











Environmental Monitoring Report

Reporting Period 29/11/2010-02/01/2011 Supplemental Report

Former Bayer Crop Science Site Hauxton Cambridgeshire

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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 5th February 2010.

The time period that this report represents is from the 29th of November 2010, until the 2nd of January 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 38. Week Commencing 29th November 2010

Crushing and screening of the stockpile of broken concrete continued, preventative measures were in place to stop dust arising from this process. Turning and processing of the treatment beds continued with treatment beds being selected for processing depending on their moisture levels and predominant wind direction. No excavations were undertaken due to heavy snow fall on the site and continued inclement weather.

Week 39. Week Commencing 6th December 2010

Crushing and screening of the recent stockpile of broken concrete continued, preventative measures were in place to stop dust arising from this process. Turning and processing of the treatment beds continued with treatment beds being selected for processing depending on their moisture levels and predominant wind direction. No excavations were undertaken due to unfavourable predominant wind direction. Braking out concrete was undertaken in 17, the hard materials were added to the concrete crush stockpile to be processed. Spent mushroom compost was added to a number of treatment beds to aid in the biodegradation of contaminants and maintain the heat within the treatment beds.

Week 40. Week Commencing 13th December 2010

Excavation of contaminated made ground was undertaken in grid squares D14, D15 and E14, this material was formed in to treatment windrows adjacent to the excavation, this material was non odorous and did not require covering. Crushing of broken concrete continued, the crushing plant was demobilised at the end of the week. Spent mushroom compost was added to a number of treatment beds to aid in the biodegradation of contaminants and maintain the heat within the treatment beds. Ten loads of made ground with asbestos containing material was exported from site under controlled conditions, this material was regarded as being untreatable and was disposed of at a licensed off site facility.

Week 41. Week Commencing 20th December 2010

No works on site due to heavy snow fall.



Week 42. Week Commencing 27th December 2010

No works on site.



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 finding 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 22nd 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. 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 28/10/2010 and 25/11/2010, and 25/11/2010 and 21/12/2010 are reported in appendix C. The analysis of both monitoring periods indicates that the majority of the VOC's detected are around the baseline, except for Tetrachloroethylene and 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 due to the significant amount of snow fall during the reporting period this has prevented real-time dust monitoring 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 99.70µg/m³, the average PM10 dust reading around the site is 53.52µg/m³. 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 26/11/2010 to 10/12/2010 (6 locations monitored) recorded a maximum dust deposition rate was 0.50%EAC at the west and east monitoring locations. All other locations had a maximum dust deposition rate of 0.43%EAC, or less.

Dust monitoring undertaken from the 10/12/2010 to 21/12/2010 (6 locations monitored) recorded a maximum dust deposition rate was 0.58%EAC at the west and south monitoring locations. All other locations had a maximum dust deposition rate of 0.50%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 22nd 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 65dB. 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 has been some minor change in levels along the Riddy Brook due which could be an effect of the recent freezing and thawing conditions.

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 26th November 2010 and samples taken on 22nd December 2010 are presented in Appendix F.

The surface water analysis of the 26^{th} November 2010 shows traces of Trichloroethylene (4 μ g/l), Cis1,2-Dichloroethylene (3 μ g/l), Mecoprop (0.4 μ g/l), Dichloroprop (0.2 μ g/l), and Dicamba (0.2 μ g/l) and Ethofumesate (0.2 μ g/l) were detected in the downstream samples of the Riddy Brook. These trace levels of have been recorded in the baseline data collected prior to the commencement of the remediation project and are not related .to a specific incident.

The surface water analysis of the 22nd December 2010 shows traces of Tetrachloroethylene (1 µg/l) present in both the Riddy Brook upstream and downstream samples and the River Cam



downstream sample, Trichloroethylene (3 µg/l) and Cis1,2-Dichloroethylene (2 µg/l), were also detected in the downstream samples of the Riddy Brook. These trace levels are not related to a specific incident.

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_131, D907_132, and D907_133 (Appendix G) illustrate the weekly groundwater levels for the reported period.

The three contour plots constructed (Appendix G) illustrate that there have been very few subtle changes in groundwater levels during the monitoring period.

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 26th November 2010 and samples taken on 22nd December 2010 are presented in Appendix F.

The contaminant concentrations present in the samples taken on the 26th of November and 22nd of December 2010 are similar to the baseline data collected during the summer of 2008, but there appears to be gradual reduction in concentration of the main contaminants in the groundwater samples.



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 15th 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 02/01/2011, sixty nine 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 two characterisation samples analysed contained a total of twenty one compounds / potential contaminants that had not been previously identified.

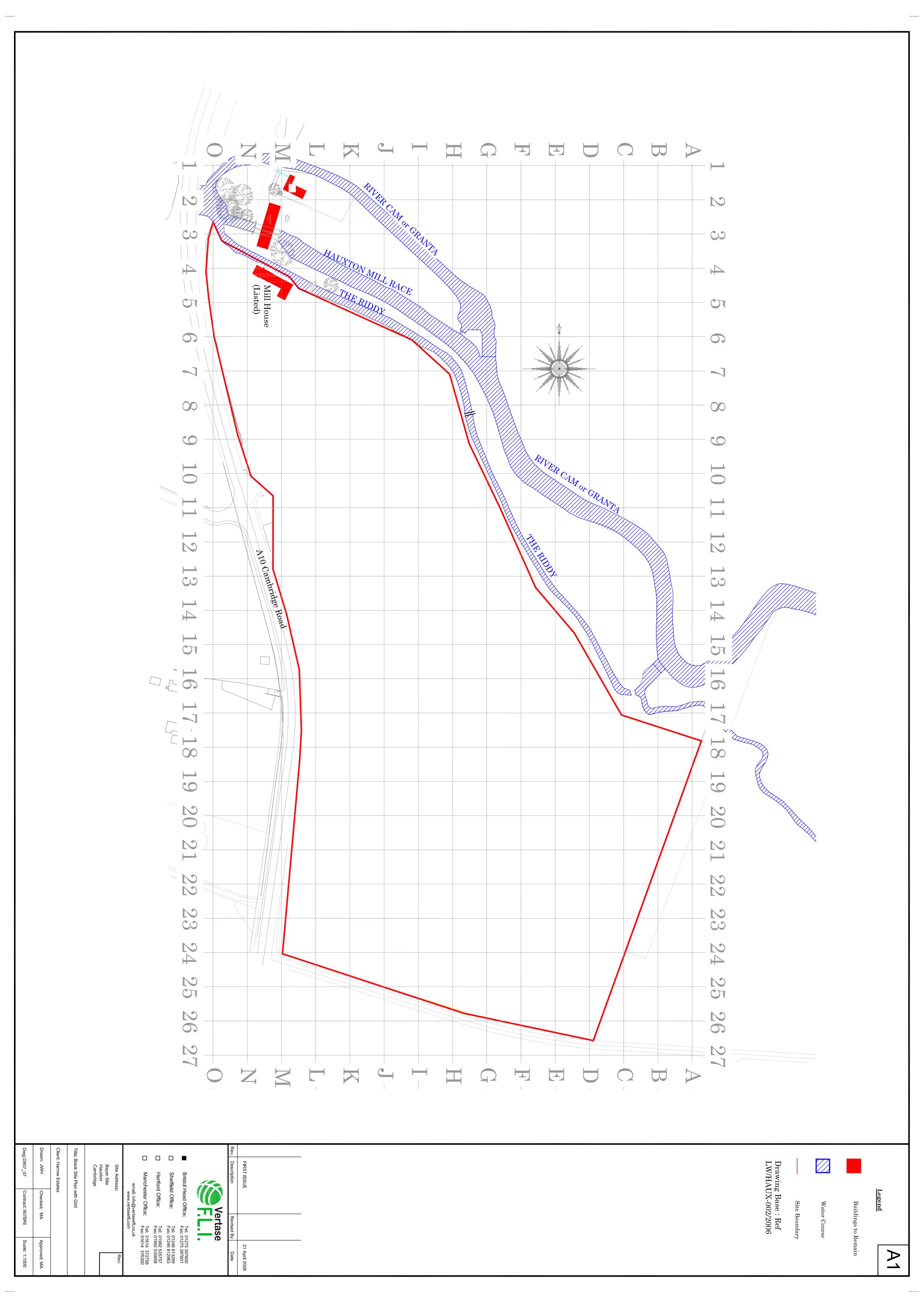
A summary table of the soil characterisation testing is presented in Appendix I, the previously unidentified compounds are listed here, with comments regarding the origin and likely usage on site.

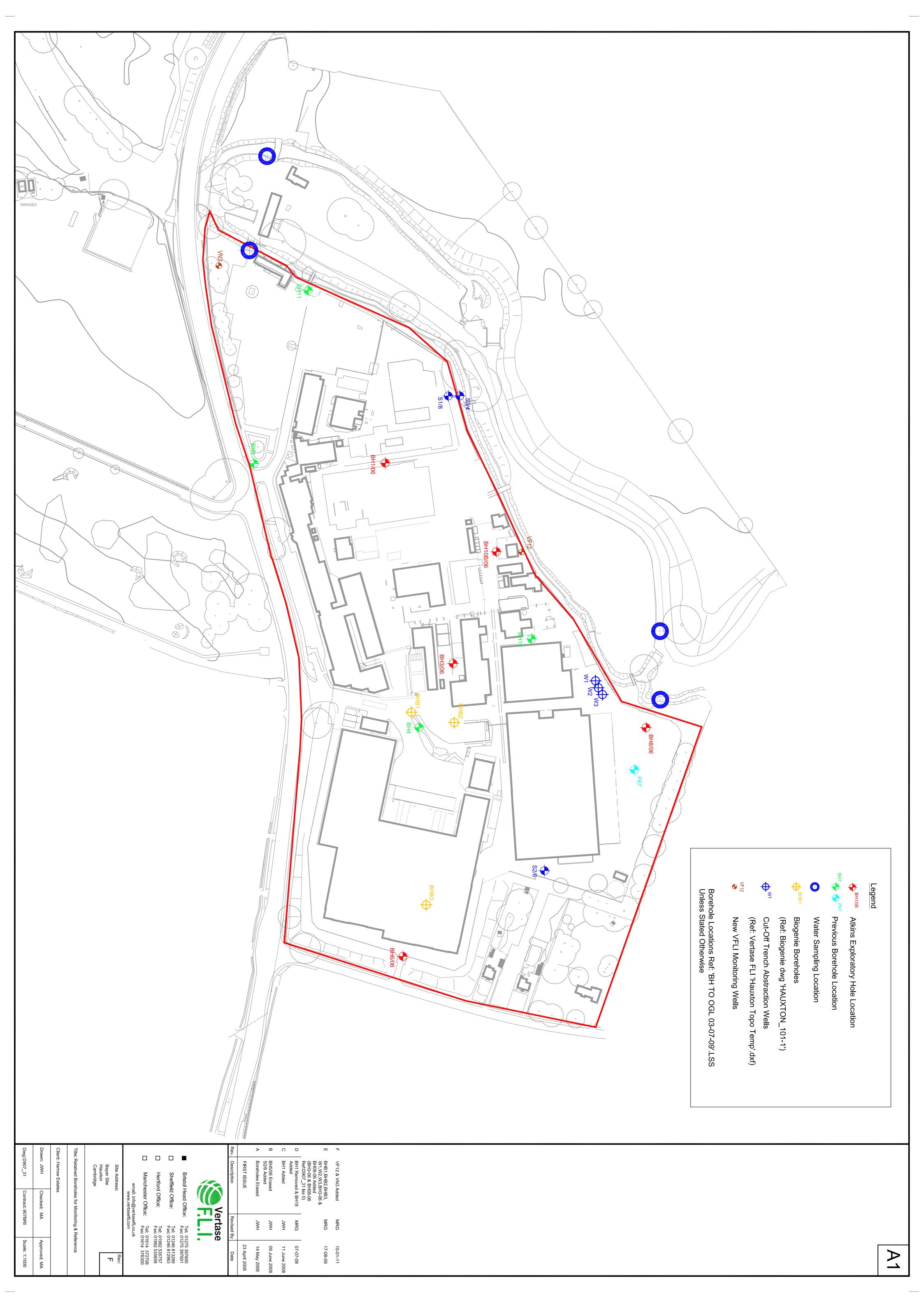
The remediation project consultants Atkins continuously review the soil characterisation analysis and report previously unidentified contaminates in accordance with condition 9, Planning Condition Document ref:S/2307/06/f Issued 10/02/2010.

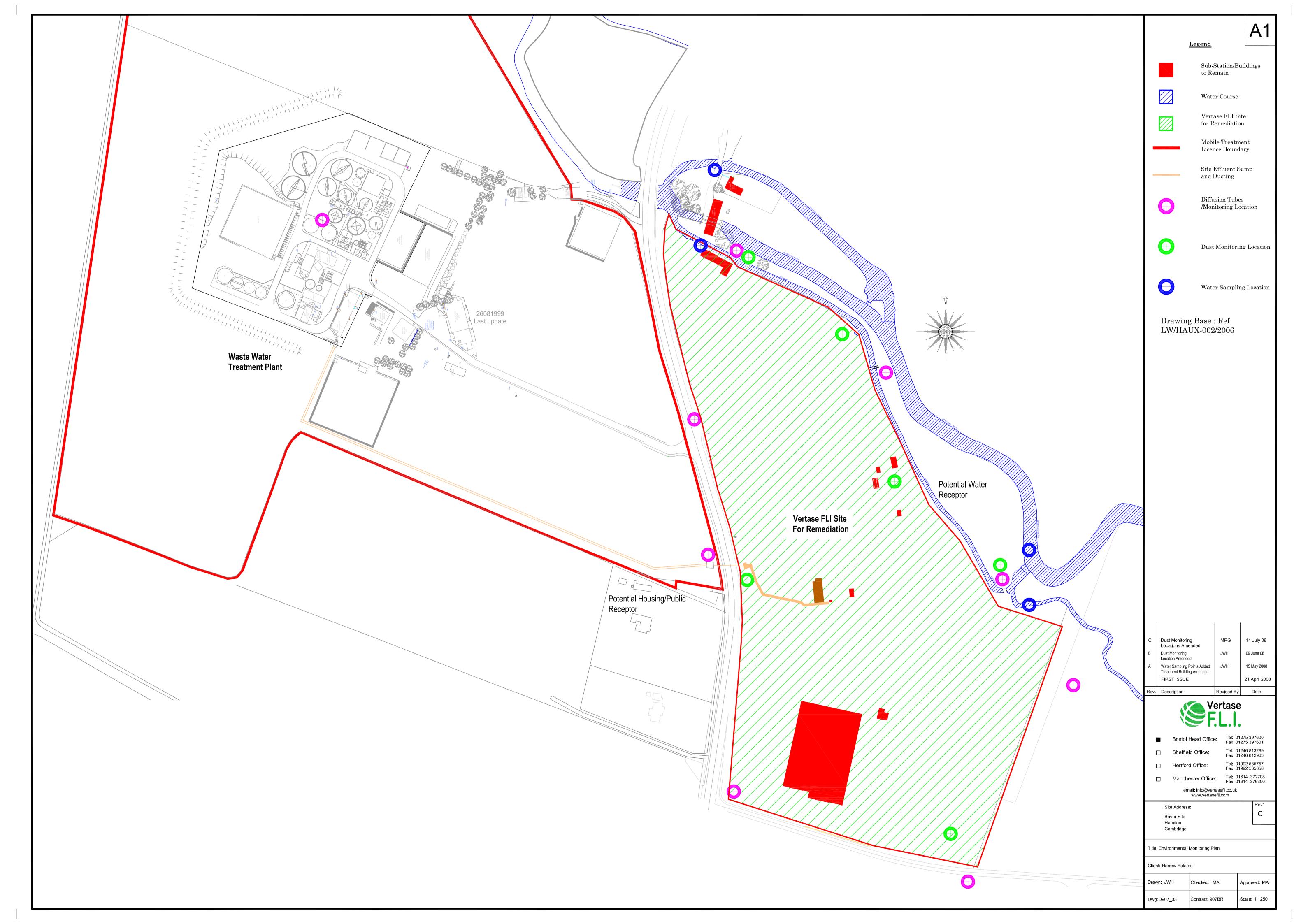


Appendix A

Drawings









Appendix B

Environmental Monitoring Data

							00010					NINT.	Noise			N/SS	a manu				2000 200	III III PII II PARI	HTH OO	Inmotorio	a
Assessor	Date	Daily Activity	Boundary	Start Fini Time Tin	ish Detectability	Intensity (1 to 9)	Quality (Description)	Hedonic Tone	Location Sensitivity (1 to 5)	Odour Source	PID TSP	PM10	Average (dBa)	Present	Materials attracting	Inspection	Water Level (mAOD)	Complaints	Action Required	Wind Speed	Wind A	Description (Rain, Sun)	Cloud	Ground Conditions (Wet, dry)	
					ne (Yes or No) 0.47 y	2	vegetation	(-3 to+3) 0	(1 to 5)	(1 to 5)		140.3	(disa) 58	(Description) no	scavengers no	Clear	9.219			(1 to 6)		snow flurry's	(0 to 8) 6	(Wet, dry) wet, snowy	General Notes
D Holman D Holman	29/11/2010 29/11/2010	excernating in grids-bed turning/concrete crushing excernating in grids-bed turning/concrete crushing excernating in grids-bed turning/concrete crushing excernating in grids-bed turning/concrete crushing	NE NE1	9.42 9 9.36 9 9.30 9	0.41 y 0.35		vegetation	0	2	1 6	160.7 177.4 206.1	163.6 140.2	58	no	no	Clear Clear									
D Holman D Holman D Holman	29/11/2010 29/11/2010	excavating in gridslabed turning/concrete crushing excavating in gridslabed turning/concrete crushing excavating in gridslabed turning/concrete crushing	SE	9.24 9 9.18 9 9.12 9	0.29 y 0.23 n	2	vegetation	0	3	1 6	155.7	32.7	62 56	no no	no	Clear	9.649			\blacksquare	_				
D Holman D Holman D Holman	29/11/2010	excessing in great-less curring-conceive crossing excessing in grids-bed turning-conceive crushing excessing in grids-bed turning-conceive crushing excessing in grids-bed turning-conceive crushing	SW	9.06 9	2.11 y	1	vegetation	0	4		270.1	30.3	75	no no	no no					\blacksquare					
D Holman D Holman	29/11/2010	seconning in gridsoled turning/concrete crushing	NW N	9.48 9	0.53 y	2	regetation regetation and exhaust furnes regetation	0	2	1 6	270.1 48.5 127.3 15 22.1	40.1	79	00	no	Clear	9.219			3 #	w 2	overcast	8	damp/snowy	moderate solvent/earth at southern emergency exit 3/9 0.0ppm
D Holman D Holman	29/11/2010 29/11/2010	bed turning/concrete crushing bed turning/concrete crushing	NE NE1	17.06 17 17.00 17	7.11 y 7.05	í	vegetation	0	2	1 6	127.3	47.3 9.4	58	no	no	Clear				H					
D Holman D Holman	29/11/2010 29/11/2010	sed summiglocones crushing bed summiglocones crushing bed summiglocones conting bed summiglocone	E SE	9.12 9 9.06 9 9.00 9 9.48 9 17.12 17 17.06 17 17.00 17 16.54 16 16.42 16 16.42 16 16.90 16	3.59 y 3.53 y	1	vegetation vegetation	0	3	1 6	22.1	5.8	62 55	no no	no no	Clear	0.649			H		doudy			
			S SW	16.42 16 16.36 16	3.47 y 3.41 y	2	vegetation earthy chemical and vegetation	0	3	3	56.5	28.4	63 73	no no	no no					Ī					
D Holman D Holman D Holman	29/11/2010 29/11/2010	bed suming/concrete crushing bed suming/concrete crushing excevating in grids/bed turning/concrete crushing	NW	17 18 17	3.35 n 7.23 y	2	exhaust fumes and vegetation	0	2	1 6	14.4	7.5	78 79	no no	no										
D Holman D Holman	30/11/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	NE NE	10.12 10 10.06 10 10.00 10	3.17 n 3.11 n				2		23.5 48.4 35.2	27	58	no no	no	Clear	9.219			ľ	E 3	doudy	6	wet snowy	
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D Holman D Holman D Holman	30/11/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	S	9.48 9 9.42 9 9.36 9 9.30 9	0.47 n		solvent and earth	0	3	5 6	76.3	22.9	63	no no	no no					Ħ					
D Holman D Holman	30/11/2010	exceveting in grids/bed turning/concrete crushing exceveting in grids/bed turning/concrete crushing	W NW	9.30 9	0.36 y 0.23 y	1	vegetation vegetation	0	4	1 0	17.7	5.5	78 79	no no	no no					H					
D Holman D Holman	30/11/2010 30/11/2010	excevating in grids/bed turning/concrete crushing excevating in grids/bed turning/concrete crushing	N NE	10.18 10 17.42 17 17.36 17 17.30 17 17.24 17	7.47 n 7.41 n				2				58 57	no no	no no	Clear Clear	9.219			3 r	ne -0.1	dear	-	damp	
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D Holman D Holman	30/11/2010	excevating in grids/bed turning/concrete crushing excevating in grids/bed turning/concrete crushing	SE S	17.18 17 17.12 17 17.06 17	7.23 y 7.17 n		vegetation vegetation	0	3	1 6			63	no no	no					\blacksquare	_				
D Holman D Holman	30/11/2010	excerning in gridsolve turning/concrete crushing excerning in gridsolved turning/concrete crushing	W	17.00 17	7.05 n		vegetation	0	4				79	no no	no no					\blacksquare		S sunny spells			
D Holman	01/12/2010	seasonia y richada diningiocone anchino seasonia y richada diningiocone anchino seasonia y richada diningiocone seasonia y richad	N NE	10.12 10	3.17 n 3.11 y		vegetation	0	2		108	51.1 93.6	57 58	no no	no no	Clear Clear	9.229			5 r	ne -1.5	sunny spells	4	damp	
D Holman D Holman D Holman	01/12/2010 01/12/2010	excevating in gridsibed turning/concrete crushing excevating in gridsibed turning/concrete crushing excevating in gridsibed turning/concrete crushing	NE1 E	10.00 10 9.54 9	0.05 0.50 y		vegetation vegetation	0	2	_	108 191.6 131.6 128.5	121.8 98.6	59	no	no	Clear Clear	9.659			ΕĪ			F		
D Holman	01/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	SE S	9.48 9	0.53 y 0.47 n			0	3	1 6	138	98.5	63	no no	no no					ы					
D Holman D Holman	01/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	W	17.06 17 17.00 17 17.00 17 17.48 17 10.12 10 10.00 10 9.54 9 9.42 9 9.42 9 9.30 9 9.30 9 10.18 10 16.12 16 16.00 16 16.00 16 16.12 16 16.00 16 15.54 15 15.54 15 15.42 15 15.36 15 15.36 15	reily 835 n		earthy solvent and vegetation	0	4	1	157.8	79.4	79	no no	no no					ш			H		
D Holman D Holman D Holman	01/12/2010 01/12/2010 01/12/2010	excessing in gridabed turning/concrete crushing seconstring in gridabed turning/concrete crushing seconstring in gridabed turning/concrete crushing	N N	16.12 16 16.06 16	3.17 n		vegetation		2				58 58	no no	no no	Clear	9.229			0.5 r	ne 0	misty	8	damp	<u> </u>
D Holman D Holman	01/12/2010	excavating in gridsibad turning/concrete crushing excavating in gridsibad turning/concrete crushing excavating in gridsibad turning/concrete crushing	NE1 E	16.00 16 15.54 15	3.05 3.59 y			6	2			1	57	no	no	Clear Clear	9.659			Ħ	=	1	H		1
D Holman	01/12/2010	excevering in grids/bed turning/concrete crushing	SE S	15.48 15	5.53 y 5.47 n		vegetation vegetation	Ó	3	1 6			56 63	no no	no					H					
D Holman D Holman	01/12/2010 01/12/2010	excevating in grids/bed turning/concrete crushing excevating in grids/bed turning/concrete crushing	SW	15.36 15 15.30 15	5.41 y 5.35 n		earth and vegetation	0	4	3 0			75 78	no no	no no										
D Holman D Holman	01/12/2010 02/12/2010	statistical producted distringuissical scripting and statistical producted distringuissical scripting and statistical scripting assessment of scripting and strategic accounting asset scripting and strategic accounting asset scripting assessment of scripting assessment o	N	10.12 10	3.17 n		vegetation	0	2	1 6			79 57	no no	no no	clear	9.229			5 r	0.5	snow showers	8	sunny	
D Holman D Holman	02/12/2010	bed turring/concrete crushing bed turring/concrete crushing	NE1	10.06 10 10.00 10 9.54 9 9.48 9 9.42 9 9.36 9 9.30 9 10.18 10	3.11 y 3.05		regetation regetation	0	2				36	no	no	dear	0.659			\blacksquare	_				
D Holman	02/12/2010	sed surring-concess crosning bed surring-concess crosning	SE o	9.48 9	0.53 y	1	vegetation	0	3	1 6			55	no no	no no	Dear	9.609			Ħ					
D Holman D Holman D Holman	02/12/2010		SW	9.36 9	0.41 y 0.35 y	1	vegetation vegetation	0	4	1 6			69	no no	no no					Ħ					
D Holman D Holman	02/12/2010	bed suming/concrete crushing bed suming/concrete crushing excavating in grids/bed suming/concrete crushing	NW N	10.18 10	0.23 n 7.47 n		*		2	-			78 58	no no	no no	dear	9.229			2 1			ю8	damp	
D Holman D Holman D Holman	02/12/2010 02/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	NE NE1	17.42 17 17.36 17 17.30 17 17.30 17 17.24 17 17.18 17 17.12 17 17.06 17 17.00 17 17.48 17	7.41 n				2				58	no	no	clear clear				Ī		cold cloudy snow si			
D Holman	02/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	SE .	17.24 17	7.29 y 7.23 n	1	regetation	0	3	1 6			56 54	no no	no	clear	9.659				- 4				
D Holman D Holman	02/12/2010	secondary in distributed terrengiconoste constince secondary in distributed terrengiconoste constince secondary in distributed terrengiconoste constince secondario in distributed terrengiconoste constince terrengiconoste constince secondario in distributed terrengiconoste constince terrengiconoste constince	SW	17.12 17	5.17 m	1	vegetation and earth	0	4	3 6			75	no no	no					\blacksquare	_				
D Holman D Holman	02/12/2010	excession of presided committee crossing excession of presided committee crossing led terminative residence	NW N	17.48 17	7.53 y		vegetation	ó	2				80	no no	no no	dear	0.210			05 .		fonny	8	damn frozen	
D Holman D Holman D Holman	03/12/2010	bed turning/concrete crushing had turning/concrete crushing	NE NE1	10.12 10 10.06 10 10.00 10	0.11 y 0.05		vegetation	0	2	1 6			58	no	no	clear				Ě				ua piiozeii	
D Holman D Holman	03/12/2010	bed suming/concrete crushing bed suming/concrete crushing bed suming/concrete crushing bed suming/concrete crushing bed suming/concrete crushing	E SE	9.54 9 9.48 9 9.42 9	0.59 y 0.53 n	1	regetation	0	3	1 0			58 58	no no	no no	dear	9.659								
D Holman D Holman	03/12/2010 03/12/2010	bed turning/concrete crushing bed turning/concrete crushing	SW	9.36 9	0.47 n 0.41 y		vegetation	0	4	1 6			63 74	no no	no										
D Holman D Holman	03/12/2010	bed turning/concrete crushing bed turning/concrete crushing	W NW	9.30 9 10.18 10	3.35 y 3.23 n	,	regetation	0	2	1 6			79	no no	no no										
D Holman D Holman D Holman	03/12/2010	exceivating in griddebed turning/concrete crushing exceivating in griddebed turning/concrete crushing exceivating in griddebed turning/concrete crushing	N NE	13.42 13 13.36 13 13.30 13	3.47 n 3.41 y	2	vegetation	0	2				57	no no	no	clear	9.219			0.5	Sw -1	loggy	8	damp frozen	
D Holman D Holman	03/12/2010	excavating in gridsibed turning/concrete crushing	E SE	13.24 13	3.29 y	1	regetation regetation	0	2	1 6			55	00	no no	Clear	9.659			Ħ					
D Holman D Holman	03/12/2010	seconding in potabled turning/concess crushing seconding in potabled turning/concess crushing and summigrous crushing of summigrous crushing del summigrous del su	S	13.24 13 13.18 13 13.12 13 13.06 13 13.00 13 13.48 13 10.42 10	3.17 n 3.11 n	-			3				68 75	no no	no					H					
D Holman D Holman	03/12/2010 03/12/2010	excevating in grids/bed turning/concrete crushing excevating in grids/bed turning/concrete crushing	W NW	13.00 13 13.48 13	8.05 y 8.53 y	1	vegetation vegetation	0	2	1 1	127.1		79 78	no no	no no					0.5		doudy			
D Holman D Holman	06/12/2010 06/12/2010	lead summigrocoreas crushing lead summigrocoreas crushing lead summigrocoreas lead sum	N NE	10.42 10	0.47 n 0.41 n				2		127.1 266.3 211.7 280.5	74.8 122.3	57 53	no no	no	Clear	9.209			0.5	w 1.2	doudy	8	frozen	
D Holman D Holman	06/12/2010	bed turning/concrete crushing bed turning/concrete crushing	NE1 E	10.36 10 10.30 10 10.24 10 10.18 10 10.12 10 10.06 10	1.35 1.29 y	1	earth/concrete and vegetation vegetation	0	2	3 0	280.5	134.5	63	no no	no	Clear	9.659			\blacksquare					
D Holman D Holman	06/12/2010	bed turning/concrete crushing bed turning/concrete crushing	S SW	10.12 10	0.17 y	1	regetation regetation regetation	0	3		81.4	19	65	no no	no no					Ħ					
D Holman D Holman	06/12/2010 06/12/2010	bed turning/concrete crushing bed turning/concrete crushing	W NW	10.00 10	0.05 y 0.53 y	1	vegetation vegetation	0	4	1 0	102.8	97	78 80	no no	no no					H	_				
D Holman	06/12/2010	bed turning/concrete crushing	N NE	17.42 17 17.36 17 17.30 17 17.30 17 17.24 17 17.24 17 17.16 17 17.16 17 17.16 17 17.16 17 17.16 17 17.16 17 17.16 17 17.17 17.17 17.17 17.17 17.17 17.18 17 17.18 17 17.18 17 17.18 17 17.18 17 17.18 17 17.18 17 17.18 10 17.18 10 17.18 10 17.18 10 17.18 17 17.18 17 17.18 17 17.18 17 17.18 17 17.18 17 17.18 17 17.18 18	7.47 n 7.41 n			LΞ	2				59 56	no no	no no	Clear Clear	9.209			0	-2	foggy	8	damp	
D Holman D Holman	06/12/2010	bed suming/concrete crushing bed suming/concrete crushing bed suming/concrete crushing bed suming/concrete crushing bed suming/concrete crushing	nlt1 E	17.30 17	.30 7.29 y		vegetation	0	2				58	no	no	Clear	9.659			Ħ					
D Holman D Holman	06/12/2010 06/12/2010	Sed famility occurs an archive And famility occurs an archive And famility occurs an archive And famility occurs and archive And	S SW	17.12 17	7.17 n		vegetation vegetation	0	3	;			63	no no	no no					H			H		
D Holman D Holman	06/12/2010	bed turning/concrete crushing bed turning/concrete crushing	W	17.00 17 17.48 17	7.05 n 7.53 y		vegetation	0	4 2				78 79	no no	no no					Ħ		cold misty	H		1
D Holman D Holman	07/12/2010 07/12/2010	bed turning/concrete crushing bed turning/concrete crushing	N NE	10.12 10	0.17 n 0.11 y	1	aarth/vegetation	0	2	3 0			58 54	no no	no	Clear Clear	9.209			0 1	-5	cold misty	8	frozen	
D Holman D Holman	07/12/2010 07/12/2010	sed samingouscense coulsing ded samingouscense coulsing ded transposcenses coulsing ded transposcenses coulsing ded samingouscenses ded samingousc	NE1 E	10.00 10 9.54 9	0.05 0.59 n		•		2				65	no	no	Clear Clear	9.649								
D Holman D Holman	07/12/2010 07/12/2010	sed turning/concrete crushing bed turning/concrete crushing	SE S	9.48 9 9.42 9	2.53 n 2.47 n	\Box	·		3				63	no no	no					\Box			ΙĒ		
D Holman D Holman	07/12/2010 07/12/2010 07/12/2010	bed surring-concrete crushing bed surring-concrete crushing	W	9.30 9 10.10 *^	35 n	H			4 2				79 79	00	no no					Ħ					‡
D Holman D Holman	07/12/2010 07/12/2010	excevating in grids/bed turning/concrete crushing excevating in grids/bed turning/concrete crushing	N NE	17.12 17 17.06 17	7.17 n 7.11 y	,	vegetation	0	2 2	, 8			57 58	no no	no no	Clear Clear	9.209			0 1	/ 2	slightly cloudy	3	dry	slight solventlearth smell present around S emergency exit 1/9 0.0ppn
D Holman	07/12/2010 07/12/2010	excavating in gridsubed turning/concrete crushing excavating in gridsubed turning/concrete crushing excavating in gridsubed turning/concrete crushing	NE1 E	17.00 17 16.54 16	7.05 3.50 y	1_	vegetation	0	2			Ŀ	64	no	no	Clear	0.649			H	<u></u>		F		
D Holman D Holman D Holman	07/12/2010 07/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	SE S	16.48 16 16.42 16	3.53 y 3.47 n	1	vegetation vegetation	0	3	1 6			61 64	no no	no no							1			
D Holman D Holman D Holman	07/12/2010 07/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	SW	16.54 16 16.48 16 16.42 16 16.36 16 16.30 16 17.18 17 10.12 10 10.06 10 10.00 10 9.54 9	3.41 in 3.35 y		vegetation vegetation	0	4				74 79	no no	no no					$oldsymbol{\Box}$			ŧΞ		
D Holman D Holman D Holman D Holman	08/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	NW N	17.18 17	2.23 y 3.17 n			0	2		121.7	69.8	58 58	no no	00 00	Clear	9.209			3 1	NW 1	overcast	8	dry	<u> </u>
D Holman D Holman D Holman D Holman	08/12/2010 08/12/2010	excavating in gridarious curreng concrete crushing excavating in gridarious training/concrete crushing excavation in orielabet turning/concrete crushing	NE1	10.00 10	0.05		vegetation vegetation	ĺ	,		246.6	211.4	60	00	00	Clear Clear	0.640			Ħ					‡
D Holman D Holman	08/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	SE S	9.48 9	0.53 in 0.47 in			Ĕ	3		68.9	33.8	55 64	no no	no no	- H	10			Ħ			F		1
D Holman D Holman D Holman	08/12/2010 08/12/2010	excevating in grids/bed turning/concrete crushing excevating in grids/bed turning/concrete crushing	SW	9.42 9 9.36 9 9.30 9	0.41 y 0.35 y	1	solvent/earth and vegetation exhaust furnes and vegetation	0	4	3 0	91.1	76.2	76 80	no no	no no					H					
D Holman D Holman	08/12/2010 08/12/2010	execution per dipolar familipatorese numbers and production and p	NW N	10.18 10 17.42 17	0.23 n 7.47 n		•		2				79 58	no no	no no	Clear	9.209			4 (0.5	cold clear	3	damp	
D Holman D Holman	08/12/2010	bed turning/concrete crushing bed turning/concrete crushing	NE NE1	17.36 17	7.41 y		vegetation	0	2				56	no	no	Clear Clear				Ħ			E		
D Holman D Holman D Holman	08/12/2010	bed suming/concrete crushing bed suming/concrete crushing bed suming/concrete crushing	SE S	17.24 17 17.18 17 17.12 17 17.06 17 17.00 17 17.48 17 10.12 10	7.23 n		vegetation vegetation sentration and ownstigarth		3				59 69	00 00	00 00	Caeld	p.043			Ħ					
D Holman D Holman	08/12/2010	bed turning/concrete crushing bed turning/concrete crushing	SW W	17.06 17	7.11 y 7.05 n		vegetation and sweet/earth	ő	4	3 (74	no no	no no					H			H		
D Holman D Holman	08/12/2010	bed suming/concrete crushing bed suming/concrete crushing bed suming/concrete crushing bed suming/concrete crushing	NW N	17.48 17	7.53 n 0.17 n				2		60.8	15	79 54	no no	no	clear	9,209				NW 4.5	sunny	-	dry	1
		*			_								_								,,,,,		•	_	

D Holman 09/12/2010 D Holman 09/12/2010 D Holman 09/12/2010	bed turning/concrete crushing bed turning/concrete crushing bed turning/concrete crushing	NE1	10.06 10.11 10.00 10.05 9.54 9.59	y 1	che	mical and earth and vegetation	0 2	2	0	58.1 21 149.7 9	A 5	55 no	no	clear	9.649							
D Holman 09/12/2010 D Holman 09/12/2010	Sed turning/concrete crushing Sed turning/concrete crushing	SE	9.54 9.59 9.48 9.53 9.42 9.47	y 2 n	che	imical and earth	3	•	0	139.8 15	.1 6	33 no 31 no	no no	clear	9.649							
D Holman 09/12/2010 D Holman 09/12/2010 D Holman 09/12/2010	bed suming/concrete crushing bed suming/concrete crushing bed suming/concrete crushing			n n			4		0	139.8 15	.4 6	52 no 74 no	no no									
D Holman 09/12/2010 D Holman 09/12/2010	bed suming/concrete crushing bed suming-concrete crushing bed suming-concrete crushing bed suming-concrete crushing bed suming-concrete crushing	W NW	9.36 9.41 9.30 9.35 10.18 10.23 15.42 15.47	y 1	veg	setation	0 4	1	0	59.8 13	.5 7	78 no 79 no	no no									
D Holman 09/12/2010 D Holman 09/12/2010	bed turning/concrete crushing bed turning/concrete crushing			n y 1	veg	sitution	0 2	-	ò		5	55 no 53 no	no no	clear clear	9.209		3	w	4	overcast	8 damp	
D Holman 09/12/2010		NE1 E	15.30 15.35 15.24 15.29	у 2	veg	pitation	0 2	- 1	0		6	31 no	no	dear	9.649			-	_			
D Holman 09/12/2010	bed turning/concrete crushing	SE S	15.18 15.23 15.12 15.17 15.06 15.11	ń	-		3				6	57 no 33 no	no no					-				
D Holman 09/12/2010 D Holman 09/12/2010 D Holman 09/12/2010		SW	15.08 15.11	6 1	ven	sitation	0 4	_	0		7	74 no	no no					_				
D Holman 09/12/2010 D Holman 09/12/2010 I Stephenson 10/12/2010	bed turning/concrete crushing bed turning TR 113 114 118	NW N	15.00 15.05 15.48 15.53 10.13 10.18	y 1	veg	station	0 2	_	0	83 72	. 2	79 no	00	rlear	0.200	00	00	-		sunny snells	ik damn	to odour at rituarch
Stephenson 10/12/2010 Stephenson 10/12/2010 Stephenson 10/12/2010	bed turning TB 113 114 116	NE	10.07 10.12	ń	_		2		ō	58 19 156 94		54.9 no	no	dear		no	no			y		
Stephenson 10/12/2010 Stephenson 10/12/2010	bed turning TB 113 114 116 bed turning TB 113 114 116	E	9.55 10.00	n		orinated chemicals	. 2		0		- 5	58.7 no	no	clear	9.649	00	00					
I Stepherson 10/12/2010 I Stepherson 10/12/2010 I Stepherson 10/12/2010	and summy appropriate to the second s	8	10.13 10.18 10.07 10.12 10.01 10.06 9.55 10.00 9.49 9.54 9.43 9.48 9.37 9.42 9.31 9.86	6	-	ATTIMED CHINICALS	3	ľ			. 6	34.3 no	no			no	00					
Stephenson 10/12/2010	bed turning TB 113 114 116	W	9.31 9.36	ñ	===	d furnes and wet asphalt	4		0	138 54		38.2 no 71.4 no	no no			no no	no no	=				
D Holman 10/12/2010	Bod suming TB 113 114-118 and suming TB 113 114-118 and suming TB 113 114-118 and suming Data 114-118 and suming Data 114-118 and suming browners and	NW N	9.37 9.42 9.31 9.36 10.19 10.24 16.42 16.47 16.36 16.41 16.30 16.35 16.24 16.29 16.18 16.23 16.12 16.17	y 3			1 2		0	58.3 16 48.2 31 137.8 96 63.7 43	.1 5	74.9 no 53 no	no no	clear	9.209	no	no 2	85	w 6	dear	2 damp	
D Holman 10/12/2010 D Holman 10/12/2010	Sed turningscreening concrete Sed turningscreening concrete	NE1	16.36 16.41 16.30 16.35	y 1		etation	0 2		0	48.2 31 137.8 96	.8	57 no	no	clear								
D Holman 10/12/2010 D Holman 10/12/2010	bed turning/screening concrete bed turning/screening concrete	SE SE	16.24 16.29 16.18 16.23	y 1	veg	station and earth	3	2	0	63.7 43	.2 5	59 no 54 no	no no	clear	9.649							
D Holman 10/12/2010 D Holman 10/12/2010 D Holman 10/12/2010	bed turning/screaning concrete bed turning/screaning concrete bed turning/screaning concrete	S SW	16.12 16.17 16.06 16.11 16.00 16.05	n y 1	veg	station	3 4	1		59.1 47	7.6	35 no	no no									
D Holman 10/12/2010 D Holman 10/12/2010	bed turning/screening concrete bed turning/screening concrete	W NW	16.00 16.05 16.48 16.53	n	+		4		0	51.3 26	.5 7	79 no 79 no	no no					-	-			
D Holman 13/12/2010 D Holman 13/12/2010	bed turningscreening concrete excevation in grids/bed turning excevation in grids/bed turning		16.48 16.53 10.12 10.17 10.06 10.11	y 1	veg	etation	0 2	-	0 0		6	56 no 57 no	no no	clear clear	9.209		Û	5 \$	-1	misty damp	8 damp	slight odour between SE and E chlorine type small 2/9 0.0ppm
D Holman 13/12/2010 D Holman 13/12/2010	excavation in grids/bad turning excavation in grids/bad turning	NE1 E	10.00 10.05 9.54 9.59	v 1	chic	orine and vegetation	0 2	3	-			58 no	no	Clear Clear	0.649							
D Holman 13/12/2010 D Holman 13/12/2010	excavation in grids/bed turning excavation in grids/bed turning	SE S	10.00 10.05 9.54 9.59 9.48 9.53 9.42 9.47 9.36 9.41	y 2 y 3		station station	0 3	- 1	0		5	55 no 33 no	no no					7	7	+		
D Holman 13/12/2010 D Holman 13/12/2010	axcavation in grids/bed turning axcavation in grids/bed turning	SW	9.36 9.41 9.30 9.35 10.18 10.23	y 1	veg	petation	0 4	-	0		7	75 no	no no					=	=			
D Holman 13/12/2010 D Holman 13/12/2010	section of published surray section or published surray	NW N	10.18 10.23	y 1		station station	0 2	- [Ž	79 no	no no	Clear	9.209		l l	wn	w 2	cloudy and slinks) - mi	8 damn	
D Holman 13/12/2010 D Holman 13/12/2010	excessition in grids/bed turning excessition in grids/bed turning	NE NE1	17.12 17.17 17.06 17.11 17.00 17.05	y 2		etation etation	0 2		0		5	56 no	no	Clear			ľ	-	1	cloudy and slightly mi		
D Holman 13/12/2010	eucovision in girisolous ourning eucovision in gridsibed turning eucovision in gridsibed turning excevision in gridsibed turning	E SE	16.54 16.59 16.48 16.53 16.42 16.47 16.36 16.41	y 1	veg	etation etation and chlorine orine and vegetation	0 2		0			55 00	00	Clear	9.649			#	=			
D Holman 13/12/2010	excavation in gridarbed turning excavation in gridarbed turning excavation in gridarbed turning	8	16.42 16.47	y (1	chic	station and chlorine orine and vegetation station	0 3	2	- 0			34 00	no no			ш		#	_			
D Holman 13/12/2010	excavation in grids/bed turning	W	16.36 16.41 16.30 16.35 17.18 17.23		veg	petation	0 4	_	0		2	79 00	no no			ш		#	_			
D Holman 13/12/2010 D Holman 14/12/2010 D Holman 14/12/2010	excevation in grids/bed turning excevation in grids/bed turning	N N	9.42 9.47	y 1 y 2	veg	station station	0 2		0		5	6 no	no no	Clear	9.209		Ó	5 n	3	overcast	8 damp	
D Holman 14/12/2010 D Holman 14/12/2010	excavation in grids/bed turning excavation in grids/bed turning	NE1	9.42 9.47 9.36 9.41 9.30 9.35	3		station	2	1	0		6	00	no	Clear Clear				=	_			
D Holman 14/12/2010	excavation in grids/bed turning excavation in grids/bed turning	SE SE	9.00 9.35 9.24 9.29 9.18 9.25 9.12 9.17 9.06 9.11 9.00 9.05 16.12 16.17 16.06 16.05 15.40 15.40 15.40 15.41 15.30 15.35 16.12 16.17 10.06 10.17 10.06 10.17 10.06 10.07 9.54 9.59	y 1 y 2	veg	station station	0 2	_	0		5	59 no	no no	Clear	9.649			= [
D Holman 14/12/2010 D Holman 14/12/2010	excervation in grids/bed turning excervation in grids/bed turning excervation in grids/bed turning	SW	9.12 9.17 9.06 9.11	y 1	veg	etation imicalleanth and vegetation setation and exhaust fumes	0 3	3	0		7	74 no	no no									
D Holman 14/12/2010 D Holman 14/12/2010	excavation in grids/bed turning excavation in grids/bed turning	W NW	9.00 9.05 9.48 9.53	y 2 y 1	veg	station and exhaust furnes station	0 4	- 1	0		7	79 no	no no					-	_			
D Holman 14/12/2010 D Holman 14/12/2010	excavation in grids/bed turning excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	N NE	16.12 16.17 16.06 16.11	y 2 y 2	veg	etation mical and vegetation	0 2	3	0 0	61 46 202.5 10	.9 5 2.7 5	57 no 58 no	no no	Clear Clear	9.209		Û	5 NE	2.5	Clear	2 damp	
D Holman 14/12/2010 D Holman 14/12/2010	encombine in efficiello simegocierolesia consiste consuming in gishabet formingocierolesia constitui esconarioja ni gishabet formingocierolesia constitui esconario ni gishabet formingocierole	NE1 E	16.00 16.05 15.54 15.59	y 1			0 2	-	0	61 46 202.5 10 148.4 66 182.2 10	.7 3.6 5	56 no	no	Clear Clear	9.649			=	_			
D Holman 14/12/2010 D Holman 14/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	SE S	15.48 15.53 15.42 15.47	y 2 y 1	veg	etation etation etation type smell	0 3	-	0	166.9 83	.3 6	53 no 33 no	no no					-				
D Holman 14/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning/concrete crushing	SW W	15.36 15.41 15.30 15.35	y 2 y 3			1 4	5	0 0	119.3 10	4.9 7	73 no 79 no	no no					-				
D Holman 14/12/2010 D Holman 15/12/2010	excavating in grids/bed turning/concrete crushing excavating in grids/bed turning	NW N	16.18 16.23 10.12 10.17	y 1	veg	station station	0 2	-	0 0		7	78 no 58 no	no no	Clear	9.209		0	5 W:	SW 1.5	cloudy damp rain	8 wet	
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Appendix C

Long term Passive VOC Monitoring





St. Martins House, 77 Wales Street Winchester, Hampshire SO23 0RH tel.: 01962 860331 fax: 01962 841339 e-mail:diffusion@gradko.co.uk

LABORATORY ANALYSIS REPORT

GCMS 4556A REPORT NUMBER CUSTOMER Vertase FLI Ltd **GRADKO LAB REFERENCE GMSE 2237-2247**

DATE SAMPLES RECEIVED 06.12.10 DESPATCH REF.NUMBER SOR004605 **JOB NUMBER** 907BR1/5302 **BOOKING IN REF.** D 6279

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

Mi 042095** **Tube Number** 41520 **Exposure Time(mins)** Sample ID **North East**

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Tetrachloroethylene	114.41	1.38
Toluene	65.96	0.79
m/p-Xylene	52.70	0.63
Ethylbenzene	33.40	0.40
o-Xylene	24.22	0.29
Trichloroethylene	17.59	0.21
2-Butanone	17.07	0.21
Benzene, 1,2,3-trichloro-4-methyl-	13.13	0.16
Benzene	12.19	0.15
Benzene, 1,2-dichloro-	12.18	0.15

Tube Number MI 012876 **Exposure Time(mins)** 41493 Sample ID **East**

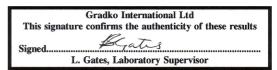
Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	159.19	1.92
Tetrachloroethylene	133.10	1.60
m/p-Xylene	28.16	0.34

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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LABORATORY ANALYSIS REPORT

Benzene	15.27	0.18
Benzene, 1,2,3-trichloro-4-methyl-	12.91	0.16
o-Xylene	10.98	0.13
Phenol	9.14	0.11
Trichloroethylene	8.33	0.10
Benzene, 1,3,5-trichloro-	6.78	0.08
Ethylbenzene	6.71	0.08

Tube Number MI 005361
Exposure Time(mins) 41520
Sample ID South East

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	260.53	3.14
Tetrachloroethylene	241.20	2.90
m/p-Xylene	41.92	0.50
Benzene	22.13	0.27
Benzene, 1,2,3-trichloro-4-methyl-	19.26	0.23
o-Xylene	15.58	0.19
Benzene, 1,3,5-trichloro-	13.15	0.16
Phenol	11.41	0.14
Ethylbenzene	11.34	0.14
Benzene, 1-chloro-2-methyl-	10.72	0.13

Tube Number MI 038008 Exposure Time(mins) 41494 Sample ID South

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	102.19	1.23
Tetrachloroethylene	40.88	0.49
m/p-Xylene	34.04	0.41
Benzene	26.95	0.32
Phenol	16.21	0.20
Ethylbenzene	15.33	0.18
o-Xylene	15.29	0.18

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LABORATORY ANALYSIS REPORT

2-Propanol, 1-methoxy-	10.86	0.13
2-Butanone	6.15	0.07
Benzene, 1,2,4-trimethyl-	6.13	0.07

Tube Number MI 036108
Exposure Time(mins) 41520
Sample ID South West

Top 10 VOC'S

. op		
Compounds	ng on tube	ppb in air*
Toluene	151.99	1.83
Tetrachloroethylene	84.13	1.01
m/p-Xylene	60.88	0.73
Ethylbenzene	38.83	0.47
o-Xylene	32.36	0.39
2-Butanone	29.51	0.36
Benzene	23.85	0.29
Dodecane	19.14	0.23
Pentadecane	15.74	0.19
Heptane, 2,2,4,6,6-pentamethyl-	14.86	0.18

Tube Number MI 013088
Exposure Time(mins) 41520
Sample ID West

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	381.32	4.59
Tetrachloroethylene	135.57	1.63
m/p-Xylene	63.19	0.76
Benzene	20.03	0.24
o-Xylene	19.56	0.24
2-Propanol, 1-methoxy-	16.58	0.20
Ethylbenzene	15.33	0.18
Benzene, 1,2,3-trichloro-4-methyl-	13.55	0.16
Phenol	11.86	0.14
Pentane, 3-methyl-	11.07	0.13

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LABORATORY ANALYSIS REPORT

MI 011019** **Tube Number** 41495 **Exposure Time(mins)** Sample ID **North West**

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	141.86	1.71
Tetrachloroethylene	105.52	1.27
m/p-Xylene	54.32	0.65
Ethylbenzene	28.56	0.34
Benzene	26.47	0.32
o-Xylene	23.59	0.28
2-Butanone	20.47	0.25
Pentane, 3-methyl-	19.79	0.24
2-Propanol, 1-methoxy-	14.74	0.18
Phenol	12.29	0.15

Tube Number MI 012978 41493 **Exposure Time(mins)** North Sample ID

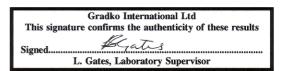
Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	116.42	1.40
Tetrachloroethylene	73.00	0.88
Naphthalene	59.04	0.71
m/p-Xylene	53.30	0.64
Ethylbenzene	40.89	0.49
o-Xylene	26.82	0.32
Pentane, 3-methyl-	20.59	0.25
2-Butanone	19.68	0.24
Benzene	17.54	0.21
Phenol	15.73	0.19

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LABORATORY ANALYSIS REPORT

Tube Number	MI 041517**
Exposure Time(mins)	41493
Sample ID	wwtw

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	64.69	0.78
m/p-Xylene	42.25	0.51
Ethylbenzene	35.95	0.43
Tetrachloroethylene	24.42	0.29
o-Xylene	24.37	0.29
2-Butanone	23.23	0.28
Benzene	22.47	0.27
Phenol	15.07	0.18
2-Propanol, 1-methoxy-	14.69	0.18
Heptane, 2,2,4,6,6-pentamethyl-	14.46	0.17

Tube Number MI 015150
Exposure Time(mins) 41533
Sample ID Church Road

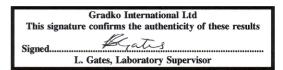
Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Naphthalene	127.45	1.53
Heptadecane	84.29	1.01
Octadecane	61.76	0.74
Toluene	58.41	0.70
Nonadecane	49.58	0.60
Hexadecane	35.36	0.43
m/p-Xylene	24.80	0.30
Benzene	18.43	0.22
o-Xylene	15.73	0.19
Phenol	14.67	0.18

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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LABORATORY ANALYSIS REPORT

Tube Number MI 005446
Exposure Time(mins) 41523
Sample ID Queen's Close

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
m/p-Xylene	57.05	0.69
Toluene	48.11	0.58
Ethylbenzene	39.64	0.48
o-Xylene	30.42	0.37
Benzene	22.17	0.27
2-Butanone	21.69	0.26
Phenol	10.88	0.13
Heptane, 2,2,4,6,6-pentamethyl-	9.96	0.12
Benzene, 1,2,4-trimethyl-	8.95	0.11
Butane, 2-methyl-	6.87	0.08

^{**}Samples were received with a cap off.

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

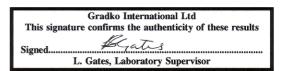
Analysts Name M.Angelova Date of Analysis 13.12.10

Date of Report 16.12.10

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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LABORATORY ANALYSIS REPORT

AMENDMENT TO LABORATORY REPORT GCMS 4583 REPORT NUMBER

CUSTOMER Vertase FLI Ltd **GRADKO LAB REFERENCE** GMSF 0089-0099

DATE SAMPLES RECEIVED 12.01.11 SOR004605 **DESPATCH REF.NUMBER JOB NUMBER** 907BR1/5302 **BOOKING IN REF.** E 0286

> 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

GRA 05967 Tube Number 37458 **Exposure Time(mins)** Sample ID **North East**

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Tetrachloroethylene	238.84	3.19
Toluene	160.70	2.15
Heptadecane	51.13	0.68
Trichloroethylene	37.03	0.49
Octadecane	34.14	0.46
m/p-Xylene	32.97	0.44
Hexadecane	32.03	0.43
Nonadecane	24.74	0.33
Benzene, 1,2,3-trichloro-4-methyl-	22.80	0.30
Benzene	20.26	0.27

Tube Number GRA 04973 Exposure Time(mins) 37470 Sample ID **East**

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	537.64	7.17
Tetrachloroethylene	472.77	6.31
m/p-Xylene	101.56	1.36

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St. Martins House, 77 Wales Street Winchester, Hampshire SO23 0RH tel.: 01962 860331 fax: 01962 841339 e-mail:diffusion@gradko.co.uk

LABORATORY ANALYSIS REPORT

Benzene, 1,2,3-trichloro-4-methyl-	86.62	1.16
Derizerie, 1,2,3-trichioro-4-metriyi-	00.02	1.10
Ethylbenzene	40.32	0.54
o-Xylene	32.47	0.43
Benzene, 1,2,4-trichloro-3-methyl-	31.31	0.42
Benzene	25.42	0.34
Trichloroethylene	23.81	0.32
Bis(2-chloroethyl) ether	20.44	0.27

Tube Number GRA 02369
Exposure Time(mins) 37503
Sample ID South East

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Tetrachloroethylene	491.39	6.55
Toluene	408.86	5.45
Benzene, 1,2,3-trichloro-4-methyl-	87.31	1.16
m/p-Xylene	57.25	0.76
Undecane	27.68	0.37
Benzene, 1,2,4-trichloro-3-methyl-	24.78	0.33
Benzene	22.32	0.30
o-Xylene	21.11	0.28
Naphthalene	17.92	0.24
Benzene, 1,4-dichloro-2-methyl-	14.55	0.19

Tube Number GRA 06136 Exposure Time(mins) 37517 Sample ID South

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	171.16	2.28
Tetrachloroethylene	127.24	1.70
m/p-Xylene	30.43	0.41
Pentadecane	24.24	0.32
Benzene	18.28	0.24
o-Xylene	13.00	0.17
Heptadecane	9.08	0.12

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LABORATORY ANALYSIS REPORT

Hexadecane	8.52	0.11
Ethylbenzene	8.48	0.11
Butane, 2-methyl-	5.91	0.08

Tube Number GRA 01823 Exposure Time(mins) 37527 Sample ID South West

Tube received damaged and could not be analysed.

Tube Number GRA 05775 Exposure Time(mins) 37563 Sample ID West

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	48.53	0.65
Tetrachloroethylene	32.21	0.43
Benzene	18.36	0.24
m/p-Xylene	18.13	0.24
Phenol	12.65	0.17
Benzonitrile	11.80	0.16
o-Xylene	11.80	0.16
Octane	6.04	0.08
Ethylbenzene	5.70	0.08
Benzene, 1,2,4-trimethyl-	4.60	0.06

Tube Number GRA 02628 Exposure Time(mins) 37516 **North West** Sample ID

Top 10 VOC'S

REPORT OFFICIALLY CHECKED

Compounds	ng on tube	ppb in air*
m/p-Xylene	196.22	2.62
Ethylbenzene	175.55	2.34
Toluene	74.36	0.99
o-Xylene	68.76	0.92
Tetrachloroethylene	51.47	0.69

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L. Gates, Laboratory Supervisor

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LABORATORY ANALYSIS REPORT

Benzene	19.96	0.27
2-Butanone	10.98	0.15
Benzonitrile	8.08	0.11
Butane, 2-methyl-	7.69	0.10
Benzene, 1,2,4-trimethyl-	7.50	0.10

Tube Number GRA 03403
Exposure Time(mins) 37449
Sample ID North

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Tetrachloroethylene	72.95	0.97
Toluene	66.87	0.89
Naphthalene	65.21	0.87
Benzene	23.89	0.32
Naphthalene, 1-methyl-	21.59	0.29
m/p-Xylene	19.83	0.26
Benzonitrile	14.78	0.20
Anthracene	13.30	0.18
Dibenzofuran	11.57	0.15
Acenaphthene	10.75	0.14

Tube Number	GRA 03674	
Exposure Time(mins)	37521	
Sample ID	wwtw	
Ton 10 VOC'S		

Compounds	ng on tube	ppb in air*
Toluene	39.06	0.52
Benzene	19.89	0.27
Tetrachloroethylene	16.77	0.22
m/p-Xylene	16.10	0.21
Phenol	14.43	0.19
o-Xylene	10.26	0.14
Pentadecane	9.93	0.13
Benzonitrile	7.02	0.09
Ethylbenzene	6.43	0.09
Dodecane	5.99	0.08

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	Gradko International Ltd
This signat	ture confirms the authenticity of these results
Signed	Byatis
	L. Gates, Laboratory Supervisor





(A division of Gradko International Ltd.)

St. Martins House, 77 Wales Street Winchester, Hampshire SO23 0RH tel.: 01962 860331 fax: 01962 841339 e-mail:diffusion@gradko.co.uk

LABORATORY ANALYSIS REPORT

Tube Number	GRA 04605
Exposure Time(mins)	37505
Sample ID	Church Road

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
Toluene	83.51	1.11
Naphthalene	79.73	1.06
Tetrachloroethylene	42.22	0.56
m/p-Xylene	25.41	0.34
Benzene	23.79	0.32
Naphthalene, 1-methyl-	19.62	0.26
o-Xylene	13.38	0.18
Phenol	12.06	0.16
Benzonitrile	8.75	0.12
Ethylbenzene	7.94	0.11

Tube Number GRA 03014 37515 **Exposure Time(mins)** Sample ID **Queen's Close**

Top 10 VOC'S

Compounds	ng on tube	ppb in air*
m/p-Xylene	75.91	1.01
Ethylbenzene	60.72	0.81
Toluene	50.67	0.68
o-Xylene	29.94	0.40
Benzene	22.01	0.29
Tetrachloroethylene	17.00	0.23
Undecane	11.06	0.15
Dodecane	10.28	0.14
Benzene, 1,2,4-trimethyl-	8.40	0.11
Phenol	7.73	0.10

Semi-quantitative results for ng on tube are calculated using toluene standards. **Analysts Name** M.Angelova Date of Analysis 13.01.11 Date of Report 17.01.11

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L. Gates, Laboratory Supervisor

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Appendix D

Directional Dust Monitoring

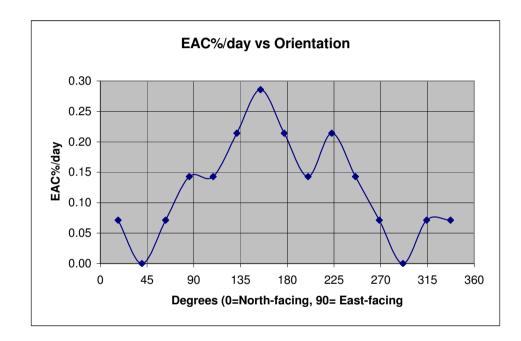


Sticky Pad Data

Gauge Number - North location 907BRI

Sticky Pad Data

Sticky Fau	Dala				
Date On	26/11/2010	Date Off	10/12/2010	Days =	14
Clean =	90				
X Axis mm	Meter	Angle deg	EAC%/day		
20	89	337	0.07		
40	89	314	0.07		
60	90	291	0.00		
80	89	269	0.07		
100	88	246	0.14		
120	87	223	0.21		
140	88	200	0.14		
160	87	177	0.21		
180	86	154	0.29		
200	87	131	0.21		
220	88	109	0.14		
240	88	86	0.14		
260	89	63	0.07		
280	90	40	0.00		
300	89	17	0.07		



Note: Cells coloured yellow are inputs.

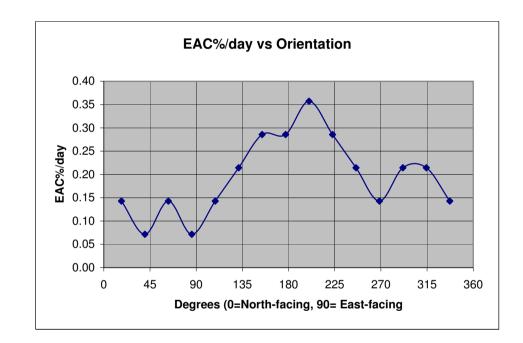
The rest are either constants or calculated values.



Gauge Number - NE1 location 907BRI

Sticky Pad Data

Slicky Fau	Data			
Date On	26/11/2010	Date Off	10/12/2010	Days = 14
Clean =	90			
X Axis mm	Meter	Angle deg	EAC%/day	
20	88	337	0.14	
40	87	314	0.21	
60	87	291	0.21	
80	88	269	0.14	
100	87	246	0.21	
120	86	223	0.29	
140	85	200	0.36	
160	86	177	0.29	
180	86	154	0.29	
200	87	131	0.21	
220	88	109	0.14	
240	89	86	0.07	
260	88	63	0.14	
280	89	40	0.07	
300	88	17	0.14	



Note: Cells coloured yellow are inputs.

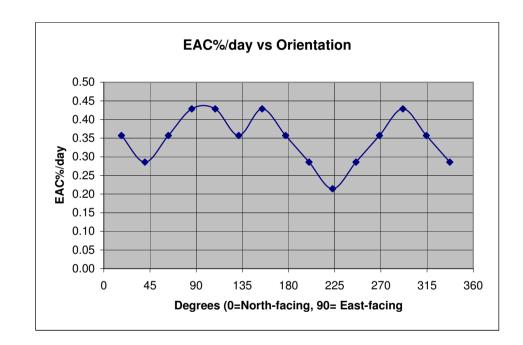
The rest are either constants or calculated values.



Gauge Number - NE2 location 907BRI

Sticky Pad Data

Ottoky i da	Dutu			
Date On	26/11/2010	Date Off	10/12/2010	Days = 14
Clean =	90			
X Axis mm	Meter	Angle deg	EAC%/day	
20	86	337	0.29	
40	85	314	0.36	
60	84	291	0.43	
80	85	269	0.36	
100	86	246	0.29	
120	87	223	0.21	
140	86	200	0.29	
160	85	177	0.36	
180	84	154	0.43	
200	85	131	0.36	
220	84	109	0.43	
240	84	86	0.43	
260	85	63	0.36	
280	86	40	0.29	
300	85	17	0.36	



Note: Cells coloured yellow are inputs.

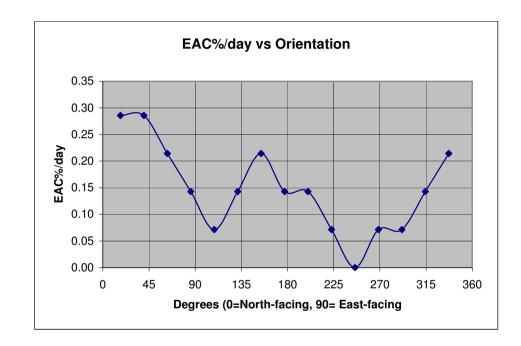
The rest are either constants or calculated values.



Gauge Number - South location 907BRI

Sticky Pad Data

Sticky Fau	Data			
Date On	26/11/2010	Date Off	10/12/2010	Days = 14
Clean =	90			
X Axis mm	Meter	Angle deg	EAC%/day	
20	87	337	0.21	
40	88	314	0.14	
60	89	291	0.07	
80	89	269	0.07	
100	90	246	0.00	
120	89	223	0.07	
140	88	200	0.14	
160	88	177	0.14	
180	87	154	0.21	
200	88	131	0.14	
220	89	109	0.07	
240	88	86	0.14	
260	87	63	0.21	
280	86	40	0.29	
300	86	17	0.29	
			6.43	



Note: Cells coloured yellow are inputs.

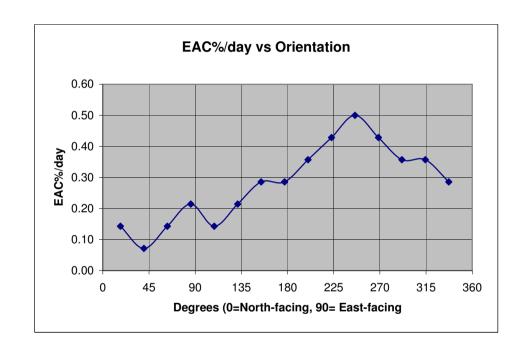
The rest are either constants or calculated values.



Gauge Number - West location 907BRI

Sticky Pad Data

Sticky rau	Data			
Date On	26/11/2010	Date Off	10/12/2010	Days = 14
Clean =	90			
X Axis mm	Meter	Angle deg	EAC%/day	
20	86	337	0.29	
40	85	314	0.36	
60	85	291	0.36	
80	84	269	0.43	
100	83	246	0.50	
120	84	223	0.43	
140	85	200	0.36	
160	86	177	0.29	
180	86	154	0.29	
200	87	131	0.21	
220	88	109	0.14	
240	87	86	0.21	
260	88	63	0.14	
280	89	40	0.07	
300	88	17	0.14	



Note: Cells coloured yellow are inputs.

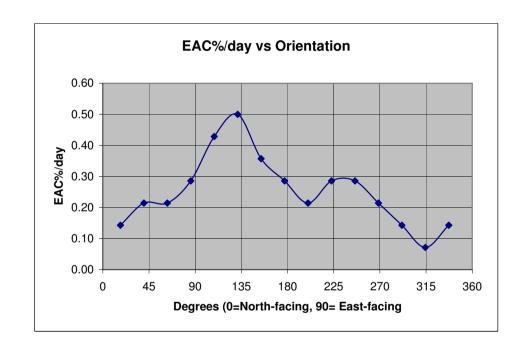
The rest are either constants or calculated values.



Gauge Number - East location 907BRI

Sticky Pad Data

Sticky Fau	Dala			
Date On	26/11/2010	Date Off	10/12/2010	Days = 14
Clean =	90			
X Axis mm	Meter	Angle deg	EAC%/day	
20	88	337	0.14	
40	89	314	0.07	
60	88	291	0.14	
80	87	269	0.21	
100	86	246	0.29	
120	86	223	0.29	
140	87	200	0.21	
160	86	177	0.29	
180	85	154	0.36	
200	83	131	0.50	
220	84	109	0.43	
240	86	86	0.29	
260	87	63	0.21	
280	87	40	0.21	
300	88	17	0.14	



Note: Cells coloured yellow are inputs.

The rest are either constants or calculated values.

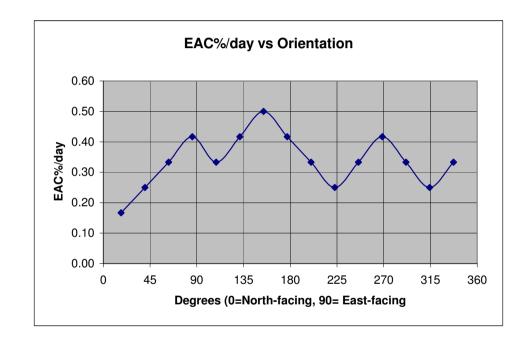


Sticky Pad Data

Gauge Number - North location 907BRI

Sticky Pad Data

Sticky i au	Data				
Date On	10/12/2010	Date Off	22/12/2010	Days = 1	12
Clean =	90				
X Axis mm	Meter	Angle deg	EAC%/day		
20	86	337	0.33		
40	87	314	0.25		
60	86	291	0.33		
80	85	269	0.42		
100	86	246	0.33		
120	87	223	0.25		
140	86	200	0.33		
160	85	177	0.42		
180	84	154	0.50		
200	85	131	0.42		
220	86	109	0.33		
240	85	86	0.42		
260	86	63	0.33		
280	87	40	0.25		
300	88	17	0.17		



Note: Cells coloured yellow are inputs.

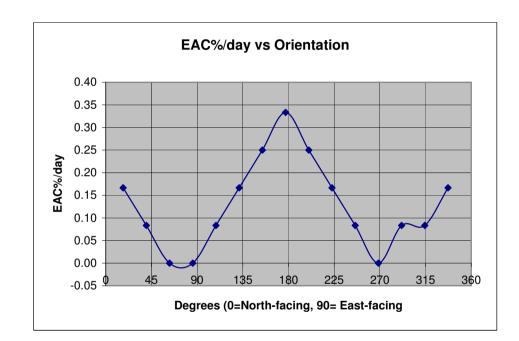
The rest are either constants or calculated values.



Gauge Number - NE1 location 907BRI

Sticky Pad Data

Sticky rau	Data			
Date On	10/12/2010	Date Off	22/12/2010	Days = 12
Clean =	90			
X Axis mm	Meter	Angle deg	EAC%/day	
20	88	337	0.17	
40	89	314	0.08	
60	89	291	0.08	
80	90	269	0.00	
100	89	246	80.0	
120	88	223	0.17	
140	87	200	0.25	
160	86	177	0.33	
180	87	154	0.25	
200	88	131	0.17	
220	89	109	0.08	
240	90	86	0.00	
260	90	63	0.00	
280	89	40	0.08	
300	88	17	0.17	



Note: Cells coloured yellow are inputs.

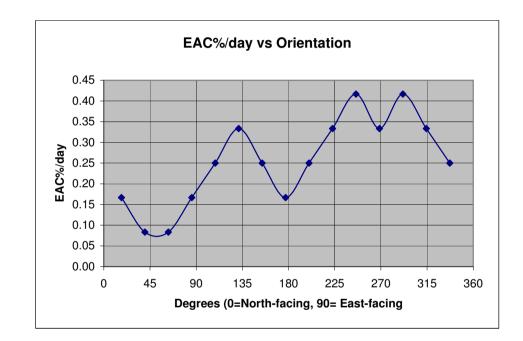
The rest are either constants or calculated values.



Gauge Number - NE2 location 907BRI

Sticky Pad Data

Ottoky i dd	Data			
Date On	10/12/2010	Date Off	22/12/2010	Days = 12
Clean =	90			
X Axis mm	Meter	Angle deg	EAC%/day	
20	87	337	0.25	
40	86	314	0.33	
60	85	291	0.42	
80	86	269	0.33	
100	85	246	0.42	
120	86	223	0.33	
140	87	200	0.25	
160	88	177	0.17	
180	87	154	0.25	
200	86	131	0.33	
220	87	109	0.25	
240	88	86	0.17	
260	89	63	0.08	
280	89	40	0.08	
300	88	17	0.17	



Note: Cells coloured yellow are inputs.

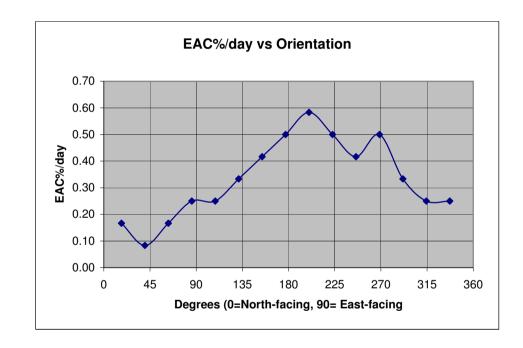
The rest are either constants or calculated values.



Gauge Number - South location 907BRI

Sticky Pad Data

Slicky Pau	Dala			
Date On	10/12/2010	Date Off	22/12/2010	Days = 12
Clean =	90			
X Axis mm	Meter	Angle deg	EAC%/day	
20	87	337	0.25	
40	87	314	0.25	
60	86	291	0.33	
80	84	269	0.50	
100	85	246	0.42	
120	84	223	0.50	
140	83	200	0.58	
160	84	177	0.50	
180	85	154	0.42	
200	86	131	0.33	
220	87	109	0.25	
240	87	86	0.25	
260	88	63	0.17	
280	89	40	0.08	
300	88	17	0.17	
			7.50	



Note: Cells coloured yellow are inputs.

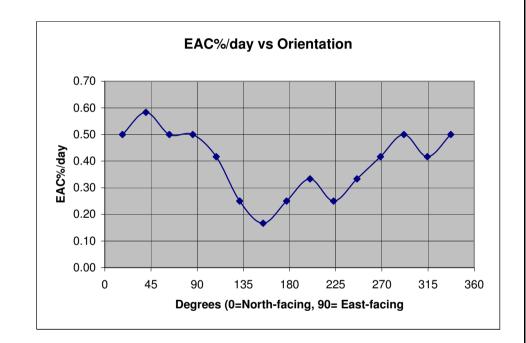
The rest are either constants or calculated values.



Gauge Number - West location 907BRI

Sticky Pad Data

Sticky Fau	Dala			
Date On	10/12/2010	Date Off	22/12/2010	Days = 12
Clean =	90			
X Axis mm	Meter	Angle deg	EAC%/day	
20	84	337	0.50	
40	85	314	0.42	
60	84	291	0.50	
80	85	269	0.42	
100	86	246	0.33	
120	87	223	0.25	
140	86	200	0.33	
160	87	177	0.25	
180	88	154	0.17	
200	87	131	0.25	
220	85	109	0.42	
240	84	86	0.50	
260	84	63	0.50	
280	83	40	0.58	
300	84	17	0.50	



Note: Cells coloured yellow are inputs.

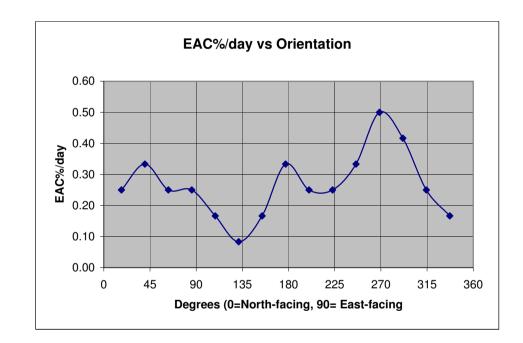
The rest are either constants or calculated values.



Gauge Number - East location 907BRI

Sticky Pad Data

Slicky Fau	Data			
Date On	10/12/2010	Date Off	22/12/2010	Days = 12
Clean =	90			
X Axis mm	Meter	Angle deg	EAC%/day	
20	88	337	0.17	
40	87	314	0.25	
60	85	291	0.42	
80	84	269	0.50	
100	86	246	0.33	
120	87	223	0.25	
140	87	200	0.25	
160	86	177	0.33	
180	88	154	0.17	
200	89	131	0.08	
220	88	109	0.17	
240	87	86	0.25	
260	87	63	0.25	
280	86	40	0.33	
300	87	17	0.25	



Note: Cells coloured yellow are inputs.

The rest are either constants or calculated values.



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
29/11/2010	9.96	10.61	10.224	Covered	10.469	Lost	9.693	10.393	9.62	10.23	10.18	10.17	9.219	9.294	9.540	9.649	10.208	9.992
30/11/2010	9.98	10.57	10.224	Covered	10.479	Lost	9.703	10.403	9.62	10.22	10.19	10.17	9.219	9.304	9.550	9.659	10.208	9.992
01/12/2010	9.98	10.57	10.234	Covered	10.489	Lost	9.713	10.403	9.62	10.23	10.2	10.17	9.229	9.304	9.550	9.659	10.218	9.992
02/12/2010	9.99	10.58	10.244	Covered	10.499	Lost	9.713	10.413	9.63	10.22	10.19	10.17	9.229	9.304	9.550	9.659	10.218	9.982
03/12/2010	10	10.58	10.254	Covered	10.489	Lost	9.723	10.423	9.63	10.23	10.19	10.17	9.219	9.304	9.550	9.659	10.218	9.982
06/12/2010	10.02	10.59	10.254	Covered	10.489	Lost	9.733	10.423	9.64	10.23	10.18	10.16	9.209	9.294	9.540	9.659	10.208	9.992
07/12/2010	10.02	10.6	10.244	Covered	10.499	Lost	9.733	10.423	9.64	10.23	10.19	10.17	9.209	9.294	9.540	9.649	10.208	9.992
08/12/2010	10.03	10.6	10.254	Covered	10.499	Lost	9.733	10.423	9.65	10.24	10.19	10.16	9.209	9.294	9.540	9.649	10.208	10.002
09/12/2010	10.04	10.61	10.244	Covered	10.499	Lost	9.743	10.433	9.65	10.24	10.19	10.16	9.209	9.294	9.540	9.649	10.218	10.002
10/12/2010	10.04	10.61	10.254	Covered	10.499	Lost	9.743	10.433	9.66	10.24	10.19	10.16	9.209	9.304	9.540	9.649	10.218	9.992
13/12/2010	10.05	10.62	10.254	Covered	10.499	Lost	9.753	10.423	9.66	10.23	10.18	10.17	9.209	9.304	9.540	9.649	10.218	9.992
14/12/2010	10.05	10.62	10.254	Covered	10.499	Lost	9.753	10.423	9.65	10.23	10.19	10.17	9.209	9.304	9.540	9.649	10.208	9.992
15/12/2010	10.04	10.62	10.244	Covered	10.499	Lost	9.763	10.413	9.65	10.23	10.19	10.17	9.209	9.304	9.540	9.649	10.198	9.982
16/12/2010	10.04	10.62	10.254	Covered	10.499	Lost	9.753	10.423	9.66	10.24	10.19	10.17	9.209	9.304	9.540	9.649	10.198	9.992
17/12/2010	10.05	10.61	10.254	Covered	10.499	Lost	9.753	10.413	9.66	10.24	10.2	10.17	9.209	9.304	9.540	9.649	10.218	9.982



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: 221391-1

Date of Report: 10-Dec-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: 03-Dec-2010

Date Analysis Started: 06-Dec-2010

Date Analysis Completed: 10-Dec-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



Report checked and authorised by : Amelia McVennon Project Manager Issued by : Amelia McVennon Project Manager

Water Analysed as Water

Vertase Hauxton Suite

			SA	L Reference	221391 001	221391 002	221391 003	221391 004	221391 005
		Custon	ner Sampl	e Reference	S3/6	VF12	BH8/06	BH6/06	S2/6
			Da	ate Sampled	24-NOV-2010	24-NOV-2010	24-NOV-2010	25-NOV-2010	25-NOV-2010
December of Market Test Lon Units									
Determinand	Method	Sample	LOD	Units					
Electrical Conductivity	T7	AR	10	μS/cm	2900	950	4200	970	1900
pН	T7	AR			7.0	7.2	7.2	7.2	7.3

SAL Reference: 221391 Customer Reference: 907 BRI

Water Analysed as Water

Vertase Hauxton Suite

			SA	L Reference	221391 006	221391 007	221391 008	221391 009	221391 010
		Custor	ner Sampl	e Reference	BHB1	BH4	ВН9	BH11	S3/4
			D	ate Sampled	25-NOV-2010	25-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010
Determinand	Method	Test Sample	LOD	Units					
Electrical Conductivity	T7	AR	10	μS/cm	2400	2000	2200	990	3600
pН	T7	AR		1000	6.8	6.8	7.2	7.3	7.1

SAL Reference: 221391 Customer Reference: 907 BRI

Water Analysed as Water

Vertase Hauxton Suite

		200	SA	L Reference	221391 011	221391 012	221391 013	221391 014	221391 015
		Custon	ner Sampl	e Reference	N3	Riddy Downstream	Cam Downstream	Riddy Upstream	Cam Upstream
			Da	ate Sampled	26-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010
Determinand	Method	Test Sample	LOD	Units					
Electrical Conductivity T7 AR 10 µS/cm					1900	890	870	870	870
oH T7 AR				(10)	7.3	8.1	8.1	8.0	8.1

SAL Reference: 221391 Customer Reference: 907 BRI

Nater Analysed as Water

Vertase Hauxton OP/ON Suite

			SA	L Reference	221391 001	221391 002	221391 003	221391 004	221391 005
		Custon	ner Sampl	e Reference	S3/6	VF12	BH8/06	BH6/06	S2/6
			D	ate Sampled	24-NOV-2010	24-NOV-2010	24-NOV-2010	25-NOV-2010	25-NOV-2010
Determinand	Method	Test Sample	LOD	Units					
Dimefox	T16	AR	0.1	μg/l	⁽⁹⁾ <0.1	⁽⁹⁾ <0.1	<0.1	<0.1	⁽⁹⁾ <0.1
Ethofumesate	T16	AR	0.1	μg/l	460	530	0.4	0.1	770
Hempa	T16	AR	0.1	μg/l	⁽⁹⁾ <0.1	⁽⁹⁾ <0.1	<0.1	<0.1	⁽⁹⁾ <0.1
Schradan	T16	AR	0.1	μg/l	⁽⁹⁾ <0.1	⁽⁹⁾ <0.1	<0.1	<0.1	⁽⁹⁾ <0.1
Simazine	T16	AR	0.01	μg/l	⁽⁹⁾ <0.10	5.5	<0.01	<0.01	32

Water Analysed as Water

Vertase Hauxton OP/ON Suite

			SA	L Reference	221391 006	221391 007	221391 008	221391 009	221391 010
		Custor	ner Sampl	le Reference	BHB1	BH4	ВН9	BH11	S3/4
			D	ate Sampled	25-NOV-2010	25-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010
Determinand	Method	Test Sample	LOD	Units					
Dimefox	T16	AR	0.1	μg/l	<0.1	<0.1	<0.1	<0.1	<0.1
Ethofumesate	T16	AR	0.1	μg/l	540	560	11	16	2.7
Hempa	T16	AR	0.1	μg/l	<0.1	<0.1	<0.1	<0.1	<0.1
Schradan	T16	AR	0.1	μg/l	<0.1	<0.1	0.3	<0.1	<0.1
Simazine	T16	AR	0.01	μg/l	<0.01	<0.01	<0.01	0.28	<0.01

SAL Reference: 221391 Customer Reference: 907 BRI

Water Analysed as Water

Vertase Hauxton OP/ON Suite

			SA	L Reference	221391 011	221391 012	221391 013	221391 014	221391 015	
		Custon	ner Sampl	e Reference	N3	Riddy Downstream	Cam Downstream	Riddy Upstream	Cam Upstream	
Date Sample					26-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010	
Determinand	Method	Test Sample	LOD	Units				le ·		
Dimefox	T16	AR	0.1	μg/l	<0.1	<0.1	<0.1	<0.1	<0.1	
Ethofumesate	T16	AR	0.1	μg/l	1.3	0.2	<0.1	<0.1	<0.1	
Hempa	T16	AR	0.1	μg/l	<0.1	<0.1	<0.1	<0.1	<0.1	
Schradan	T16	AR	0.1	μg/l	<0.1	<0.1	<0.1	<0.1	<0.1	
Simazine	T16	AR	0.01	μg/l	0.05	<0.01	<0.01	<0.01	<0.01	

SAL Reference: 221391 Customer Reference: 907 BRI

Water Analysed as Water

Vertase Hauxton Phenoxy Acid Herbs Suite

			SA	L Reference	221391 001	221391 002	221391 003	221391 004	221391 005
		Custon	ner Sampl	e Reference	S3/6	VF12	BH8/06	BH6/06	S2/6
			Da	ate Sampled	24-NOV-2010	24-NOV-2010	24-NOV-2010	25-NOV-2010	25-NOV-2010
Determinand	Method	Test Sample	LOD	Units			4 1		
Dicamba	T16	AR	0.1	μg/l	26	0.7	3.0	0.1	270
Dichlorprop	T16	AR	0.1	μg/l	380	0.4	1.0	0.3	<0.1
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	μg/l	630	24	4.1	0.6	<0.1
Mecoprop	T16	AR	0.1	μg/l	660	60	1.6	0.7	1.8

SAL Reference: 221391 Customer Reference: 907 BRI

Water Analysed as Water

Vertase Hauxton Phenoxy Acid Herbs Suite

			SA	L Reference	221391 006	221391 007	221391 008	221391 009	221391 010
		Custon	ner Sampl	e Reference	BHB1	BH4	ВН9	BH11	S3/4
			Da	ate Sampled	25-NOV-2010	25-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010
Determinand	Method	Test Sample	LOD	Units					
Dicamba	T16	AR	0.1	μg/l	7.4	12	0.2	0.1	<0.1
Dichlorprop	T16	AR	0.1	μg/l	16	34	<0.1	0.2	17
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	μg/l	0.8	2.8	<0.1	<0.1	<0.1
Mecoprop	T16	AR	0.1	μg/l	220	460	4.3	6.4	160

Water Analysed as Water

Vertase Hauxton Phenoxy Acid Herbs Suite

			SA	L Reference	221391 011	221391 012	221391 013	221391 014	221391 015
		Custon	ner Sampl	e Reference	N3	Riddy Downstream	Cam Downstream	Riddy Upstream	Cam Upstream
			Da	ate Sampled	26-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010
Determinand	Method	Test Sample	LOD	Units					
Dicamba	T16	AR	0.1	μg/l	<0.1	0.2	<0.1	<0.1	<0.1
Dichlorprop	0.1	μg/l	<0.1	0.2	<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
Mecoprop	T16	AR	0.1	μg/l	1.7	0.4	<0.1	<0.1	<0.1

SAL Reference: 221391 Customer Reference: 907 BRI

Water Analysed as Water

Vertase Hauxton SVOC Suite

			SA	L Reference	221391 001	221391 002	221391 003	221391 004	221391 005
		Custon	ner Sampl	e Reference	S3/6	VF12	BH8/06	BH6/06	S2/6
			Da	ate Sampled	24-NOV-2010	24-NOV-2010	24-NOV-2010	25-NOV-2010	25-NOV-2010
Determinand	Method	Test Sample	LOD	Units					
2,4,6-Trichlorophenol	T16	AR	10	μg/l	3800	<10	15	<10	280
2-Methyl-4,6-dinitrophenol	T16	AR	10	μg/l	190	<10	<10	<10	<10
4-Chloro-2-methylphenol	T16	AR	10	μg/l	8800	20	<10	<10	10
Bis (2-chloroethyl) ether	T16	AR	10	μg/l	⁽²⁷⁾ 16000	<10	<10	<10	18
Phenol	T16	AR	10	μg/l	460	<10	<10	<10	<10

SAL Reference: 221391 Customer Reference: 907 BRI

Water Analysed as Water

Vertase Hauxton SVOC Suite

			SA	L Reference	221391 006	221391 007	221391 008	221391 009	221391 010	
		Custon	ner Sampl	e Reference	BHB1	BH4	BH9	BH11	S3/4	
			Da	ate Sampled	25-NOV-2010	25-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010	
Determinand	Method	Test Sample	LOD	Units	4 30 50			All parties		
2,4,6-Trichlorophenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10	
2-Methyl-4,6-dinitrophenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10	
4-Chloro-2-methylphenol	T16	AR	10	μg/l	1300	1700	<10	<10	270	
Bis (2-chloroethyl) ether	T16	AR	10	μg/l	260	230	320	29	1700	
Phenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10	

SAL Reference: 221391 Customer Reference: 907 BRI

Water Analysed as Water

Vertase Hauxton SVOC Suite

			SA	L Reference	221391 011	221391 011 221391 012 221391 013 22139			221391 015
		Custon	ner Sampl	e Reference	N3	Riddy Downstream	Cam Downstream	Riddy Upstream	Cam Upstream
			Da	ate Sampled	26-NOV-2010	26-NOV-2010 26-NOV-2010 26-NOV-2010 26-NOV-2010 26-N			
Determinand	Method	Test Sample	LOD	Units					
2,4,6-Trichlorophenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10
2-Methyl-4,6-dinitrophenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10
4-Chloro-2-methylphenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10
Bis (2-chloroethyl) ether T16 AR 10 µg/l					<10	<10	<10	<10	<10
Phenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10

Water Analysed as Water

Vertase Hauxton VOC Suite

			SA	L Reference	221391 001	221391 002	221391 003	221391 004	221391 005
		Custon	ner Sampl	e Reference	S3/6	VF12	BH8/06	BH6/06	S2/6
			Da	ate Sampled	24-NOV-2010	24-NOV-2010	24-NOV-2010	25-NOV-2010	25-NOV-2010
Determinand	Method	Test Sample	LOD	Units					
1,2-Dichlorobenzene	T54	AR	1	μg/l	140	<1	<1	<1	<1
1,2-Dichloroethane	T54	AR	1	μg/l	⁽¹⁹⁾ 460	<1	<1	<1	<1
Cis-1,2-Dichloroethylene	T54	AR	1	μg/l	⁽¹⁹⁾ 2000	7	1	<1	1
Cyclohexanone	T54	AR	10	μg/l	⁽⁵⁾ 930	<10	<10	<10	<10
Tetrachloroethene	T54	AR	1	μg/l	⁽¹⁹⁾ <1	<1	<1	<1	<1
Toluene	T54	AR	1	μg/l	⁽¹⁹⁾ 2400	5	7	37	28
Trichloroethylene T54 AR 1 μg/l				μg/l	4600	27	20	19	20
Vinyl chloride T54 AR 1 µg/l					230	3	<1	<1	<1
Xylene (Total)	T54	AR	1	μg/l	790	2	<1	<1	<1

SAL Reference: 221391 Customer Reference: 907 BRI

Water Analysed as Water

Vertase Hauxton VOC Suite

			SAI	L Reference	221391 006	221391 007	221391 008	221391 009	221391 010
		Custon	ner Sample	e Reference	BHB1	BH4	ВН9	BH11	S3/4
			Da	te Sampled	25-NOV-2010	25-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010
Determinand	Method	Test Sample	LOD	Units					
1,2-Dichlorobenzene	T54	AR	1	μg/l	2	<1	<1	<1	<1
1,2-Dichloroethane	T54	AR	1	μg/l	24	13	<1	8	<1
Cis-1,2-Dichloroethylene	T54	AR	1	μg/l	⁽¹⁹⁾ 1100	540	3	2	<1
Cyclohexanone	T54	AR	10	μg/l	<10	<10	<10	<10	<10
Tetrachloroethene	T54	AR	1	μg/l	<1	<1	<1	<1	<1
Toluene	T54	AR	1	μg/l	11	45	<1	<1	46
Trichloroethylene			3	33	<1	<1	<1		
Vinyl chloride	,		540	110	<1	<1	<1		
Xylene (Total)	T54	AR	1	μg/l	150	20	<1	<1	65

SAL Reference: 221391 Customer Reference: 907 BRI

Water Analysed as Water

Vertase Hauxton VOC Suite

			SA	L Reference	221391 011	221391 012	221391 013	221391 014	221391 015	
		Custon	ner Sampl	e Reference	N3	Riddy Downstream	Cam Downstream	Riddy Upstream	Cam Upstream	
			D	ate Sampled	26-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010	26-NOV-2010	
Determinand	Method	Test Sample	LOD	Units						
1,2-Dichlorobenzene	T54	AR	1	μg/l	<1	<1	<1	<1	<1	
1,2-Dichloroethane	T54	T54 AR 1 μg/l		<1	<1	<1	<1	<1		
Cis-1,2-Dichloroethylene	T54	AR	1	μg/l	<1	3	<1	<1	<1	
Cyclohexanone	T54	AR	10	μg/l	<10	<10	<10	<10	<10	
Tetrachloroethene	T54	AR	1	μg/l	<1	<1	<1	<1	<1	
Toluene	T54	AR	1	μg/l	<1	<1	<1	<1	<1	
Trichloroethylene T54 AR 1 µg/l		1	4	<1	<1	<1				
Vinyl chloride T54 AR 1 μg/l				<1	<1	<1	<1	<1		
Xylene (Total)	T54	AR	1	μg/l	<1	<1	<1	<1	<1	

Index to symbols used in 221391-1

Value	Description
AR	As Received
5	Results are Semiquantitative
9	LOD raised due to dilution of sample
27	Result should be considered as a minimum due to detector saturation.

19	Due to high levels the analysis was conducted on a diluted sample
U	Analysis is UKAS accredited
Ν	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	001-015
pH	T7	AR			U	001-015
Dimefox	T16	AR	0.1	μg/l	N	001-015
Ethofumesate	T16	AR	0.1	μg/l	N	001-015
Hempa	T16	AR	0.1	μg/l	N	001-015
Schradan	T16	AR	0.1	μg/l	N	001-015
Simazine	T16	AR	0.01	μg/l	N	001-015
Dicamba	T16	AR	0.1	μg/l	N	001-015
Dichlorprop	T16	AR	0.1	μg/l	N	001-015
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	μg/l	N	001-015
Mecoprop	T16	AR	0.1	μg/l	N	001-015
2,4,6-Trichlorophenol	T16	AR	10	μg/l	U	001-015
2-Methyl-4,6-dinitrophenol	T16	AR	10	μg/l	N	001-015
4-Chloro-2-methylphenol	T16	AR	10	μg/l	N	001-015
Bis (2-chloroethyl) ether	T16	AR	10	μg/l	U	001-015
Phenol	T16	AR	10	μg/l	U	001-015
1,2-Dichlorobenzene	T54	AR	1	μg/l	U	001-015
1,2-Dichloroethane	T54	AR	1	μg/l	U	001-015
Cis-1,2-Dichloroethylene	T54	AR	1	μg/l	U	001-015
Cyclohexanone	T54	AR	10	μg/l	N	001-015
Tetrachloroethene	T54	AR	1	μg/l	U	001-015
Toluene	T54	AR	1	μg/l	U	001-015
Trichloroethylene	T54	AR	1	μg/l	U	001-015
Vinyl chloride	T54	AR	1	μg/l	U	001-015
Xylene (Total)	T54	AR	1	μg/l	U	001-015



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: 223297-1

Date of Report: 06-Jan-2011

Customer: VertaseFLI Limited

19 Napier Court
Barlborough Links
Barlborough
S43 4PZ

Customer Contact: The Project Management

Customer Job Reference: 907BRI
Customer Purchase Order: 907BRI
Date Job Received at SAL: 23-Dec-2010
Date Analysis Started: 23-Dec-2010
Date Analysis Completed: 06-Jan-2011

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



Report checked and authorised by : Amelia McVennon Project Manager Issued by : Amelia McVennon Project Manager

Water Analysed as Water

Vertase Hauxton Suite

			SA	L Reference	223297 001	223297 002	223297 003	223297 004	223297 008	223297 009	223297 010				
		Custon	ner Sampl	e Reference	S3/6	VF12	BH8/06	BH6/06	ВН9	BH11	S3/4				
			Da	ate Sampled	22-OCT-2010										
Determinand	Method	Test Sample	LOD	Units											
Electrical Conductivity	T7	AR	10	μS/cm	2400	810	4100	840	2000	1100	3400				
pH	T7	AR			7.5	7.5	7.4	7.7	7.3	7.7	7.3				

SAL Reference: 223297 Customer Reference: 907BRI

Water Analysed as Water

Vertase Hauxton Suite

			SA	L Reference	223297 011	223297 012	223297 013	223297 014	223297 015
		Custon	ner Sampl	e Reference	N3	RIDDY DOWN	CAM DOWN	RIDDY UP	CAM UP
			Da	ate Sampled	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010
Determinand	Method	Test Sample	LOD	Units				Marion.	
Electrical Conductivity	T7	AR	10	μS/cm	1600	850	770	790	760
pН	T7	AR			7.3	8.1	8.1	8.1	8.0

SAL Reference: 223297 Customer Reference: 907BRI

Water Analysed as Water

Vertase Hauxton OP/ON Suite

			SA	L Reference	223297 001	223297 002	223297 003	223297 004	223297 008	223297 009	223297 010
Customer Sample Reference Date Sampled				S3/6	VF12	BH8/06	BH6/06	ВН9	BH11	S3/4	
				22-OCT-2010							
Determinand	Method	Test Sample	LOD	Units			120 Ext.				
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	290	460	0.5	3.4	20	0.6	3.1
Hempa	T16	AR	0.1	μg/l	<0.1	<0.1	0.6	<0.1	0.5	<0.1	<0.1
Schradan	T16	AR	0.1	μg/l	340	<0.1	<0.1	<0.1	0.3	0.3	47
Simazine	T16	AR	0.01	ua/l	3.3	3.1	0.27	<0.01	<0.01	1.4	<0.01

SAL Reference: 223297 Customer Reference: 907BRI

Water Analysed as Water

Vertase Hauxton OP/ON Suite

			SA	L Reference	223297 011	223297 012	223297 013	223297 014	223297 015
		Custor	ner Sampl	le Reference	N3	RIDDY DOWN	CAM DOWN	RIDDY UP	CAM UP
			D	ate Sampled	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010
Determinand	Method	Test Sample	LOD	Units					
Dimefox	T16	AR	0.1	μg/l	<0.1	<0.1	<0.1	<0.1	<0.1
Ethofumesate	T16	AR	0.1	μg/l	0.5	<0.1	<0.1	<0.1	<0.1
Hempa	T16	AR	0.1	μg/l	0.2	<0.1	<0.1	<0.1	<0.1
Schradan	T16	AR	0.1	μg/l	<0.1	<0.1	<0.1	<0.1	<0.1
Simazine	T16	AR	0.01	μg/l	0.03	<0.01	<0.01	<0.01	<0.01

Water Analysed as Water

Vertase Hauxton Phenoxy Acid Herbs Suite

			SA	L Reference	223297 001	223297 002	223297 003	223297 004	223297 008	223297 009	223297 010
		Custon	ner Sampl	e Reference	S3/6	VF12	BH8/06	BH6/06	ВН9	BH11	S3/4
			Da	ate Sampled	22-OCT-2010						
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	0.8	0.2	0.2	<0.1	<0.1	<0.1	<0.1
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	μg/l	1.5	<0.1	0.2	<0.1	<0.1	<0.1	<0.1
Mecoprop	T16	AR	0.1	μg/l	1.8	0.3	0.2	<0.1	0.2	<0.1	0.2

SAL Reference: 223297
Customer Reference: 907BRI

Water Analysed as Water

Vertase Hauxton Phenoxy Acid Herbs Suite

			SA	L Reference	223297 011	223297 012	223297 013	223297 014	223297 015
		Custon	ner Sampl	N3	RIDDY DOWN	CAM DOWN	RIDDY UP	CAM UP	
			D	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010	
Determinand	Method	Test Sample	LOD	Units				G.	
Dicamba	T16	AR	0.1	μg/l	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorprop	T16	AR	0.1	μg/l	<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
Mecoprop	T16	AR	0.1	μg/l	<0.1	<0.1	<0.1	<0.1	<0.1

SAL Reference: 223297 Customer Reference: 907BRI

Water Analysed as Water

Vertase Hauxton SVOC Suite

			SA	L Reference	223297 001	223297 002	223297 003	223297 004	223297 008	223297 009	223297 010
Customer Sample Reference					S3/6	VF12	BH8/06	BH6/06	ВН9	BH11	S3/4
Date Sampled					22-OCT-2010						
Determinand	Method	Test Sample	LOD	Units					300		
2,4,6-Trichlorophenol	T16	AR	10	μg/l	2400	<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	4700	<10	<10	<10	<10	<10	30
Bis (2-chloroethyl) ether	T16	AR	10	μg/l	12000	10	10	<10	350	<10	2400
Phenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10	<10	<10

SAL Reference: 223297 Customer Reference: 907BRI

Water Analysed as Water

Vertase Hauxton SVOC Suite

			SA	L Reference	223297 011	223297 012	223297 013	223297 014	223297 015
		Custon	ner Sampl	le Reference	N3	RIDDY DOWN	CAM DOWN	RIDDY UP	CAM UP
			D	ate Sampled	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010
Determinand	Method	Test Sample	LOD	Units					
2,4,6-Trichlorophenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10
2-Methyl-4,6-dinitrophenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10
4-Chloro-2-methylphenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10
Bis (2-chloroethyl) ether	T16	AR	10	μg/l	<10	<10	<10	<10	<10
Phenol	T16	AR	10	μg/l	<10	<10	<10	<10	<10

Water Analysed as Water

Vertase Hauxton VOC Suite

			SA	L Reference	223297 001	223297 002	223297 003	223297 004	223297 008	223297 009	223297 010
		Custon	ner Sampl	e Reference	S3/6	VF12	BH8/06	BH6/06	ВН9	BH11	S3/4
Date Sampled					22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010
Determinand	Method	Test Sample	LOD	Units							
1,2-Dichlorobenzene	T54	AR	1	μg/l	⁽¹⁹⁾ 210	3	2	1	<1	<1	<1
1,2-Dichloroethane	T54	AR	1	μg/l	⁽¹⁹⁾ 440	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethylene	T54	AR	1	μg/l	⁽¹⁹⁾ 2700	10	5	<1	<1	1	<1
Cyclohexanone	T54	AR	10	μg/l	⁽¹⁹⁾ 210	<10	<10	<10	<10	<10	<10
Tetrachloroethene	T54	AR	1	μg/l	⁽¹⁹⁾ 15000	220	160	150	<1	<1	<1
Toluene	T54	AR	1	μg/l	⁽¹⁹⁾ 4200	16	4	15	<1	<1	2
Trichloroethene	T54	AR	1	μg/l	⁽¹⁹⁾ 8800	43	42	28	<1	<1	<1
Vinyl chloride	T54	AR	1	μg/l	⁽¹⁹⁾ 260	5	<1	<1	<1	<1	<1
Xylene (Total)	T54	AR	1	μg/l	⁽¹⁹⁾ 1500	17	3	6	<1	<1	7

SAL Reference: 223297 Customer Reference: 907BRI

Water Analysed as Water

Vertase Hauxton VOC Suite

			SA	L Reference	223297 011	223297 012	223297 013	223297 014	223297 015	
		Custon	ner Sampl	e Reference	N3	RIDDY DOWN	CAM DOWN	RIDDY UP	CAM UP	
			Da	ate Sampled	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010	22-OCT-2010	
Determinand	Method	Test Sample	LOD	Units						
1,2-Dichlorobenzene	T54	AR	1	μg/l	<1	<1	<1	<1	<1	
1,2-Dichloroethane	T54	AR	1	μg/l	<1	<1	<1	<1	<1	
Cis-1,2-Dichloroethylene	T54	AR	1	μg/l	<1	2	<1	<1	<1	
Cyclohexanone	T54	AR	10	μg/l	<10	<10	<10	<10	<10	
Tetrachloroethene	T54	AR	1	μg/l	<1	1	1	1	<1	
Toluene	T54	AR	1	μg/l	<1	<1	<1	<1	<1	
Trichloroethene	T54	AR	1	μg/l	1	3	<1	1	<1	
Vinyl chloride	T54	AR	1	μg/l	<1	<1	<1	<1	<1	
Xylene (Total)	T54	AR	1	μg/l	<1	<1	<1	<1	<1	

Index to symbols used in 223297-1

Value	Description								
AR	As Received								
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

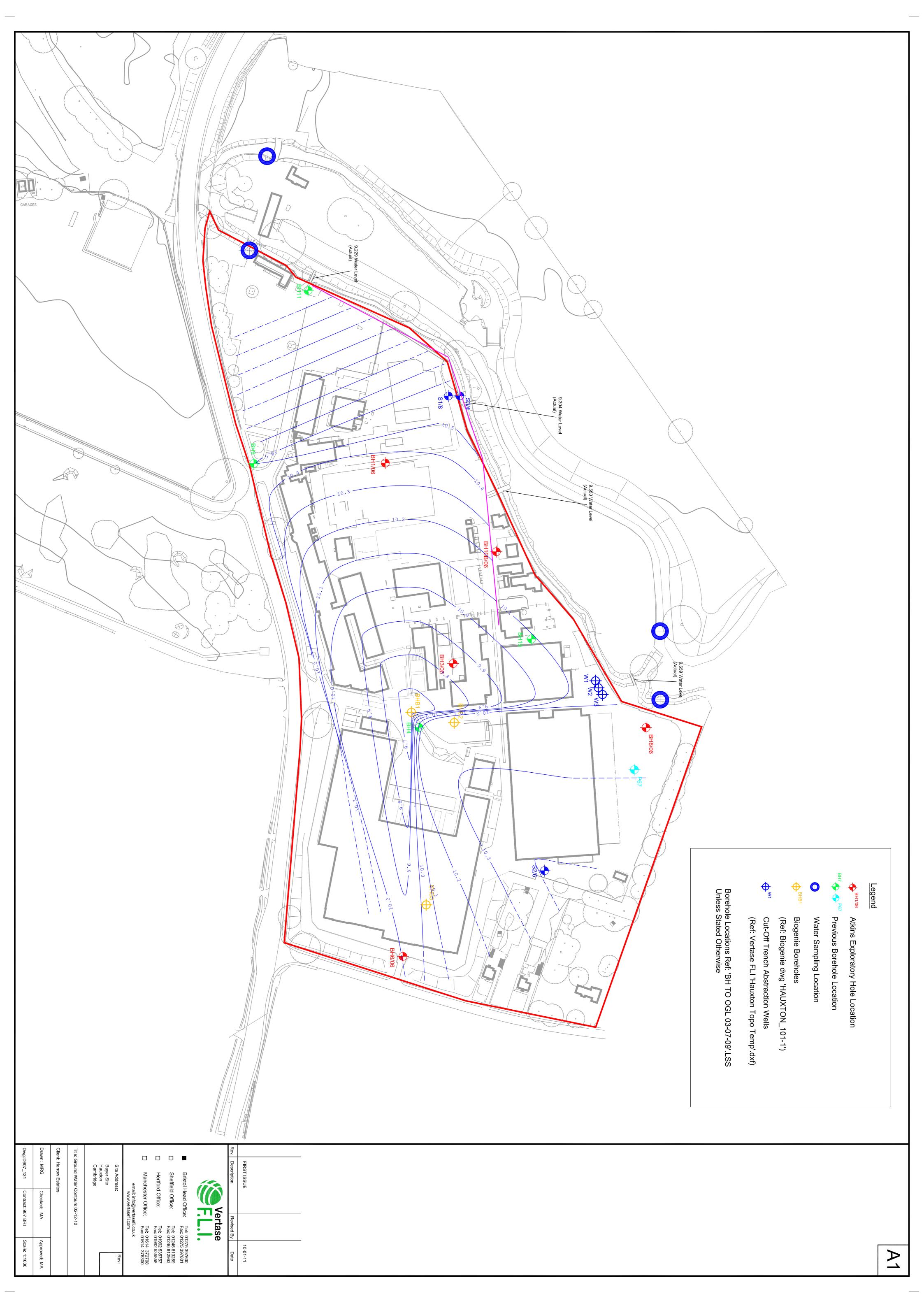
Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Electrical Conductivity	T7	AR	10	μS/cm	N	001-004,008-015
рН	T7	AR			U	001-004,008-015
Dimefox	T16	AR	0.1	μg/l	N	001-004,008-015
Ethofumesate	T16	AR	0.1	μg/l	N	001-004,008-015
Hempa	T16	AR	0.1	μg/l	N	001-004,008-015
Schradan	T16	AR	0.1	μg/l	N	001-004,008-015
Simazine	T16	AR	0.01	μg/l	N	001-004,008-015
Dicamba	T16	AR	0.1	μg/l	N	001-004,008-015

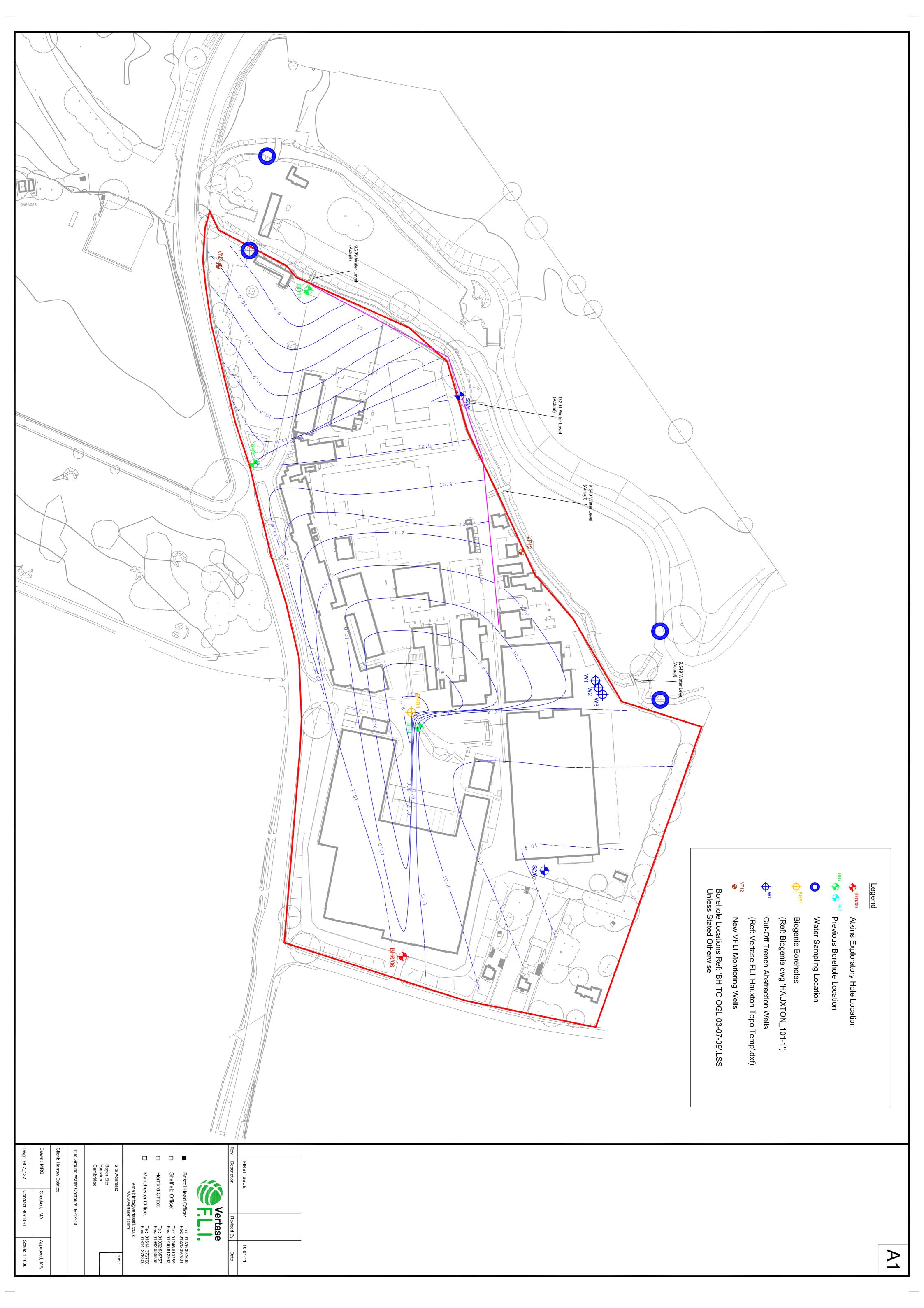
Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Dichlorprop	T16	AR	0.1	μg/l	N	001-004,008-015
Phenoxy Acetic acid herbicide: MCPA	T16	AR	0.1	μg/l	N	001-004,008-015
Mecoprop	T16	AR	0.1	μg/l	N	001-004,008-015
2,4,6-Trichlorophenol	T16	AR	10	μg/l	U	001-004,008-015
2-Methyl-4,6-dinitrophenol	T16	AR	10	μg/l	N	001-004,008-015
4-Chloro-2-methylphenol	T16	AR	10	μg/l	N	001-004,008-015
Bis (2-chloroethyl) ether	T16	AR	10	μg/l	U	001-004,008-015
Phenol	T16	AR	10	μg/l	U	001-004,008-015
1,2-Dichlorobenzene	T54	AR	1	μg/l	U	001-004,008-015
1,2-Dichloroethane	T54	AR	1	μg/l	U	001-004,008-015
Cis-1,2-Dichloroethylene	T54	AR	1	μg/l	U	001-004,008-015
Cyclohexanone	T54	AR	10	μg/l	N	001-004,008-015
Tetrachloroethene	T54	AR	1	μg/l	U	001-004,008-015
Toluene	T54	AR	1	μg/l	U	001-004,008-015
Trichloroethene	T54	AR	1	μg/l	U	001-004,008-015
Vinyl chloride	T54	AR	1	μg/l	U	001-004,008-015
Xylene (Total)	T54	AR	1	μg/l	U	001-004,008-015

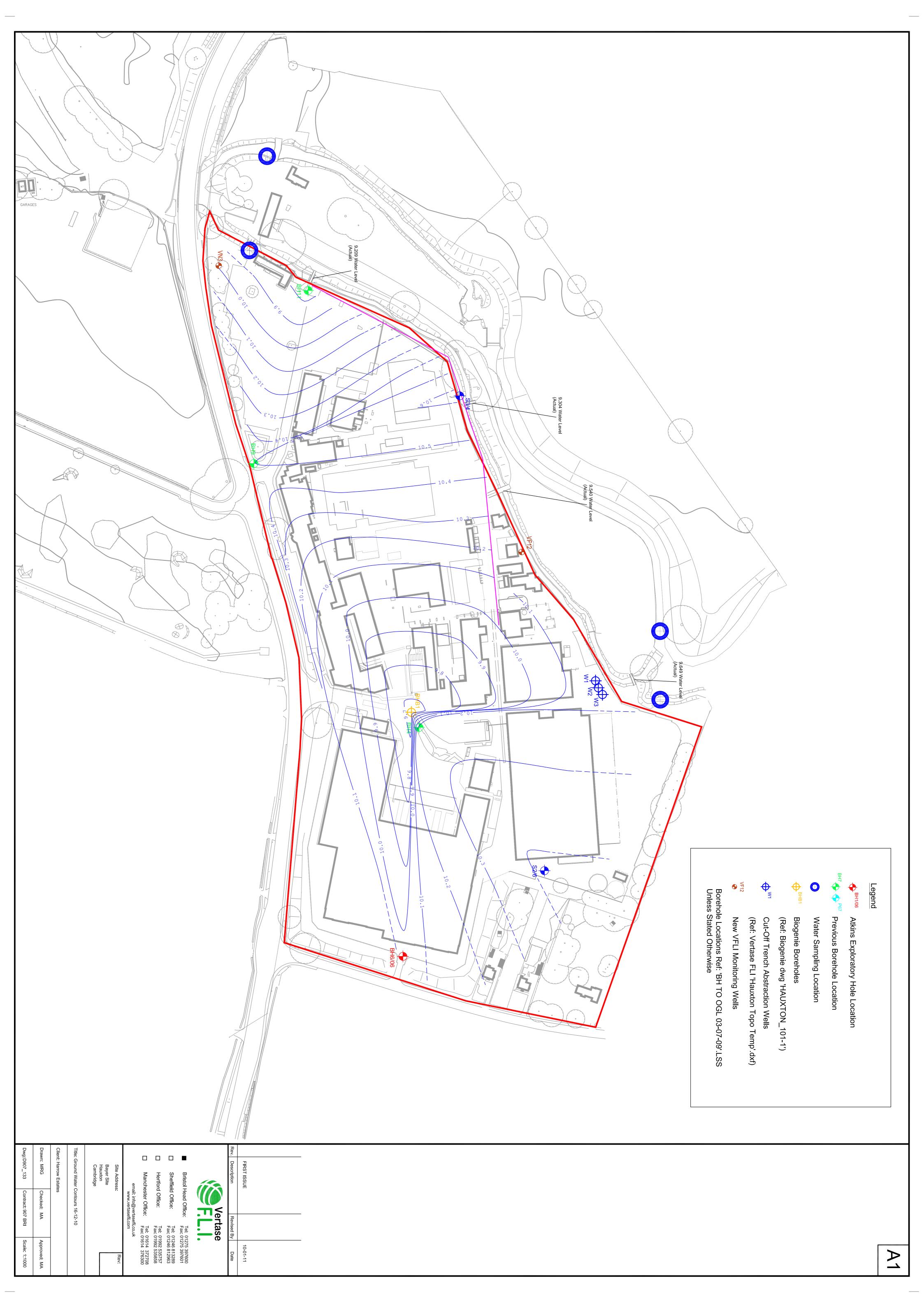




Appendix G
Groundwater Contour Plots









Appendix H
Waste Water Treatment Plant Discharge Analysis

Water Quality Analysis of Effluent Discharge Sample

														Total					
							0		Dia ah a saisasi					Atrazine,				i '	
						0	Suspended	A i I	Biochemical					Trietazine				i '	ļ ,
				D	0-1:-	Sulphate		Ammoniacal	Oxygen	-11	A 4	T.:	C:	and	Danasalia	0.0.0 TDA	D:		0 - 1 1
					Chloride	Ion	(Total)	Nitrogen	Demand	рн		Trietazine				2,3,6-TBA			
Sample Taken		Report Number	Sample Location	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l		μg/l	μg/l	μg/l	ug/l	μg/l	μg/l	μg/l	μg/l	μg/l
		ented Levels		50	3000	5000	45	15	30	na		otal of all th		250	50	20	50	274	135
01/03/2010	17/03/2010		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		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		T99 Circ	<1.0	110.00	190.00	<10	< 0.05	<3	8.0		<0.01	<0.01	0.00	<0.1	<0.1	<0.1	2.90	0.40
10/04/2010			T100 Circ	<1.0	110.00	190.00	<10	0.05	<3	7.9		0.01	<0.01	0.01	<0.1	<0.1	<0.1	0.90	0.30
12/04/2010	21/04/2010		T100 Circ	<1.0	1100.00	200.00	<10	<0.05	<3	8.2		<0.01	<0.01	0.00	<0.1	<0.1	<0.1	1.50	<0.1
28/04/2010	19/05/2010		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			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			Discharge Point	<1.0	180.00	280.00	<10	0.09	<3	8.0		0.01	<0.01	0.01	0.60	5.20	0.20	6.30	3.80
28/05/2010	17/06/2010		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		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		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		WWTW Discharge	<1.0	160.00	300.00	<10	< 0.05	<3	8.0		0.09	0.02	0.13	<0.5	0.40	<0.1	<0.1	<0.1
19/08/2010	26/08/2010		WWTW Discharge	<1.0	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		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		WWTW Discharge	<1.0	86.00	170.00	<10	0.08	<3	7.9		<0.01	<0.01	0.00	<0.1	<0.1	<0.1	24	3.5
24/09/2010	04/10/2010		WWTW Discharge	<1.0	160.00	340.00	35	< 0.05	<3	8.0		<0.01	<0.01	0.00	<0.1	<0.1	<0.1	24	0.6
08/10/2010	21/10/2010		WWTW Discharge	<1.0	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		WWTW Discharge	<1.0	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		WWTW Discharge	<1.0	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		WWTW Discharge	<1.0	150.00	160.00	<10	< 0.05	<3	8.0		<0.01	<0.01	0.00	<0.1	0.9	0.1	14	24
09/12/2010	23/12/2010		WWTW Discharge	<2.0	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	<1.0	66.00	100.00	<10	< 0.05	<3	8.0	<0.01	<0.01	<0.01	0.00	<0.1	<0.1	<0.1	11	8.5



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: 222558-1

Date of Report: 23-Dec-2010

Customer: VertaseFLI Limited

19 Napier Court
Barlborough Links
Barlborough
S43 4PZ

Customer Contact: The Project Management

Customer Job Reference: 907BRI
Customer Purchase Order: 907BRI
Date Job Received at SAL: 16-Dec-2010
Date Analysis Started: 17-Dec-2010
Date Analysis Completed: 23-Dec-2010

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



Report checked and authorised by : Amelia McVennon Project Manager Issued by : Amelia McVennon Project Manager

Water Analysed as Water

Miscellaneous

		222558 001	222558 002			
		WWTW DISCHARGE	WWTW PRIMARY B			
		09-DEC-2010	09-DEC-2010			
Determinand	Method	Test Sample	LOD	Units		
Ammoniacal nitrogen	T4	AR	50	μg/l	730	190
Biochemical Oxygen Demand	T7	AR	3000	μg/l	<3000	<3000
pH	T7	AR			8.1	8.2

SAL Reference: 222558 Customer Reference: 907BRI

Water Analysed as Water

Suite A

						4.00
		222558 001	222558 002			
		WWTW DISCHARGE	WWTW PRIMARY B			
		09-DEC-2010	09-DEC-2010			
Determinand	Method	Test Sample	LOD	Units		
Atrazine	T16	AR	0.01	μg/l	<0.01	1.9
Trietazine	T16	AR	0.01	μg/l	<0.01	8.1

SAL Reference: 222558 Customer Reference: 907BRI

Water Analysed as Water

Suite B						
			SA	L Reference	222558 001	222558 002
		WWTW DISCHARGE	WWTW PRIMARY B			
		130	D	ate Sampled	09-DEC-2010	09-DEC-2010
Determinand	Method	Test Sample	LOD	Units		
Benazolin	T16	AR	0.1	μg/l	<0.1	<0.1
2,3,6-TCB	T16	AR	0.1	μg/l	2.9	39

SAL Reference: 222558 Customer Reference: 907BRI

Water Analysed as Water

Suite C

		WWTW DISCHARGE	WWTW PRIMARY B			
		09-DEC-2010	09-DEC-2010			
Determinand	Method					
Bromide	T253	AR	100	μg/l	<2000	<2000
Chloride	T253	AR	200	μg/l	64000	60000
Sulphate ion	T253	AR	100	μg/l	120000	120000
Suspended Solids (Total)	T2	AR	10000	µq/l	<10000	<10000

SAL Reference

222558 001

222558 002

SAL Reference: 222558
Customer Reference: 907BRI

Water Analysed as Water

Suite D

		222558 001	222558 002			
		WWTW DISCHARGE	WWTW PRIMARY B			
		09-DEC-2010	09-DEC-2010			
Determinand	Method	Test Sample	LOD	Units		
Dicamba	T16	AR	0.1	μg/l	0.3	0.4
Hempa	T16	AR	0.1	μg/l	10	5.8
Schradan	T16	AR	0.1	μg/l	5.1	3.1
Simazine	T16	AR	0.01	μg/l	<0.01	0.88

SAL Reference: 222558 Customer Reference: 907BRI Water Analysed as Water Suite E SAL Reference 222558 001 222558 002 Customer Sample Reference | WWTW DISCHARGE | WWTW PRIMARY B **Date Sampled** 09-DEC-2010 09-DEC-2010 Test Sample Determinand Method LOD TVC at 22 C after 3 days T34 10 AR cfu/ml 10000 10000 TVC at 37°C after 2 days T34 AR 10 cfu/ml 3200 10000

Index to symbols used in 222558-1

Value	Description
AR	As Received
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			
T16	GC/MS			
T253	IC(EID299)			
T4	Colorimetry			
T34	Micro			
T2	Grav			

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
рН	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	N	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

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
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





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: 223307-1

Date of Report: 13-Jan-2011

Customer: VertaseFLI Limited

19 Napier Court
Barlborough Links
Barlborough
S43 4PZ

Customer Contact: The Project Management

Customer Job Reference: 907BRI
Customer Purchase Order: 907BRI
Date Job Received at SAL: 23-Dec-2010
Date Analysis Started: 04-Jan-2011
Date Analysis Completed: 13-Jan-2011

The results reported relate to samples received in the laboratory

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



Report checked and authorised by : Amelia McVennon Project Manager Issued by : Amelia McVennon Project Manager

SAL Reference: 223307 Customer Reference: 907BRI

Water Analysed as Water

Miscellaneous

		L Reference	223307 001	223307 002			
		e Reference	WWTW DISCHARGE	WWTW PRIMARY B			
Date Sampled 22-DEC-2010 22-DEC-2010							
Determinand	Method	Test Sample	LOD	Units			
Ammoniacal nitrogen	T4	AR	50	μg/l	<50	<50	
Biochemical Oxygen Demand	T7	AR	3000	μg/l	<3000	<3000	
pН	T7	AR			8.0	8.0	

SAL Reference: 223307 Customer Reference: 907BRI

Water Analysed as Water

Suite A

		223307 001	223307 002			
		WWTW DISCHARGE	WWTW PRIMARY B			
		22-DEC-2010	22-DEC-2010			
Determinand	Method	Test Sample	LOD	Units		
Atrazine	T16	AR	0.01	μg/l	<0.01	0.29
Trietazine	T16	AR	0.01	μg/l	<0.01	2.9

SAL Reference: 223307 Customer Reference: 907BRI

Water Analysed as Water

Suite B						
		223307 001	223307 002			
		e Reference	WWTW DISCHARGE	WWTW PRIMARY B		
		22-DEC-2010	22-DEC-2010			
Determinand	Method	Test Sample	LOD	Units		
Benazolin	T16	AR	0.1	μg/l	<0.1	<0.1
2,3,6-TCB	T16	AR	0.1	μg/l	<0.1	<0.1

SAL Reference: 223307 Customer Reference: 907BRI

Water Analysed as Water

Suite C

		WWTW DISCHARGE	WWTW PRIMARY B			
		22-DEC-2010	22-DEC-2010			
Determinand	Method	Test Sample	LOD	Units		
Bromide	T253	AR	100	μg/l	⁽⁹⁾ <1000	<100
Chloride	T253	AR	200	μg/l	66000	73000
Sulphate ion	T253	AR	100	μg/l	100000	130000
Suspended Solids (Total)	T2	ΔR	10000	ua/l	<10000	<10000

SAL Reference

223307 001

223307 002

SAL Reference: 223307 Customer Reference: 907BRI

Water Analysed as Water

Suite D

TVC at 37°C after 2 days

T34

AR

		223307 001	223307 002			
		WWTW DISCHARGE	WWTW PRIMARY B			
		22-DEC-2010	22-DEC-2010			
Determinand	Method	Test Sample	LOD	Units		
Dicamba	T16	AR	0.1	μg/l	<0.1	<0.1
Hempa	T16	AR	0.1	μg/l	11	9.4
Schradan	T16	AR	0.1	μg/l	8.5	3.4
Simazine	T16	AR	0.01	μg/l	<0.01	0.21

SAL Reference: 223307 Customer Reference: 907BRI Water Analysed as Water Suite E SAL Reference 223307 001 223307 002 Customer Sample Reference | WWTW DISCHARGE | WWTW PRIMARY B **Date Sampled** 22-DEC-2010 22-DEC-2010 Test Sample Determinand LOD T34 TVC at 22 C after 3 days 10 cfu/ml 3200 5100 AR

10

cfu/ml

Index to symbols used in 223307-1

1800

2000

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
T253	IC(EID299)
T4	Colorimetry
T34	Micro
T2	Grav
T16	GC/MS

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
рН	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	N	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





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 peak	s detected
12.04.2010	06.05.2010	K16	Series of Aromatic Hydrocarbons circa C ₁₃ -C ₁₆	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.
			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.
15.04.2010	06.05.2010 (09.06.2010)	J16	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 ₁₄	240,000	Potential herbicide degradation products. The structures are smaller and less complex
			Unidentified branched aromatic alcohol, C ₁₈	290,000	than contaminants of concern and will therefore degrade more readily than the target contaminants and will be captured by
			Phenanthrene	4,100	Encountered and assessed during site
15.04.2010	06.05.2010	K14	Fluoranthene	4,800	investigation, concentration below target value
10.04.2010	00.00.2010		Pyrene Benzo(b/k)Fluoranthene	3,900 2,200	
			Dodecanoic acid (Lauric acid), isooctyl 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.
07.05.2010	24.05.2010	К9	Unidentified Aliphatic Hydrocarbon circa C ₃₀	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.
			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 octaatomic sulphur	2,800	S_8 is the most common form of sulphur in the solid state, widely used in insecticide and fungicide manufacture

07.05.2010	24.05.2010 (09.06.2010)	L8	Dodecanoic acid (Lauric acid), isooctyl 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 CI circa C ₇	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 ₃₀	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		
			1,2-bis(2,4,6- trichlorophenoxy)ethane	6,900	Potential Prochloraz degradation product
			Prochloraz	9,100	Fungicide
			Unidentified aromatic	9,400	Potential herbicide degradation products.
13.05.2010	24.05.2010	H9	hydrocarbon containing Cl circa		The structures are smaller and less complex
	(09.06.2010)		C ₈		than contaminants of concern and will
			Unidentified aromatic amine containing CI circa C ₁₁	2,100	therefore degrade more readily than the target contaminants and will be captured by the remediation process.
13.05.2010	24.05.2010	17	No SVOC peaks detected		
		10 19	2,4-Dichloro-o-cresol	29,000	
			2,3,6-Trichlorotoluene	47,000	Detential harbiside degradation product
			1-(2-Chloroethoxy)-2-(o-Tolyloxy)-ethane	20,000	Potential herbicide degradation product
13.05.2010	24.05.2010		Unidentified aromatic alcohol	25,000	Potential herbicide degradation products.
13.03.2010	(09.06.2010)	13	containing CI circa C ₇		The structures are smaller and less complex
			Unidentified aromatic hydrocarbon containing O circa C ₁₆₋₁₈	12,000	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	J7	No VOC/SVOC peaks detected		
20.05.2010	24.05.2010	J8	No VOC/SVOC peaks detected		
26.05.2010	İ	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		
			2-methyl phenol	5,500	Encountered and assessed during site investigation, not a priority contaminant
18 06 2010	29 06 2010	IR			investigation, not a priority contaminant

10.00.2010	23.00.2010	10	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
			Dichloromethyl phenol	1,800,000	As for 2,4-Dichloro-o-cresol (I9, H7, K10)
			Naphthalene	4,600,000	Encountered and assessed during site
			2-methylnaphthalene	3,900,000	investigation, not a priority contaminant
20.07.2010	21.07.2010	K10 NAPL	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.
			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
21.07.2010	22.07.2010	J10	Trichlorobenzene	32,000	investigation, not a priority contaminant
			2-Chlorotoluene	60,000	investigation, not a phonty 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)
			2,4-Dichloro-o-cresol CAS 1570-65-6	10,000	As for I9, H7, K10, J10, L11
28.07.2010	02.08.2010	H10	Trichloro toluene isomers	58,000	Same as I9, J10
28.07.2010	02.06.2010	НЮ	Dichlorotoluene isomer	52,000	6 possible isomers, but very little data, using surrogate.
			2-Chlorotoluene	39,000	Encountered and assessed during site
			Trichlorobenzene	350,000	investigation, not a priority contaminant
28.07.2010	02.08.2010	110	2,4-Dichloro-o-cresol CAS 1570-65-6	5,000	As for I9, H7, K10, J10, L11, H10
28.07.2010	02.06.2010	110	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

1	1		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	Potential agrochemical synthesis ingredient - further investigation is required
25.08.2010	N/A	l13	1-methylnaphthalene CAS 90-12-0	100	Same as K10NAPL
			Phenanthrene	200	Encountered and assessed during site
			Fluoranthene	300	investigation, not a priority contaminant
			Pyrene	300	
			Benzo(b/k)Fluoranthene	200	
01.09.2010	N/A	l14	Trichloro methyl benzene (trichloro toluene)	400	Same as I9, J10, H10, I10, K13, J11

01.09.2010	N/A	l15	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	l12	1-methylnaphthalene CAS 90-12-0	40,000	Same as K10NAPL, I13
			Dibenzofuran	24,000	Encountered and assessed during site
			Phenanthrene	60,000	investigation, not a priority contaminant
			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	
	N/A		Trichloro methyl benzene (trichloro toluene)	230	Same as I9, J10, H10, I10, K13, J11, I14, I11
			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
			1,2,4-Trimethylbenzene	10000000	investigation, not a priority contaminant
			1,2,3-Trimethylbenzene	3100000	
22.10.2010	25.10.2010	G12	Nicotine	6400	Natural insecticide
(216017)	N/A		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		
(216817)	30.11.2010	G10	Dibromochloromethane CAS 124-48-1	300	Risk Assessment
	N/A		Dichloromethyl phenol	1300	As for I9, H7, K10, J10, L11, H10, I10, L12, K12, K13, J11, J12, I15, I11, H13, G12
			Isophorone	7100	Encountered and assessed during site
			Benzyl Chloride (1-chloro-2-methylbenzene CAS 95-49-8)	200	investigation, not a priority contaminant
			Methylpropyl phenol	7100	
			3,3,5-	700	
			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
			Methylpropyl phenol	22000	investigation, not a priority contaminant
			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)			Dimethyl naphthalene	59000	Risk Assessment

	N/A		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-	600	As J14, H12
			methyl benzene (ethyl toluene)		
			Ethyltoluene	300	
			Isophorone	37000	Encountered and assessed during site
			Naphthalene	43000	investigation, not a priority contaminant
			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	N/A	M8	2-methyl phenol	11,000	Encountered and assessed during site
(217789)					investigation, not a priority contaminant
08.11.2010	N/A	M6	No VOC/SVOC peaks detected		
(217793)					
08.11.2010	N/A	N6	No VOC/SVOC peaks detected		
(217793)			режине выполнять на применения выполния выполнять на применения выполнить на п		
08.11.2010	N/A	L5	No VOC/SVOC peaks detected		
(217795)			режине выполнять на применения выполнительным выполнати выполнительнитель на применения выполнительным вы применения выститель		
08.11.2010	N/A	M4	No VOC/SVOC peaks detected		
(217795)			no voo, ovoo pouno dotootod		
08.11.2010	N/A	M5	No VOC/SVOC peaks detected		
(217797)			140 VOO/OVOO peako deleoled		
08.11.2010	N/A	N4	No VOC/SVOC peaks detected		
(217797)	1471		No voo/ovoo peaks detected		
08.11.2010	N/A	N5	No VOC/SVOC peaks detected		
(217797)	14// (110	No voo/svoo peaks detected		
08.11.2010	N/A	M9	No VOC/SVOC peaks detected		
(217800)	IN/A	IVIÐ	No voc/svoc peaks detected		
18.11.2010	N/A	16	No VOC/SVOC pooks data at all		
(218834)	IN/A	10	No VOC/SVOC peaks detected		
23.11.2010	N/A	L4	N- VOO(0)(OO Iv- d-:		
	IN/A	L4	No VOC/SVOC peaks detected		
(219458)	NI/A	NO			
23.11.2010	N/A	N3	No VOC/SVOC peaks detected		
(219456)					