2011	232143	WWTW Discharge	<0.1	190.00	210.00	<10	<0.05	<3	7.9	<0.01	0.02	<0.01	0.02	<0.1	<0.1	<0.1	0.5	0.2



# Scientific Analysis Laboratories

## Certificate of Analysis

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

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Hadfield House, Hadfield Street, Manchester M16 9FE

**Report Number:** Supplement to 229789-1

**Date of Report:** 18-Mar-2011

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

**Customer Contact:** The Project Management

**Customer Job Reference:** 907 BRI WWTW  
**Date Job Received at SAL:** 03-Mar-2011  
**Date Analysis Started:** 03-Mar-2011  
**Date Analysis Completed:** 15-Mar-2011

The results reported relate to samples received in the laboratory  
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation  
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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 :  
Amelia McVennon  
Project Manager

<b>SAL Reference:</b> 229789						
<b>Customer Reference:</b> 907 BRI WWTW						
<b>Water</b>		Analysed as Water				
<b>Miscellaneous</b>						
<b>SAL Reference</b>			<b>229789 001</b>		<b>229789 002</b>	
<b>Customer Sample Reference</b>			<b>Discharge WWTW</b>		<b>Primary WWTW</b>	
<b>Date Sampled</b>			<b>03-MAR-2011</b>		<b>03-MAR-2011</b>	
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>		
Ammoniacal nitrogen	T4	AR	0.05	mg/l	<0.05	<0.05
Biochemical Oxygen Demand	T7	AR	3	mg/l	<3	<3
pH	T7	AR			<b>8.2</b>	<b>8.3</b>

<b>SAL Reference:</b> 229789						
<b>Customer Reference:</b> 907 BRI WWTW						
<b>Water</b>		Analysed as Water				
<b>Suite A</b>						
<b>SAL Reference</b>			<b>229789 001</b>		<b>229789 002</b>	
<b>Customer Sample Reference</b>			<b>Discharge WWTW</b>		<b>Primary WWTW</b>	
<b>Date Sampled</b>			<b>03-MAR-2011</b>		<b>03-MAR-2011</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	<0.01
Trietazine	T16	AR	0.01	µg/l	<b>0.02</b>	<b>0.28</b>

<b>SAL Reference:</b> 229789						
<b>Customer Reference:</b> 907 BRI WWTW						
<b>Water</b>		Analysed as Water				
<b>Suite B</b>						
<b>SAL Reference</b>			<b>229789 001</b>		<b>229789 002</b>	
<b>Customer Sample Reference</b>			<b>Discharge WWTW</b>		<b>Primary WWTW</b>	
<b>Date Sampled</b>			<b>03-MAR-2011</b>		<b>03-MAR-2011</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	<0.1
2,3,6-TCB	T16	AR	0.1	µg/l	<b>0.4</b>	<b>8.3</b>

<b>SAL Reference:</b> 229789						
<b>Customer Reference:</b> 907 BRI WWTW						
<b>Water</b>		Analysed as Water				
<b>Suite C</b>						
<b>SAL Reference</b>			<b>229789 001</b>		<b>229789 002</b>	
<b>Customer Sample Reference</b>			<b>Discharge WWTW</b>		<b>Primary WWTW</b>	
<b>Date Sampled</b>			<b>03-MAR-2011</b>		<b>03-MAR-2011</b>	
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>		
Bromide	T253	AR	100	µg/l	<1000	<1000
Chloride	T253	AR	200	µg/l	<b>220000</b>	<b>230000</b>
Sulphate ion	T253	AR	100	µg/l	<b>290000</b>	<b>290000</b>
Suspended Solids (Total)	T2	AR	10000	µg/l	<10000	<10000





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Fax : 0161 874 2468

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**Report Number:** 232143-1

**Date of Report:** 01-Apr-2011

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

**Customer Contact:** The Project Management

**Customer Job Reference:** 907 BRI  
**Customer Purchase Order:** 907 BRI  
**Date Job Received at SAL:** 24-Mar-2011  
**Date Analysis Started:** 24-Mar-2011  
**Date Analysis Completed:** 31-Mar-2011

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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

<b>SAL Reference:</b> 232143 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Miscellaneous</b>						
			<b>SAL Reference</b>		<b>232143 001</b>	<b>232143 002</b>
			<b>Customer Sample Reference</b>		<b>PRIMARY</b>	<b>DISCHARGE</b>
			<b>Date Sampled</b>		<b>21-MAR-2011</b>	<b>21-MAR-2011</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	<50
Biochemical Oxygen Demand	T7	AR	3000	µg/l	<3000	<3000
pH	T7	AR			<b>7.8</b>	<b>7.9</b>

<b>SAL Reference:</b> 232143 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Suite A</b>						
			<b>SAL Reference</b>		<b>232143 001</b>	<b>232143 002</b>
			<b>Customer Sample Reference</b>		<b>PRIMARY</b>	<b>DISCHARGE</b>
			<b>Date Sampled</b>		<b>21-MAR-2011</b>	<b>21-MAR-2011</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>		
Atrazine	T16	AR	0.01	µg/l	<b>0.11</b>	<0.01
Trietazine	T16	AR	0.01	µg/l	<b>0.25</b>	<b>0.02</b>

<b>SAL Reference:</b> 232143 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Suite B</b>						
			<b>SAL Reference</b>		<b>232143 001</b>	<b>232143 002</b>
			<b>Customer Sample Reference</b>		<b>PRIMARY</b>	<b>DISCHARGE</b>
			<b>Date Sampled</b>		<b>21-MAR-2011</b>	<b>21-MAR-2011</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	<0.1
2,3,6-TCB	T16	AR	0.1	µg/l	<b>2.5</b>	<0.1

<b>SAL Reference:</b> 232143 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Suite C</b>						
			<b>SAL Reference</b>		<b>232143 001</b>	<b>232143 002</b>
			<b>Customer Sample Reference</b>		<b>PRIMARY</b>	<b>DISCHARGE</b>
			<b>Date Sampled</b>		<b>21-MAR-2011</b>	<b>21-MAR-2011</b>
<b>Determinand</b>	<b>Method</b>	<b>Test Sample</b>	<b>LOD</b>	<b>Units</b>		
Bromide	T253	AR	100	µg/l	<sup>(9)</sup> <1000	<sup>(9)</sup> <1000
Chloride	T253	AR	200	µg/l	<b>180000</b>	<b>190000</b>
Sulphate ion	T253	AR	100	µg/l	<b>210000</b>	<b>210000</b>
Suspended Solids (Total)	T2	AR	10000	µg/l	<10000	<10000



<b>SAL Reference:</b> 232143 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Suite D</b>						
<b>SAL Reference</b>			<b>232143 001</b>	<b>232143 002</b>		
<b>Customer Sample Reference</b>			<b>PRIMARY</b>	<b>DISCHARGE</b>		
<b>Date Sampled</b>			<b>21-MAR-2011</b>	<b>21-MAR-2011</b>		
Determinand	Method	Test Sample	LOD	Units		
Dicamba	T16	AR	0.1	µg/l	<0.1	<0.1
Hempa	T16	AR	0.1	µg/l	<b>2.2</b>	<b>0.5</b>
Schradan	T16	AR	0.1	µg/l	<b>1.5</b>	<b>0.2</b>
Simazine	T16	AR	0.01	µg/l	<b>0.06</b>	<0.01

<b>SAL Reference:</b> 232143 <b>Customer Reference:</b> 907 BRI  <b>Water</b> Analysed as Water <b>Suite E</b>						
<b>SAL Reference</b>			<b>232143 001</b>	<b>232143 002</b>		
<b>Customer Sample Reference</b>			<b>PRIMARY</b>	<b>DISCHARGE</b>		
<b>Date Sampled</b>			<b>21-MAR-2011</b>	<b>21-MAR-2011</b>		
Determinand	Method	Test Sample	LOD	Units		
TVC at 22 C after 3 days	T34	AR	10	cfu/ml	<b>8000</b>	<b>9900</b>
TVC at 37 C after 2 days	T34	AR	10	cfu/ml	<b>40</b>	<b>640</b>

## Index to symbols used in 232143-1

Value	Description
AR	As Received
9	LOD raised due to dilution of sample
W	Analysis was performed at another SAL laboratory
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

## Method Index

Value	Description
T7	Probe
T4	Colorimetry
T16	GC/MS
T253	IC(EID299)
T2	Grav
T34	Micro

## Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
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	001-002
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
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	WN	001-002
Dicamba	T16	AR	0.1	µg/l	N	001-002
Hempa	T16	AR	0.1	µg/l	N	001-002
Schradan	T16	AR	0.1	µg/l	N	001-002
Simazine	T16	AR	0.01	µg/l	N	001-002

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
TVC at 22 C after 3 days	T34	AR	10	cfu/ml	SN	001-002
TVC at 37 C after 2 days	T34	AR	10	cfu/ml	SN	001-002



Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Dicamba	T16	AR	0.1	µg/l	N	001-002
Hempa	T16	AR	0.1	µg/l	N	001-002
Schradan	T16	AR	0.1	µg/l	N	001-002
Simazine	T16	AR	0.01	µg/l	N	001-002
TVC at 22 C after 3 days	T34	AR	10	cfu/ml	SN	001-002
TVC at 37 C after 2 days	T34	AR	10	cfu/ml	SN	001-002



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

Results Received	Reported to SCDC	Grid square	Contaminant	Concentration (µg/kg)	Likely use/origin
12.04.2010	06.05.2010	K15	VOC/SVOC peaks detected		
12.04.2010	06.05.2010	K16	Series of Aromatic Hydrocarbons circa C <sub>13</sub> -C <sub>16</sub>	17,000	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.
15.04.2010	06.05.2010 (09.06.2010)	J16	2(1-methylpropyl)-phenol	10,000	Encountered and assessed during site investigation, not a priority contaminant
			2,6-bis(1-methylpropyl)-phenol	100,000	Commonly used in the manufacture of specialty surfactants used as wetting agents for agrochemicals.
			2,6-bis(1,1-dimethylethyl)-4-(1-methylpropyl)-phenol	6,000	Commonly used as an antioxidant and stabiliser, also used in oils used in industrial applications.
			Unidentified branched aromatic alcohol, C <sub>14</sub>	240,000	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
			Unidentified branched aromatic alcohol, C <sub>18</sub>	290,000	
15.04.2010	06.05.2010	K14	Phenanthrene	4,100	Encountered and assessed during site investigation, concentration below target value
			Fluoranthene	4,800	
			Pyrene	3,900	
			Benzo(b/k)Fluoranthene	2,200	
07.05.2010	24.05.2010	K9	Dodecanoic acid (Lauric acid), iso-octyl ester	2,400	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>	2,300	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.
07.05.2010	24.05.2010 (09.06.2010)	L8	2,4-Dichloro-o-cresol	9,000	Potential herbicide degradation product
			Bis(2-ethylhexyl) maleate	3,800	Commonly used as an intermediate in hydrogenation or acetylation reactions, possibly used in agrochemicals manufacture
			Cyclo octatomic sulphur	2,800	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), iso-octyl ester	7,400	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>	8,400	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.

07.05.2010	24.05.2010	L9	Unidentified Aliphatic Hydrocarbon circa C <sub>30</sub>	2,300	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.
13.05.2010	24.05.2010	H8	No VOC/SVOC peaks detected		
13.05.2010	24.05.2010 (09.06.2010)	H9	1,2-bis(2,4,6-trichlorophenoxy)ethane	6,900	Potential Prochloraz degradation product
			Prochloraz	9,100	Fungicide
			Unidentified aromatic hydrocarbon containing Cl circa C <sub>8</sub>	9,400	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>	2,100	
13.05.2010	24.05.2010	I7	No SVOC peaks detected		
13.05.2010	24.05.2010 (09.06.2010)	I9	2,4-Dichloro-o-cresol	29,000	Potential herbicide degradation product
			2,3,6-Trichlorotoluene	47,000	
			1-(2-Chloroethoxy)-2-(o-Tolyloxy)-ethane	20,000	
			Unidentified aromatic alcohol containing Cl circa C <sub>7</sub>	25,000	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>	12,000	
13.05.2010	24.05.2010	J7	No VOC/SVOC peaks detected		
20.05.2010	24.05.2010	J8	No VOC/SVOC peaks detected		
26.05.2010		J9	No VOC/SVOC peaks detected		
04.06.2010	16.06.2010 (09.06.2010)	H7	Dichloromethyl phenol	2,100	Same as 2,4-Dichloro-o-cresol (I9)
05.05.2010	16.06.2010 (09.06.2010)	K7	1,2-bis(2,4,6-trichlorophenoxy)ethane	2400.0	As for H9
05.05.2010	16.06.2010	K8	No VOC/SVOC peaks detected		
18.06.2010	29.06.2010	I8	2-methyl phenol	5,500	Encountered and assessed during site investigation, not a priority contaminant
			1,2-dichlorobenzene	3,600	Contaminant of concern, already included in the standard validation suite
17.06.2010	29.06.2010 (09.06.2010)	K10	2,4-Dichloro-o-cresol	550,000	As for I9 and H7
22.06.2010		L10	Cyclo octaatomic sulphur	16,000	As for L8 - Sulphur
20.07.2010	21.07.2010	K10 NAPL	Dichloromethyl phenol	1,800,000	As for 2,4-Dichloro-o-cresol (I9, H7, K10)
			Naphthalene	4,600,000	Encountered and assessed during site investigation, not a priority contaminant
			2-methylnaphthalene	3,900,000	Encountered and assessed during site investigation, not a priority contaminant
			1-methylnaphthalene CAS 90-12-0	2,400,000	More toxic than 2-methylnaphthalene, must be assessed separately
			Dinoseb CAS 88-85-7	68,000,000	2-(1-methylpropyl)-4,6-dinitro-phenol - herbicide and insecticide. Yellow crystalline solid.
21.07.2010	22.07.2010	J10	Dichloromethyl phenol	24,000	As for 2,4-Dichloro-o-cresol (I9, H7, K10)
			1-(2-Chloroethoxy)-2-(o-Tolyloxy)-ethane CAS 21120-80-9	13,000	Same as I9
			1,2,4-Trichlorobenzene	28,000	Encountered and assessed during site investigation, not a priority contaminant
			Trichlorobenzene	32,000	



			2-Chlorotoluene	60,000	Investigation, not a priority contaminant
			Trichloro toluene isomer	48,000	Same as I9
			Trichloro benzenamine isomer	11,000	
			2,3-Dichlorotoluene CAS 32768-54-0	290,000	Potential herbicide degradation product
21.07.2010	22.07.2010	L11	Dichloromethyl phenol	5,000	As for 2,4-Dichloro-o-cresol (I9, H7, K10, J10)
28.07.2010	02.08.2010	H10	2,4-Dichloro-o-cresol CAS 1570-65-6	10,000	As for I9, H7, K10, J10, L11
			Trichloro toluene isomers	58,000	Same as I9, J10
			Dichlorotoluene isomer	52,000	6 possible isomers, but very little data, using surrogate.
			2-Chlorotoluene	39,000	Encountered and assessed during site investigation, not a priority contaminant
			Trichlorobenzene	350,000	
28.07.2010	02.08.2010	I10	2,4-Dichloro-o-cresol CAS 1570-65-6	5,000	As for I9, H7, K10, J10, L11, H10
			Trichloro toluene isomers	24,000	Same as I9, J10, H10
03.08.2010	04.08.2010	L12	2,4-Dichloro-o-cresol CAS 1570-65-6	7,000	As for I9, H7, K10, J10, L11, H10, I10
03.08.2010	04.08.2010	L13	No VOC/SVOC peaks detected		
03.08.2010	04.08.2010	K12	2,4-Dichloro-o-cresol CAS 1570-65-6	7,000	As for I9, H7, K10, J10, L11, H10, I10, L12
03.08.2010	04.08.2010	K13 sand & gravel	Cyclo octaatomic sulphur	68,000	As for L8, L10 - Sulphur
05.08.2010	N/A	K13 chalk	2,4-Dichloro-o-cresol CAS 1570-65-6	650,000	As for I9, H7, K10, J10, L11, H10, I10, L12, K12
			Trichloro toluene isomers	1,140,000	Same as I9, J10, H10, I10
			1-(2-Chloroethoxy)-2-(o-Tolyloxy)-ethane CAS 21120-80-9	140,000	Same as I9 and J10
			Dichlorotoluene isomer	99,000	Same as J10, H10
			2-Chlorotoluene	12,000	Encountered and assessed during site investigation, not a priority contaminant
05.08.2010	N/A	K11	2,4-Dichloro-o-cresol CAS 1570-65-6	22,000	As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13
05.08.2010	N/A	J11	2,4-Dichloro-o-cresol CAS 1570-65-6	220,000	As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13
			Trichloro toluene isomers	376,000	Same as I9, J10, H10, I10, K13
			Dinoseb CAS 88-85-7	90,000	Same as K10
			Dichlorotoluene isomer	18,000	Same as H10, K13
			2-Chlorotoluene	13,000	Encountered and assessed during site investigation, not a priority contaminant
12.08.2010	17.08.2010	J12	2-chloro Benzenemethanol CAS 17849-38-6	620	Potential agrochemical synthesis ingredient further investigation is required
			2-Chlorobenzalazine CAS 5328-80-3	5,900	
			2,4-Dichloro-o-cresol CAS 1570-65-6	2,000	As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13, J11
			2(1-methylpropyl)-phenol	610	Encountered and assessed during site investigation, not a priority contaminant
12.08.2010	N/A	J13	2,4-Dichloro-o-cresol CAS 1570-65-6	3,400	As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13, J11, J12

24.08.2010	25.08.2010	J14	Total Petroleum Hydrocarbons (C5-C12)	43,000	Encountered and assessed during site investigation, not a priority contaminant	
			1,3,5-Trimethylbenzene CAS 108-67-8	1,600		Encountered and assessed during site investigation, not a priority contaminant
			1,2,4-Trimethylbenzene CAS 95-63-6	600		
			1,2,3-Trimethylbenzene CAS 526-73-8	700		Isomers encountered and assessed during site investigation, quantitative risk assessment not required
			1-Ethyl-2-Methylbenzene CAS 611-14-3	500		
25.08.2010	N/A	I13	1-methylnaphthalene CAS 90-12-0	100	Same as K10NAPL	
			Phenanthrene	200		Encountered and assessed during site investigation, not a priority contaminant
			Fluoranthene	300		
			Pyrene	300		
			Benzo(b/k)Fluoranthene	200		
01.09.2010	N/A	I14	Trichloro methyl benzene (trichloro toluene)	400	Same as I9, J10, H10, I10, K13, J11	
01.09.2010	N/A	I15	Dichlorocresol	2600	As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13, J11, J12	
			Dichlorophenoxybutyric acid	6300		Herbicide encountered and assessed during site investigation, similar to MCPA and Mecoprop which are higher risk substances, therefore not a priority contaminant
01.09.2010	N/A	H14	No VOC/SVOC peaks detected			
01.09.2010	N/A	H15	No VOC/SVOC peaks detected			
03.09.2010	N/A	I11	Dichlorocresol	3,300	As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13, J11, J12, I15	
			Trichloro methyl benzene (trichloro toluene)	1,000		Same as I9, J10, H10, I10, K13, J11, I14
			Prochloraz CAS 67747-09-5	800		Same as H9
03.09.2010	N/A	I12	1-methylnaphthalene CAS 90-12-0	40,000	Same as K10NAPL, I13	
			Dibenzofuran	24,000		Encountered and assessed during site investigation, not a priority contaminant
			Phenanthrene	60,000		
			Fluoranthene	29,000		
			Acenaphthene	31,000		
24.09.2010	N/A	J15	Methylpropyl phenol	340	Encountered and assessed during site investigation, not a priority contaminant	
24.09.2010	28.09.2010	H13	Oxathiane 4,4-dioxide CAS 107-61-9	220	Same as I9, J10, H10, I10, K13, J11, I14, I11	
	N/A		Trichloro methyl benzene (trichloro toluene)	230		
			Dichloromethylphenol	2100		As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13, J11, J12, I15, I11
			1-(2-Chloroethoxy)-2-(o-Tolyloxy)-ethane CAS 21120-80-9	470		Same as I9, J10, K13
01.10.2010	N/A	H11	No VOC/SVOC peaks detected			
01.10.2010	05.10.2010	H12	Indane CAS 496-11-7	3700000	2-ring hydrocarbon	
	N/A		Ethyltoluene (ethyl methyl benzene) isomer	4500000		As J14

			Bis methylpropyl phenol isomer	980000	As J16
			1,3,5-Trimethylbenzene	3900000	Encountered and assessed during site investigation, not a priority contaminant
			1,2,4-Trimethylbenzene	10000000	
			1,2,3-Trimethylbenzene	3100000	
22.10.2010 (216017)	25.10.2010 N/A	G12	Nicotine	6400	Natural insecticide
			Dichloromethyl phenol	2900	As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13, J11, J12, I15, I11, H13
			Methylpropyl phenol	9400	Encountered and assessed during site investigation, not a priority contaminant
			Schradan	1200	Contaminant of concern, already included in the standard validation suite
22.10.2010 (216017)	N/A	G13	1-methylnaphthalene CAS 90-12-0	170	Same as K10NAPL, I13, I12
			Isophorone CAS 78-59-1	530	Encountered and assessed during site investigation, not a priority contaminant
			Naphthalene	690	
			2-methylnaphthalene	270	
			Phenanthrene	410	
			Fluoranthene	380	
			Pyrene	310	
22.10.2010 (216017)	N/A	G14	No VOC/SVOC peaks detected		
29.10.2010 (216821)	N/A	H17	No VOC/SVOC peaks detected		
29.10.2010 (216821)	N/A	G17	No VOC/SVOC peaks detected		
01.11.2010 (216817)	30.11.2010	G10	Dibromochloromethane CAS 124-48-1	300	Risk Assessment
			N/A	Dichloromethyl phenol	1300
	Isophorone			7100	Encountered and assessed during site investigation, not a priority contaminant
	Benzyl Chloride (1-chloro-2-methylbenzene CAS 95-49-8)			200	
	N/A		Methylpropyl phenol	7100	
3,3,5-trimethyl cyclohexanone		700			
01.11.2010 (216817)	N/A	G11	Dichloromethyl phenol	2300	As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13, J11, J12, I15, I11, H13, G12, G10
			Trichloro methyl benzene (trichloro toluene)	2400	Same as I9, J10, H10, I10, K13, J11, I14, I11, H13
			1-Methyl naphthalene	760	Same as K10NAPL, I13, I12, G13
			2-methyl phenol	800	Encountered and assessed during site investigation, not a priority contaminant
			Methylpropyl phenol	22000	
			2-Methylnaphthalene	1500	
			2,4,5-Trichlorophenol	360	
			Chloroform	500	
			1,2-dibromoethane	700	
			EthylBenzene	1800	
			1,4-Dichlorobenzene	700	
1,2,3-Trichlorobenzene	2000				
01.11.2010	30.11.2010	G15	Ethyl methyl phenol	18000	Risk Assessment

(216817)	N/A		Dimethyl naphthalene	59000	Risk Assessment
			Dichloromethyl phenol	2400	As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13, J11, J12, I15, I11, H13, G12, G10, G11
			1-Methyl naphthalene	26000	Same as K10NAPL, I13, I12, G13
			1-ethyl-3-methyl benzene (ethyl toluene)	600	As J14, H12
			Ethyltoluene	300	
			Isophorone	37000	Encountered and assessed during site investigation, not a priority contaminant
			Naphthalene	43000	
			Methylpropyl phenol	30000	
			2-Methylnaphthalene	21000	
			Phenanthrene	110000	
			Fluoranthene	69000	
			1,3,5-Trimethylbenzene	900	
			1,2,4-Trimethylbenzene	1600	
	1,2,3-Trimethylbenzene	400			
08.11.2010 (217789)	N/A	M7	No VOC/SVOC peaks detected		
08.11.2010 (217789)	N/A	M8	2-methyl phenol	11,000	Encountered and assessed during site investigation, not a priority contaminant
08.11.2010 (217793)	N/A	M6	No VOC/SVOC peaks detected		
08.11.2010 (217793)	N/A	N6	No VOC/SVOC peaks detected		
08.11.2010 (217795)	N/A	L5	No VOC/SVOC peaks detected		
08.11.2010 (217795)	N/A	M4	No VOC/SVOC peaks detected		
08.11.2010 (217797)	N/A	M5	No VOC/SVOC peaks detected		
08.11.2010 (217797)	N/A	N4	No VOC/SVOC peaks detected		
08.11.2010 (217797)	N/A	N5	No VOC/SVOC peaks detected		
08.11.2010 (217800)	N/A	M9	No VOC/SVOC peaks detected		
18.11.2010 (218834)	N/A	I6	No VOC/SVOC peaks detected		
23.11.2010 (219458)	N/A	L4	No VOC/SVOC peaks detected		
23.11.2010 (219456)	N/A	N3	No VOC/SVOC peaks detected		
20.01.2011 (224432)	N/A	F11	No VOC/SVOC peaks detected		
20.01.2011 (224432)	N/A	F12	No VOC/SVOC peaks detected		
20.01.2011 (224432)	24.01.2011	F13	Total Petroleum Hydrocarbons (C8-C14)	16000	Controlled Waters risk assessment required, Human Health risk assessment previously actioned
20.01.2011 (224432)	24.01.2011	E12	Total Petroleum Hydrocarbons (C8-C14)	28000	Controlled Waters risk assessment required, Human Health risk assessment previously actioned
	N/A		1-Ethyl-2-Methylbenzene (o-ethyl toluene) CAS 611-14-3	300	As J14, H12, G15

			1,2,4-Trimethylbenzene	700	Encountered and assessed during site investigation, not a priority contaminant
20.01.2011 (224432)	24.01.2011	E13	DDD	4100	Pesticide Risk Assessment Required.
	N/A		m/p ethyl toluene	1200	Encountered and assessed during site investigation, not a priority contaminants
			m-ethyl toluene:1-ethyl-3-methylbenzene, CAS 620-14-4		
		p-ethyl toluene: 1-ethyl-4-methylbenzene, CAS 622-96-8			
	24.01.2011	N/A	Total Petroleum Hydrocarbons (C8-C13)	73000	Controlled Waters risk assessment required, Human Health risk assessment previously actioned
			2,6-bis(1-methylpropyl)-phenol	5000	As J16, H12
			DDT	3200	Encountered and assessed during site investigation, not a priority contaminant
			4-(1-methylpropyl)phenol	2700	
			2(1-methylpropyl)-phenol	12000	
			1,2,3-trimethylbenzene	600	
1,3,5-trimethylbenzene			1700		
1,2,4-trimethylbenzene	3000				
p-Isopropyltoluene	400				
24.01.2011 (224621)	25.01.2011	F15A	No VOC/SVOC peaks detected		
24.01.2011 (224621)	25.01.2011	F15B	No VOC/SVOC peaks detected		
09.02.2011 (226719)	10.02.2011	H6	No VOC/SVOC peaks detected		
09.02.2011 (226719)	10.02.2011	J5	No VOC/SVOC peaks detected		
09.02.2011 (226719)	10.02.2011	J6	No VOC/SVOC peaks detected		
17.03.2011 (230436)	21.03.2011	K5	Bis(2-ethylhexyl) maleate CAS 142-16-5	1,800	As L8
21.03.2011 (230436)	22.03.2011	K6	2,3-Dichlorotoluene CAS 32768-54-0	300	As J10, J11, H10, K13
			Bis(2-ethylhexyl) maleate CAS 142-16-5	2,000	As L8, K5
			Squalene CAS 7683-64-9	2,000	Natural organic compound found in the human body. Used in cosmetics, vaccines and steroid synthesis. Risk assessment not required.
			Glycerol tricaprilate CAS 538-28-8	4,700	Cosmetic ingredient. Risk Assessment notrequired.
28.03.2011 (231689)	29.03.2011	M10	No VOC/SVOC peaks detected		
30.03.2011 (232134)	01.04.2011	L14	No VOC/SVOC peaks detected		