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REMEDIATION METHOD STATEMENT

AREA B, PENNYCROFT WAY UTTOXETER

EAST STAFFORDSHIRE BOROUGH COUNCIL

DECEMBER 2013

IVY HOUSE environmental

SUMMARY TABLE: REMEDIATION METHOD STATEMENT		
SITE:	Area B, Pennycroft Way, Uttoxeter, Staffs	
CLIENT:	East Staffordshire Borough Council	
DATE:	December 2013	
DEVELOPMENT PROPOSAL:	Residential	
CURRENT LAND USE:	Former gas works, currently occupied by local authority recycling tip, skip yard and commercial units housing a printers and vehicle servicing garage.	
HUMAN HEALTH:	Remediation required to protect against elevated arsenic, lead, PAHôs, asbestos, TPH and cyanide.	
CONTROLLED WATERS:	Remediation required to protect against elevated sulphate, PAHôs, phenols, TPH, SVOC, VOC and cyanide	
GAS PROTECTION:	Amber 2	
WATER PIPES:	Upgraded pipes required.	
WASTE MANAGEMENT:	Majority of contaminated materials anticipated to be characterised as hazardous.	

Authorised:		Richard Sutton MRICS *Director*
Date:	18th December 2013	
Revision:	1.0	

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APPENDICES

1.0 INTRODUCTION

1.1 PREAMBLE

This Remediation Method Statement has been produced for East Staffordshire Borough Council (*The Client*) to provide Phase III recommendations for the site area referred to as *Area B, Pennycroft* Way, Uttoxeter.

Area B was initially investigated in 2010 by BWB Consulting (ref. P2010/01134) and a Phase IIA investigation has recently been completed by Ivy House Environmental Ltd (Ref. IV.58.13.PhIIA, November 2013). The RMS aims to provide site specific target levels and a methodology to protect human health and controlled waters receptors prior to the proposed residential development of the site.

1.2 PROJECT BRIEF

The brief for the Remediation Method Statement incorporates:

- Implementation of the Phase IIA conceptual model.
- Consideration of regulatory authority correspondence relating to site investigation reports.
- Consideration of the development proposal.
- An appraisal of suitable remedial methods.
- Draft a Remediation Method Statement for submission to the regulators and specialist contractors.

1.3 SITE LOCATION

The site is located approximately 500m to the north of Uttoxeter town centre. The National Grid Reference (NGR) for the approximate centre of the site is SK 091 340. The site location is illustrated in Appendix A.

1.4 REFERENCES

- *Phase 1 Geo-Environmental Assessment Report. The Dove Way (Areas A & B) Uttoxeter.* BWB Consulting. Ref. NTE285/01/V1. July 2010.
- *Phase 2 Geo-Environmental Assessment Report. The Dove Way (Areas A & B) Uttoxeter.* BWB Consulting. Ref. NTE285/01/V1. August 2010.
- *Phase IIA Environmental Assessment. Pennycroft Way, Uttoxeter.* Ivy House Environmental Ltd. Ref. IV.58.1.PhIIA. November 2013.
- CLR 11: Model Procedures for the Management of Land Contamination (EA/Defra. Sept 2004).

1.5 SITE DESCRIPTION

The northern section of the site is occupied by the local authority recycling centre, which receives household wastes such as paper, white goods, rubble, wood, oil, batteries and clothing. The west to east flowing Wharf Brook flows along a concrete culvert through the centre of the site, the banks of which are populated by mature trees and shrubs.

The western site area (Skip Yard) is currently used as a skip/waste depot by ESBC and houses a small block of lock up units, old office/admin buildings and stores along the south-western boundary and an area for skip/bin storage.

Along the central southern boundary, a single storey unit is occupied by a printers and a vehicle servicing garage. The majority of the central area is rough tarmac hardstanding and a public toilet is located in the centre of the site.

The eastern section of the site comprises scrubland which has been subject to tipping, as evidenced by an overgrown centrally located mound. The site layout is illustrated in Appendix B.

1.6 DEVELOPMENT PROPOSAL

A planning application (ref. P/2013/00206) has been submitted for the demolition of the existing structures and the construction of 49 residential units and associated infrastructure. A copy of the outline proposal is contained in Appendix C.

2.0 PHASE II REVIEW

2.1 HISTORICAL REVIEW

The site area has been in industrial use since the 1800ûs, where a gas works occupied the whole area up until the 1960ûs. Two gas holders were located in the western section of the site, with a third located on land to the north-west. A railway line ran through the eastern section of the site up until the 1980ûs, when the cutting was infilled.

Since the 1960ûs the site has been used as a depot, with commercial units and a refuse tip (recycling centre) also on site.

2.2 SITE INVESTIGATION REPORTS

Two site investigation reports have been submitted to the client for the site. A 2010 report, produced by BWB Consulting, and a 2013 report, produced by Ivy House Environmental Ltd.

The BWB report assessed two parcels of land, a southern parcel (Area B) which is the area subject to a residential development scheme, and a parcel to the north-east of Area B (Area A) which is subject to a commercial development scheme. An adjoining strip of land was also subject to assessment by BWB.

Ivy House Environmental Ltd completed a supplementary investigation of Area B, which also included an additional parcel of land to the west of Area B. This parcel is referred to as the *Skip Yard.*

BWB completed seven window sample boreholes to between 2.0 and 3.0mbgl; three cable percussion boreholes to between 5.3 and 9.0mbgl and two trial pits to 2.7 and 3.4mbgl. Ivy House Environmental Ltd completed nine trial pits and trenches to a maximum depth of 3.4mbgl, thirteen window sample boreholes to a maximum depth of 4.25mbgl and three shallow hand dug pits. Plans illustrating the site investigation boreholes and trial pits are presented in Appendix D, alongside exploratory hole logs.

2.2.1 Ground Conditions

The site can be divided into three distinct areas to summarise ground conditions:

1. General Site Area: Operational refuse tip, southern section (80%) of the skip yard and open hardstanding to the front of the commercial units.
2. Gas Holders: Located in the northern section of the skip yard and to the south of the entrance to the commercial units.
3. South-Eastern Area: Overgrown with scrub and subject to unregulated historical waste disposal.

The plans contained in Appendix E illustrate the above site areas.

2.2.2 General Site Area

Ground conditions across the majority of the site comprise:

Made Ground: Sandy gravelly clay and clayey gravelly sand with gravel of coal, brick, quartzite and sandstone to a maximum depth of 3.2mbgl in the commercial area.

Natural Strata: Alluvium present along the bank of the Wharf Brook and along the western boundary of the refuse tip at 0.5 ï 4.45mbgl.

Medium dense sand and gravel with gravel of quartzite from 1.7 ï 7.2mbgl.

Weak red-brown mudstone from 1.5 ï 9.0mbgl.

Contamination: Localised very soft blue clay (Blue Billy) in TP137 (2.0mbgl).
Ash, Clinker and tar staining (WSC 0.45 ï 3.0mbgl, WSG 0.1-2.4mbgl).
Asbestos tile fragments in Refuse Tip (WSJ 0.1-1.3mbgl)

2.2.3 Gas Holders

The footprints of the two historical gas holders were investigated using trial pits and trenches and window sample boreholes.

Made Ground: Fill of ash, clinker, bricks, concrete, wood, coal, black, tar stained and strong tar odour to 3.2mbgl.

Natural Strata: Very sandy clay observed in the base of trench TPA at 1.6mbgl and beyond the outer brick wall to the gas holder in TPB1 at approximately 1.5mbgl.

Clayey sand and gravel from 0.6 ï 1.4mbgl and very sandy clay at 1.4 ï 3.0mbgl were observed in borehole WSA1.

Contamination: All made ground to a depth of 2.5mbgl in the western gas holder and 3.2mbgl in the eastern gas holder. The diameter of the gas holders is estimated at around 15m.

2.2.4 South-Eastern Area:

Infilled ground with spoil heaps extending to two metres above ground level.

Made Ground: Clayey sand and sandy clay fill with waste materials (e.g. polythene, road cones, rope), brick, concrete, kerbstones, asbestos sheet fragments, pottery, ash and clinker in trial pits TPG, TPI, TPJ, TPK and borehole WSI.

Ash and clinker with sulphurous odour in trial pits TPH and TP137.

Ground at the southern end of this area appears to have been backfilled with ash and clinker, whilst the eastern and northern sections contain general fill materials and some tarry residues.

Natural Strata: Alluvium present along the bank of the Brook and underlying the fill at 1.5 ï 3.5mbgl.

Contamination: All made ground from >2m above ground level to 3.2mbgl, including ash, clinker (Blue Billy), asbestos fragments and general waste.

2.2.5 Groundwater

Groundwater was present in the majority of boreholes at depths of 0.51 ï 2.65mbgl. The BWB report concludes that the groundwater gradient is towards the east, commensurate with the flow in the Wharf Brook.

2.2.6 Surface Water

The Wharf Brook flows through the centre of the site along a concrete culvert. Sampling of the Brook in 2010 reported elevated concentrations of lead and zinc.

2.3 CONTAMINATION ï HUMAN HEALTH

An assessment of the site investigation data for the residential with plant uptake model is summarised in tables 2.1 and 2.2. Soil analysis results for both the 2010 and 2013 investigations are contained in Appendix F.

2.3.1 Asbestos

The presence of asbestos fibres was reported in one sample taken from trial pit TPG (+1.0m). Fragments of asbestos cement sheet were reported within the fill materials in the northern section of south-eastern area (WSI, TPG) and in borehole WSJ in the refuse tip section of the site.

2.3.2 Ground Gas & Soil Vapours

The maximum gas readings for the boreholes installed by BWB and Ivy House Environmental are detailed below:

- Carbon Dioxide: 6.6% v/v
- Methane: 0.2% v/v
- Oxygen: 6.4 ï 21.1% v/v
- Flow: 0.4l/hr

It has been agreed with the client that the site is characterised as Amber 2 and gas protection will be required for the proposed residential units. The vapour analysis and risk assessment implemented by Ivy House

Environmental concluded that soil vapours do not pose a risk to human health.

Table 2.1: General Contamination Summary

Determinand	SGV/GAC (mg/kg)	Exceedances	Comment
Arsenic	32	TP137 (50.8mg/kg) WS7 (44.2mg/kg)	Outliers
Lead	450*	TP137 (594mg/kg)	Outlier
Cyanide (Complex)	213**	TP137 (22,200mg/kg)	Outlier
Naphthalene	8.7	TP137 (44.7mg/kg) HDB (14.2mg/kg)	Outlier
Benzo(a)anthracene	5.9	UCL 10.38mg/kg	Outliers removed
Chrysene	9.0	TP136 (16.7mg/kg) TP137 (63.2mg/kg) WS5 (17.7mg/kg) WS6 (64.1mg/kg)	Outliers
Benzo(b)fluoranthene	7.0	UCL 16.18mg/kg	Outliers removed
Benzo(k)fluoranthene	10	TP137(27.1mg/kg) WS6 (29.3mg/kg) HDB (15.0mg/kg)	Outliers
Benzo(a)pyrene	1.0	UCL 9.86mg/kg	Outliers removed
Dibenz(a,h)anthracene	0.9	UCL 1.57mg/kg	Outliers removed
Indeno (1,2,3-cd) pyrene	4.2	UCL 6.84mg/kg	Outliers Removed

NOTE: * Withdrawn SGV. **BWB 2010 value

Table 7.2: Hydrocarbon Contamination Summary

Determinand	SGV/GAC (mg/kg)	Exceedances	Comment
EPH	500*	WS2 (510mg/kg) WS3 (3710/1170mg/kg) WS4(2640/1080mg/kg) WS5 (789mg/kg) WS6 (3090mg/kg) WSC (1045mg/kg) WSD (901mg/kg)	In made ground across general site area from 0.1 ï 2.0mbgl
		TPG (707mg/kg) TP135 (896mg/kg) TP136 (1830/1210mg/kg) TP137 (773/8970mg/kg)	South-Eastern Site Area
		WSA2 (565mg/kg) TPA (4993mg/kg)	Gas holders
Aliphatic C10 ï C12	110	TPA (119mg/kg)	Western gas holder
Aliphatic C12 ï C16	540	TPA (606mg/kg)	
Dibenzofuran	0.815	WSC (15.9mg/kg) WSG (1.1mg/kg)	In made ground across general site area from 0.1 ï 2.0mbgl
		TPA (10.3mg/kg) TPB (13.2mg/kg) WSA2 (3mg/kg)	Gas holders
		TPG (6.6mg/kg)	South-Eastern Site Area

2.4 CONTAMINATION ï CONTROLLED WATERS

The site is underlain by a Secondary A aquifer and the Wharf Brook, which flows through a concrete culvert, bisects the centre of the site from west to east.

Table 7.4 illustrates an assessment of the groundwater analysis results presented against their respective GAC. The groundwater, leachate and surface water analysis results for 2010 and 2013 investigations are contained in Appendix G.

Table 7.4: Groundwater Contamination Summary

Determinand	**SGV/GAC** (µg/l)	**Exceedances**	**Comment**
Sulphate	250mg/l	WSA2 (985mg/l) WSB (1250mg/l)	Skip yard, eastern gas holder and eastern section.
PAH(UKDWS4)	0.1	WSA2 (0.28 µg/l) WSB (26.75 µg/l) BH8 (15.96 µg/l) BH9 (20.25µg/l)	
TPH	10	WSA2 (149µg/l) WSB (496µg/l) WSI (40µg/l) BH8 (823µg/l) BH9 (1880µg/l)	Skip yard, eastern gas holder & eastern section
Phenols	0.5	WSA2 (0.5µg/l) WSB (37.8µg/l)	Skip yard & eastern gas holder
Benzene	1	WSB (384µg/l)	Skip yard
Dibenzofuran	N/A	WSA2 (5.2µg/l) WSB (3.3µg/l) WSI (2.3µg/l)	No thresholds available.
Carbazole	N/A	WSI (1.5µg/l)	
2,4 dimethylphenol	N/A	WSB (36.6µg/l)	
Cyanide	50	BH8 (957µg/l) BH9 (1630µg/l)	

An assessment of the leachate results illustrates that the materials sampled from within the western gas holder contain leachable concentrations of the following contaminants:

- TPH: 287µg/l
- Benzene: 43µg/l
- Ethylbenzene 20µg/l

2.5

3.0 PHASE III CONCEPTUAL MODEL

The Phase III conceptual model is illustrated below.

HUMAN HEALTH			
SOURCE	**PATHWAY**	**RECEPTOR**	**SOLUTION**
Made ground and natural strata contaminated with Arsenic, Cyanide, Lead, PAHs, TPH, Dibenzofuran and asbestos fibres.	Ingestion of contaminated soil and contaminated vegetables, direct contact (dermal) with contaminated soil and soil dust; ingestion and inhalation of contaminated soil dust.	Construction Workers	Basic PPE for all workers (overalls, gloves, dust mask if required) and wash facilities/personal hygiene
		End Users (Residents)	Remediation required in the form of off site disposal or stabilisation of grossly contaminated soils and provision of a clean capping layer in gardens. Excavation and disposal of asbestos containing materials. Upgraded membrane and vented void required for each plot. No requirement for vapour protection. DQRA and remediation in the form of bio-remediation or stabilisation of gas works related contamination.
	Inhalation of Carbon Dioxide and asbestos fibres.		
	Leaching into water supply pipes	Water Supply/End Users	Requirement for upgraded water pipes, e.g. aluminium sheathed or steel pipes.

CONTROLLED WATERS			
Made ground and natural strata contaminated with Inorganics, TPH, VOC and SVOC.	Leaching and vertical migration through the vadose zone to the saturated zone and lateral migration towards the surface watercourse.	Secondary A Aquifer & Wharf Brook	DQRA and remediation in the form of bio-remediation or stabilisation of contaminated made ground and gas works related contamination.

4.0 RISK ASSESSMENT & TARGET CONCENTRATIONS

4.1 INTRODUCTION

A Detailed Quantitative Risk Assessment (DQRA) is required to produce target values for the remediation of contaminated soil and groundwater to ensure that human health and controlled waters receptors are protected.

The human health risk assessment has utilised the CLEA v1.06 model in the production of Remedial Target Values (RTV) whilst the Environment Agencyôs *Remedial Targets Worksheet (version 3.2)* has been used to draft RTVôs for the protection of controlled waters. Copies of the relevant data spreadsheets and models are contained in Appendix H.

4.2 REMEDIAL TARGET VALUES

Table 4.1 illustrates the RTVôs.

Table 4.1: Remedial Target Values

	Controlled Waters			**Human Health**		**Target RTV (Soil)*** (mg/kg)
Determinand	**Max Concentration** (mg/l)	**T3 GW** (mg/l)	**T3 Soil** (mg/kg)	**Max Concentration** (mg/kg)	**RTV** (mg/kg)	
Asbestos	N/A	N/A	N/A	Chrysotile Fragments & Fibres	0%	0%
Arsenic	N/A	N/A	N/A	50.8	32	32
Lead	N/A	N/A	N/A	594	450	450
Cyanide (Total/Complex)	1.63	0.128	8.15	22,200	213	8.15
Naphthalene	N/A	N/A	N/A	44.7	8.7	8.7
Benzo(a)anthracene	N/A	N/A	N/A	10.38	5.9	5.9
Chrysene	N/A	N/A	N/A	64.1	9.0	9.0
Benzo(b)fluoranthene	0.0028	6.67E-4	2.48E-3	16.18	7.0	2.48E-3
Benzo(k)fluoranthene	0.003	3.39E-4	2.53E-3	29.3	10	2.53E-3
Benzo(a)pyrene	0.0063	2.56E-4	2.81E-3	9.86	1.0	2.81E-3
Dibenz(a,h)anthracene	N/A	N/A	N/A	1.57	0.9	0.9
Indeno(1,2,3-cd)pyrene	0.00423	3.39E-4	2.46E-3	6.84	4.2	2.46E-3
Sulphate	1250	2670	3390	N/A	N/A	3390
Phenols	0.0378	1.28E-3	6.62E-3	N/A	N/A	6.62E-3
Dibenzofuran	N/A	N/A	N/A	13.2	0.815	0.815
Benzene	0.384	2.56E-3	1.56E-2	N/A	N/A	1.56E-2
Aliphatic C10 ï C12	N/A	N/A	N/A	119	110	110
Aliphatic C12 ï C16	N/A	N/A	N/A	606	540	540
Aromatic C12-C16	0.08	3.39E-3	2.06E-2	N/A	N/A	2.06E-2
Aliphatic C16-C35	0.307	2.56E-3	2.17	N/A	N/A	2.17
Aromatic C16-C21	0.075	2.56E-3	2.2E-2	N/A	N/A	2.2E-2
Aromatic C21-C35	0.604	2.56E-3	2.51E-2	N/A	N/A	2.51E-2

4.3 COMMENT

The RTVôs have been produced using site specific data. It is understood that a number of the RTVôs may be below conventional laboratory limits of detection and, therefore, it is proposed that remediation contractors should state in their method statements whether such values can be attained. If re-assessment of the RTVôs is required, contractors should provide full justification in their proposals.

5.0 REMEDIAL STRATEGY

The remedial strategy should consider the RTVôs and earthworks elements of the development proposal in respect of likely finished floor levels, foundation design requirements, infrastructure and the re-grading of the Wharf Brook.

The strategy will also require regulatory approval and should be designed to remain within likely construction timeframes and budgetary considerations.

The remedial strategy should consider the re-use of materials on site wherever feasible and the formulation of a Materials Management Plan for such works.

The following sections state the aims of the remedial strategy for the reported contamination.

5.1 GAS HOLDERS

The Ivy House Environmental investigation confirmed that the basic structure of the western gas holder remains in-situ and, based on the log for WSA1, that gas works waste held within the eastern gas holder also remains in-situ. With respect to the development proposal, plots 20 ï 22 are located proximal to the western gas holder; plots 31 ï 34 are located proximal to the eastern gas holder.

To ensure that the risk of mobilising the contamination within the gas holders is minimised, the remedial strategy should comprise one or more of the following operations:

- Off-site disposal of grossly contaminated or geotechnically unsuitable materials ï materials which are likely to be characterised as hazardous waste.
- Stabilisation of in-situ gas works waste to restrict leaching into the water table.
- Stabilisation of in-situ gas works waste to reduce the leaching of contamination and, thus, reduce the waste classification to non-hazardous or inert.
- Ex-situ or in-situ bioremediation to reduce the risk posed human health and controlled waters.

It is anticipated that approximately 1000m^3 of material may require treatment.

5.2 ASBESTOS

Delineation of all asbestos containing materials (i.e. cement sheet fragments) from the locations identified in previous sections will be required. Plots 10 ï 17 and 44 ï 49 are located in areas where asbestos containing materials have been identified.

The re-use of soils and made ground containing asbestos fibres will be subject to the following specifications:

- Building and garden footprints: 1.5mbgl
- Service trenches: 0.5m below base of trench
- Hardstanding: 0.75mbgl.
- Landscaping: 0.75mbgl.

In all instances, asbestos containing materials should be placed below a layer of non-contaminated material.

5.3 SOUTH-EASTERN SECTION

This section of the site contains over five metres of made ground in some areas, comprising general waste, tyres, sandy clays with brick and concrete, tarmac, ash and clinker with contaminants ranging from asbestos containing materials to *Blue Billy* type cyanide contaminated fill and extensive ash and clinker deposits.

The remedial strategy for this section of the site should comprise one or more of the following operations:

- Off-site disposal of grossly contaminated or geotechnically unsuitable materials ï materials which are likely to be characterised as hazardous waste.
- Stabilisation of in-situ ash and clinker to restrict leaching into the water table.
- Stabilisation of in-situ ash and clinker to reduce the leaching of contamination and, thus, reduce the waste classification to non-hazardous or inert.
- Re-use of asbestos containing materials at depth as per section 5.2.

It is estimated that a minimum of 300m^3 of material in this section of the site may be classified as hazardous waste.

5.4 CONTROLLED WATERS

With respect to specific groundwater treatment, the works required to remediate the gas works waste, cyanide contaminated made ground and made ground in general will deal with any gross contamination and will, therefore, break the pollutant linkage with respect to controlled waters.

Dependant on volumes of perched water contained within the gas holders, there may be a requirement for treatment or off site disposal of contaminated liquid at these locations.

The regrading of the banks along the Wharf Brook should also be considered within the contractorôs methodology, as the works could involve the excavation of up to 500m^3 of surplus materials (see proposed profiles on the plan contained in Appendix C). Until an approved design for the watercourse is confirmed, the above figure should be included in any materials balance for the project, with an allowance made for 30% contaminated material.

5.5 MADE GROUND

Shallow made ground (<0.75mbgl) across the site is contaminated with metals, PAHôs and petroleum hydrocarbons. It is anticipated that a reduced level dig of around 0.5m will be required to create a formation level prior to the commencement of construction works. Consequently, an estimated volume of 4000m^3 of contaminated made ground may be surplus to requirements and will require off-site disposal.

Contractor should consider the following for such materials:

- Off site disposal according to the appropriate waste classification.
- Pre-disposal treatment to reduce the waste classification.
- Development of a Materials Management Plan for off site or on-site re-use.

5.6 WATER PIPES

At this stage, barrier pipes will be required for the development. This may be subject to revision on completion of the remedial works if, for example, it can be demonstrated that the pipes are not in contact with, contaminated ground. The utility provider should be consulted to provide guidance on this issue.

5.7 GAS PROTECTION

Gas protection measures specified for the development include the following:

- *Amber 2:* Protective membrane and ventilated sub-floor void. Membranes to be installed by specialist groundworks contractor; ventilation of the sub-floor should facilitate a minimum of one complete volume change every 24hrs. All installations should be inspected and approved as fit for purpose by an experienced consultant or contractor.

5.8 INVASIVE SPECIES

The contractor should ensure that the risks of distributing invasive species are negated by methods and procedures contained within their scope of works.

5.9 WASTE MANAGEMENT

For all materials excavated and scheduled for off-site disposal, the remediation contractor shall ensure that the appropriate duty of care reporting is maintained and that suitably licensed disposal or recycling facilities are used.

5.10 HEALTH AND SAFETY

The contractor shall ensure that all aspects of construction health and safety are covered in their proposals and that the risks posed to third parties by potential migration of airborne contamination and contaminated surface water run-off are considered.

5.11 CAPPING

As the site is contaminated and deficient in clean topsoil, there is a requirement for clean capping for all residential gardens and areas of soft landscaping. It is recommended that a minimum of 400mm of clean subsoil and 350mm of clean topsoil is laid in back gardens and 350mm of clean subsoil and 150mm of clean topsoil are laid in front gardens and landscaped

5.12 ADDITIONAL INVESTIGATION

A post demolition investigation within the footprint of the existing structures should be completed prior to the commencement of the remedial works. The scope for the investigation should be defined by the remediation contractor and approved by the client.

Any additional remedial requirements should be incorporated into this document to the approval of the client.

VALIDATION

Validation requirements for re-use, in-situ materials, treated materials and imported materials will include the following:

- Remediated gas works waste.
- Asbestos containing materials.
- Cyanide impacted made ground.
- Contaminated made ground in general.
- Non-contaminated in-situ materials.
- General materials specified for re-use.
- Imported materials designated for capping.

Specifications will include sample ratios (per volume) and chemical suites. Geotechnical specifications for ground engineering will be specified under separate cover.

5.13 GAS WORKS WASTE

For re-use on site, the gas works waste should be sampled at a ratio of one sample per 100m3, with a minimum of 5 samples taken from each gas holder. Samples should be scheduled for solid analysis and one sample in five should be scheduled for a leachate suite.

The analysis suites for solid and leachate should, as a minimum, contain the following determinands:

- Metals, pH, sulphate and water soluble sulphate, total, complex and free cyanide, speciated PAHs, TPHCWG, speciated phenols, VOC and SVOC.

5.14 ASBESTOS CONTAINING MATERIALS

For material destined for re-use on site which comprises fragments of asbestos containing materials or asbestos fibres, one sample per 50m^3 should be scheduled for an asbestos fibre screen. Should fibres be present, then an asbestos I-D and quantification should subsequently be scheduled. Any material containing >0.01% asbestos should not be re-used on site and should be sent to landfill.

5.15 CYANIDE CONTAMINATION REMOVAL

Validation of the cyanide contaminated fill proximal to trial pit TP137 should be undertaken as detailed below:

- Stabilised fill: one sample per 50m^3.
- In-situ materials: samples taken on a 5m grid across the base and walls of the excavation.
- Samples to be analysed for total, complex and free cyanide. Leachate analysis for one in five samples to be included for the same determinands.

5.16 NON-CONTAMINATED IN-SITU MATERIALS

As it is likely that the remedial works and enabling works will be integrated to some extent, the validation of in-situ ground will be required where unrecorded contamination has been removed. The validation of this ground should include the following:

- In-situ materials: samples taken on a 5m grid across the base and walls of the excavation.
- Analytical suite to include metals, pH, water soluble sulphate, total phenols, total, complex and free cyanide, speciated PAHõs and TPHCWG.

5.17 GENERAL MATERIALS

Materials excavated during the remedial works which may be designated for re-use on site should be validated according to the following specification:

- One sample per 250m^3, minimum of 5 samples.
- Analytical suite to include metals, pH, water soluble sulphate, total phenols, total, complex and free cyanide, speciated PAHõs, asbestos fibres and TPHCWG.

5.18 IMPORTED CAPPING MATERIALS

As the site is deficient in clean topsoil and subsoil, the following specification is recommended for imported subsoil and topsoil:

- For greenfield sources and material certified under BS3882:2007, a copy of the analysis certificate (comprising of the specified requirements, plus an appropriate list of contaminants, including TPH) should be submitted to the Local Authority for approval before material is imported. After approval and placement of material, the chemical quality should be analysed, with the frequency of analysis being one sample per 100m^3. The depth of placement shall also be recorded (photographed with measuring staff in place) in order to ensure remedial targets are met. The post-placement details shall be submitted as part of the validation report.

- For recycled or brownfield sources and material that has not been certified under BS3882:2007, full details of the location of material source(s), accompanied by representative chemical analysis (including a comprehensive set of parameters, for example: pH, particle composition, and contaminants ï including TPH), at a frequency not less than one sample per 5000m^3 (with a minimum of at least one sample per source site) should be submitted to the Local Authority for approval before material is imported. After approval and placement of material, the chemical quality should be analysed, with the frequency of analysis being one sample per 50m^3. The depth of placement shall also be recorded (photographed with measuring staff in place) in order

to ensure remedial targets are met. The post-placement details shall be submitted as part of the validation report.

5.19 CONTROLLED WATERS

During the remedial works, sampling and monitoring of the Wharf Brook should be instigated at upstream and downstream locations. The sampling locations should be confirmed with the EA prior to the commencement of works and samples should be taken prior to the commencement of works and at four weekly intervals during the remediation works. On completion of the remedial works, sampling should take place on a minimum of two occasions at eight week intervals. The analysis suite for the Wharf Brook is detailed below:

- Metals, cyanide, BOD, COD, pH, sulphate, water soluble sulphate, speciated PAHõs, phenols, TPHCWG.

During the groundworks and construction phase of the development, sampling and analysis at upstream and downstream locations should be maintained on a 12 week basis for the duration of the project.

6.0 SITE SUPERVISION & REPORTING

6.1 SITE SUPERVISION

The remedial operations should be supervised by an environmental engineer/consultant operating independently of the contractor. The supervisors responsibilities shall include, but not be limited to the following:

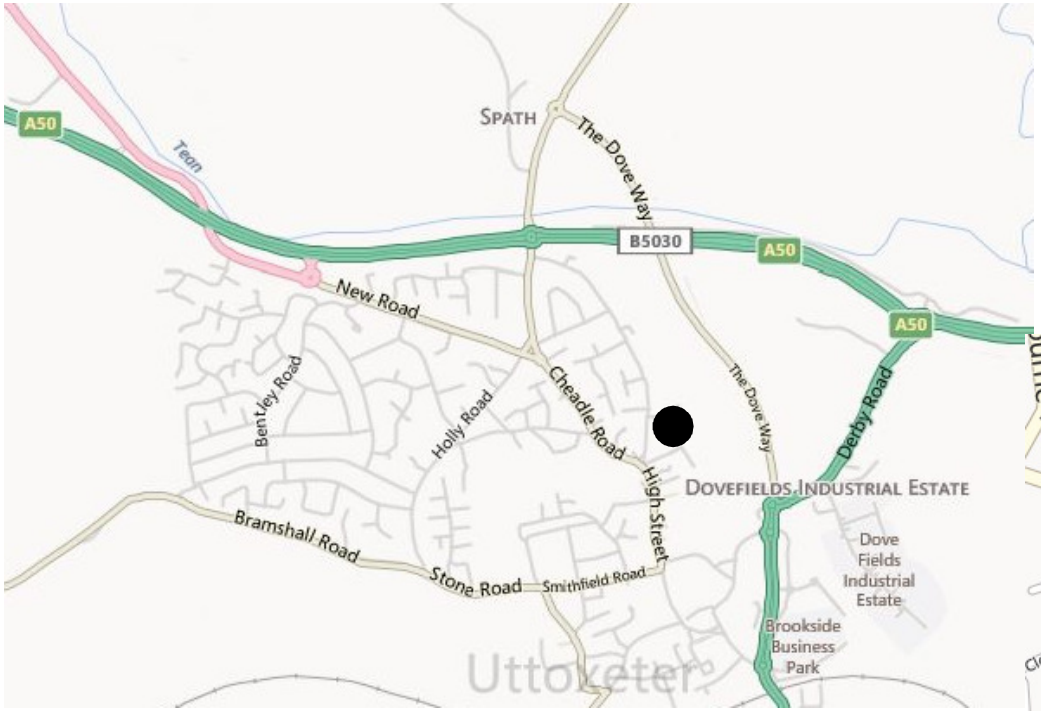
- Ensuring that the remedial strategy is correctly implemented.
- Supervision of the remedial operations.
- Retrieval of soil, surface and groundwater samples and the subsequent scheduling of chemical laboratory analysis according to the requirements of the RMS.
- To communicate with the project manager, client and regulators as required.
- To maintain a site records/diary.
- To produce, or aid in the production of, the remediation completion report.

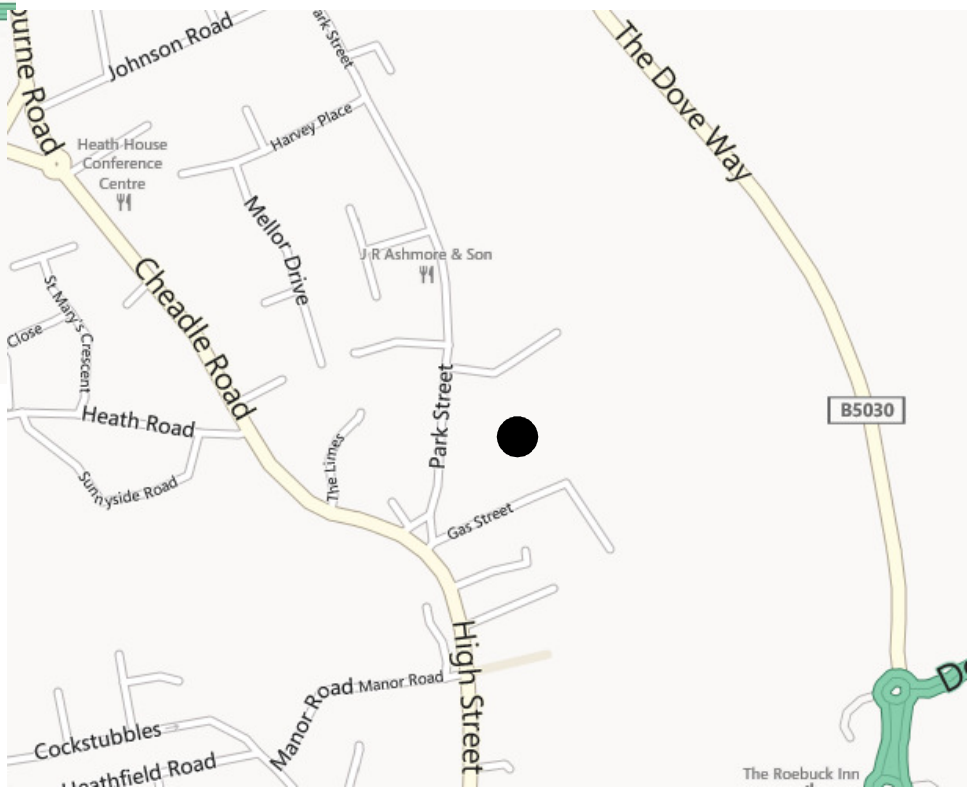
6.2 COMPLETION REPORTING

The remediation completion report should include, but not be limited to the following:

- A summary of the project works as per the RMS, to include any unforeseen works or ground conditions, health and safety reports, delays ad unscheduled works.
- Submission of a site diary, detailing milestone events, progress meetings and regulatory correspondence.
- Validation sampling plans, analysis results and assessment.
- Waste duty of care documentation - to include licence details for all receiving landfills or recycling sites.
- Geotechnical test results as required by the developer.
- Surveys of excavations and backfilling works.
- Details of all imported materials, including validation testing and approvals.
- Verification report for any Materials management plans utilised for the works.
- Regulatory correspondence relating to acceptance and sign off of the remedial works.

APPENDIX A





N

KEY:

● Approximate Site Location

DO NOT SCALE

IVY HOUSE environmental
Scotland Farm, Ockbrook, Derby, DE72 3RX
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 820 488

TITLE: Site Location Plan

PROJECT: Pennycroft Lane, Uttoxeter

PROJECT No: IV.58.13

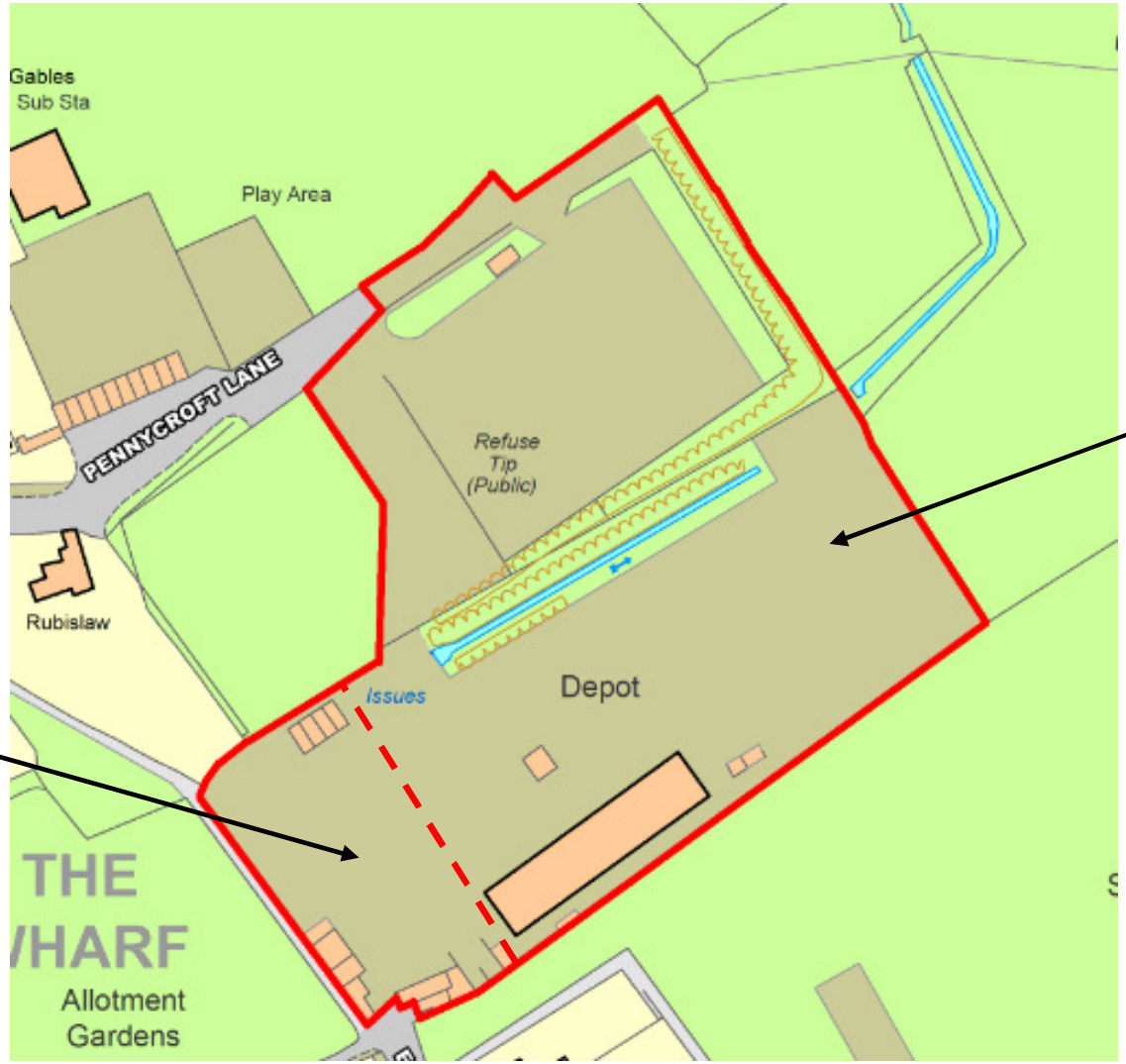
DATE: 11/2013

SCALE: NTS

DRAWN: RPS

DWG No: Figure 1

APPENDIX B



KEY:

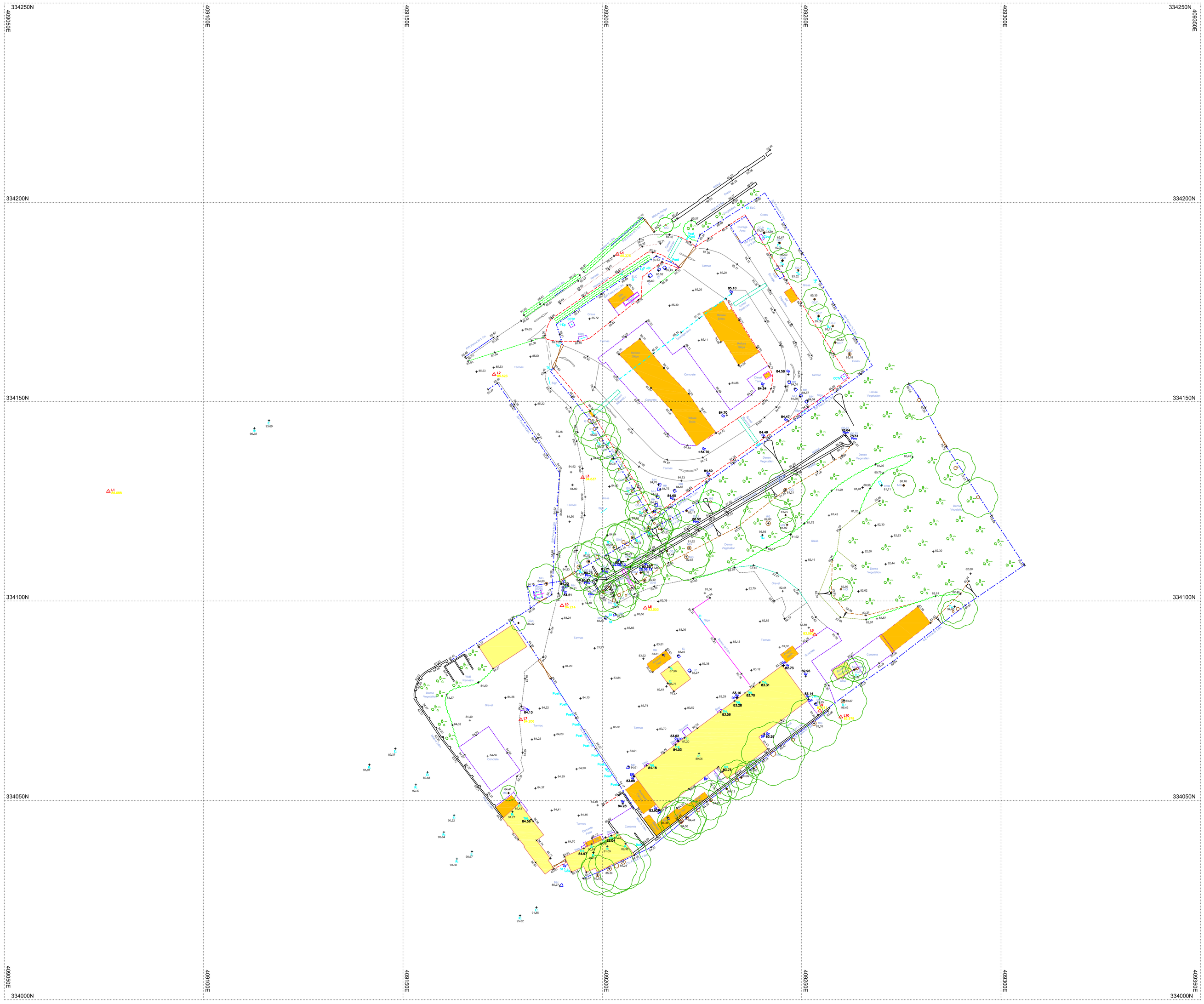
Site Boundary

Boundary between Phase B and additional parcel of land

DO NOT SCALE

IVY HOUSE environmental
Scotland Farm, Ockbrook, Derby, DE72 3RX
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 820 488

TITLE:	Site Layout
PROJECT:	Pennycroft Lane, Uttoxeter
PROJECT No:	IV.58.13
DATE:	11/2013
SCALE:	NTS
DRAWN:	RPS
DWG No:	Figure 2



N

Station Information:

Station	Easting (m)	Northing (m)	Level (m)
L1	409076.112	334127.517	86.088
L2	409172.861	334156.848	85.523
L3	409195.066	334130.976	84.837
L4	409203.751	334186.994	85.375
L5	409189.882	334098.852	84.214
L6	409210.760	334098.240	83.503
L7	409179.551	334070.219	84.206
L8	409253.297	334091.523	83.060
L9	409254.549	334072.444	83.311
L10	409259.810	334070.933	82.979

Note:
Some services may have been omitted due to parked vehicles. The Ordnance Survey file is to be used as a guide only.

OS Buildings *Surveyed Buildings*

This survey has been orientated to the Ordnance Survey (O.S) National Grid (OSGB36) via a Global Position System (GPS) and the O.S. Active Network (OS Net).

A true OSGB36 coordinate has been established near to the site centre via a transformation using the OSTN02 & OSGM02 transformation models.
The survey has been correlated to this point and a further one or more OSGB36 points established to create a true O.S. bearing for angle orientation.

No scale factor has been applied to the survey therefore the coordinates shown are arbitrary & not true O.S. Coordinates which have a scale factor applied.

Please refer to Survey Station Table to enable establishment of the on-site grid.

Legend:

Boundaries / roads
Kerb line
Edge of surface
Canopy / Overhang
Line Marking
Centre Line
Barrier
Hand rail
Hedge
Overhead Powerline
Chamber
Woodland
Station and Name
Station Level
Tree / Bush / Sapling
Area of Undergrowth
Kerb
Inspection chamber
Manhole
Cover
Unable to lift
Gully
Back Gully
Tree canopy level
Tree girth
Ground Level
Ridge Level
Eaves Level
Flat roof level
Concrete paving slabs
Block paved
Tac-tile paving
Road name board
Retaining wall

Fence types:
Brickwork
Iron Railings
Wire Mesh
Post & Rail
Post & Wire
Chain Link
Wooden Panels
Concrete Panels
Steel Palisade
Electric
British Telecom
Fire Hydrant
Stop tap
Stop valve
Wash Out
Water Meter
Service Marker
Rodding eye
Lamp Post
Sign Post
Electricity Post
Telegraph Post
Bollard
Water level
Height
Manhole floor level
Threshold level
Gate
Earth rod

Rev.	Date	Description	Drawn	Q. Ref.

greenhatch group
Topographical Surveys
Site Engineering
Measured Building Surveys
3D Laser Scanning
Rowan House
Duffield Road
Little Eaton
Derby
DE21 5DR
Tel (01332) 830044 Fax (01332) 830055
admin@greenhatch-group.co.uk

CLIENT
EWE Associates Ltd

PROJECT
Pennycroft Lane, Uttoxeter ST14 7BW

TITLE
Topographical Survey

SCALE	DATE	DRAWN	QUALITY REF.
1: 500	28.08.12	LP	GO794

Level datum	O.S (GPS Verified)
Grid orientation	O.S (GPS Verified)
Job number	17438

Drawing No. 17438_OGL
Rev. 0

Comments
This plan should only be used for its original purpose. GreenHatch Ltd accepts no responsibility for this plan if supplied to any party other than the original client.

All dimensions should be checked on site prior to design and construction.

Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.

Notes:

DO NOT SCALE

APPENDIX C

1. Brook emerges from underground culvert

2. Brook re-enters underground culvert

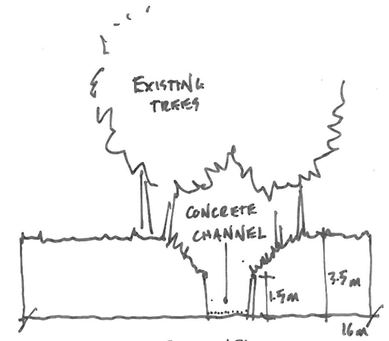
Schedule of Accommodation

Dwelling type	Plot Name	Beds	Quantity
2 bedroom Mews	2BM	2	2
2 bedroom house	2B	2	19
3 bedroom house	3B	3	23
4 bedroom house	4B	4	5
		Total Units	49

Pennycroft Lane

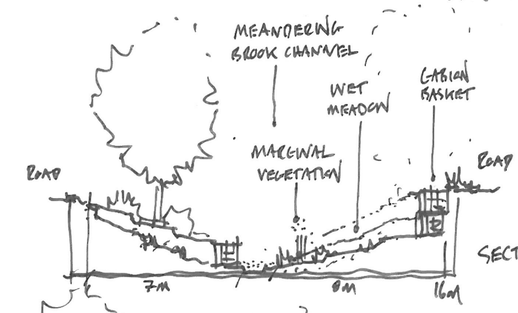
Site Layout
Scale 1:500

EXISTING OPEN-BOX CULVERT

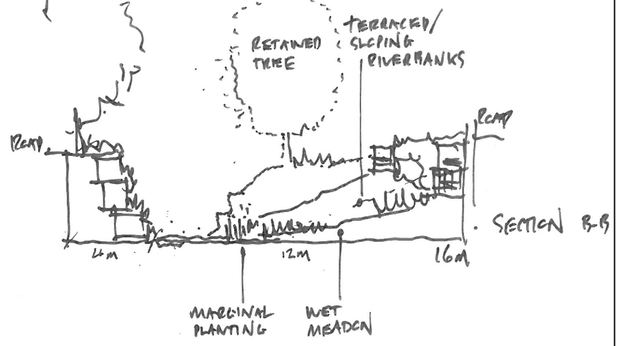


STRAIGHT CHANNEL RUNNING WEST → EAST

POTENTIAL INDICATIVE DESIGNS



SECTION A-A



SECTION B-B

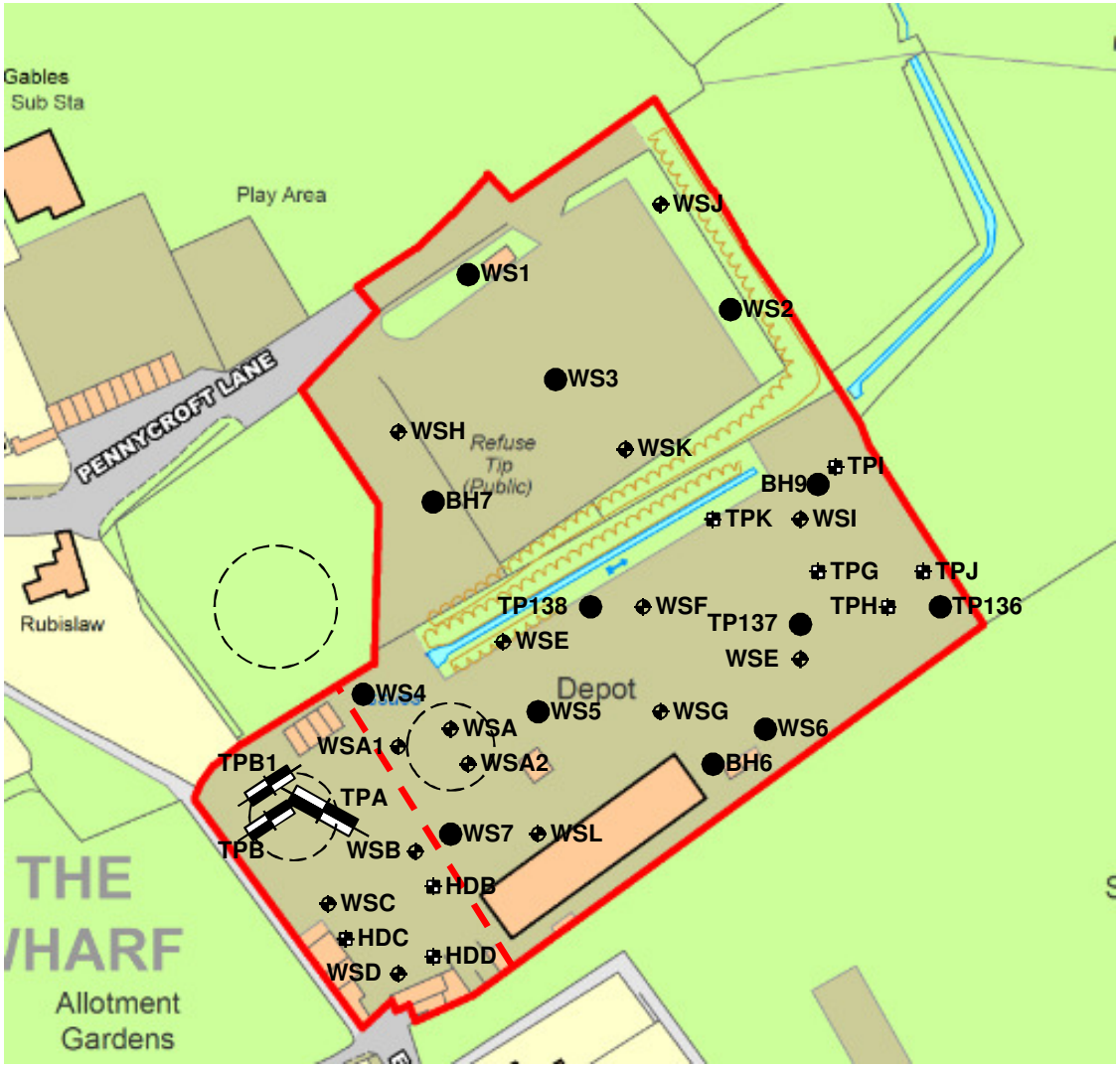
Sections
Scale 1:200 (aprox)

EAST STAFFORDSHIRE
Sketch Site Layout

Scale: 1:500/1:200 @ A2 Job: 4870
Reviewed by: LF/AC Drawing: SK(90)01 D

IBI TaylorYoung

APPENDIX D



N

KEY:

- WS Borehole
- Trial Pit
- Approximate Location of Historical Gas Holder
- 2010 Exploratory Hole

DO NOT SCALE

IVY HOUSE environmental
Scotland Farm, Ockbrook, Derby, DE72 3RX
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TITLE: 2010 & 2013 Exploratory Hole Location Plan

PROJECT: Pennycroft Lane, Uttoxeter

PROJECT No: IV.58.13

DATE: 11/2013

SCALE: NTS

DRAWN: RPS

DWG No: Figure 6

Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	BH7
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	Dando Rig	**Start Date** 07/07/2010	**End Date** 07/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
			MADE GROUND: Dense brick fill - Interpolated from Driller's description.			B	0.20	0.70		
						D	0.50			
									1.00 (C)	N=46 (12,12/10,11,12,13)
		1.70		83.04						
			Medium dense grey and brown fine grained SAND and sub rounded to rounded quartz GRAVEL with occasional cobbles. (Fluvioglacial Deposits) - Interpolated from Driller's description			D	1.80			
						B	2.00	2.50	2.00 (C)	N=25 (8,5/5,7,7,6)
									3.00 (C)	N=25 (6,6/7,6,6,6)
									4.00 (C)	N=30 (8,7/7,8,8,7)
			Stiff red brown clay.			B	4.50	5.00		
						D	4.60			
									5.00 (C)	N=26 (6,5/6,6,8,6)
▽ 6.20									6.20 (S)	N=29 (5,7/8,7,7,7)
		7.20		77.54					7.20 (S)	50 (25/14,16,14,6 for 0mm)
			Weak red brown MUDSTONE. (Mercia Mudstone Formation) - Interpolated from Driller's description.			B	8.00	8.50		
		9.00	*End of hole at 9.00 m*	75.74					9.00 (S)	50 (25 for 10mm/32,18 for 30mm

REMARKS

1. Groundwater encountered at approximately 6.2m bgl.
2. No visual or olfactory evidence of contamination.
3. Hole cased to 8.5m bgl.
4. Hole installed with 53mm HDPE Standpiepe with gas tap and raised cover. Response zone between 1.0m bgl and 8.5m bgl.
5. Hole position determined from the site topographical survey plan.
6. Hole level determined from an optical levelling survey.

SOIL SAMPLE TYPE
D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

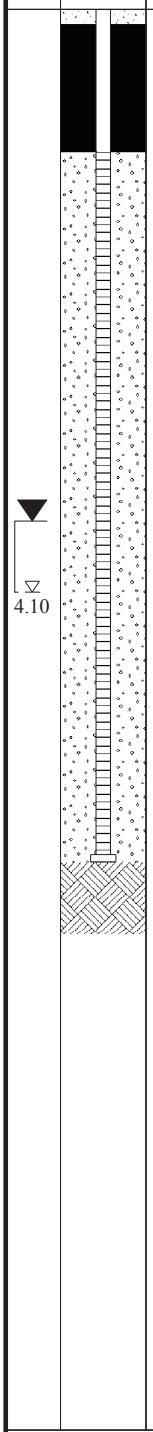
IN-SITU TESTS
SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER
▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409200.00	334125.00	84.74
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

BWB CONSULTING
Environmental Division
3-4 Kayes Walk
The Lace Market
Nottingham
NG1 1PY
Tel : 0115 9241100
Fax : 0115 9503966

Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	BH8
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	Dando Rig	**Start Date** 08/07/2010	**End Date** 08/07/2010



Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
		0.30	MADE GROUND: Brick fill - Interpolated from Driller's description.	83.01						
			MADE GROUND: Fill including frequent concrete boulders - Interpolated from Driller's description.			B D	0.50	1.00		
									1.00 (C)	50 (25 for 20mm/50 for 40mm)
									2.00 (C)	50 (25 for 0mm/43,7 for 10mm)
		2.30	Medium dense grey and brown fine grained SAND and sub rounded to rounded quartz GRAVEL with occasional cobbles. (Fluvioglacial Deposits) - Interpolated from Driller's description	81.01		B D	3.00	3.50	3.00 (C)	N=29 (7,8/7,7,7,8)
▽									4.00 (C)	N=29 (6,8/6,8,8,7)
4.10		4.10	Weak red brown MUDSTONE. (Mercia Mudstone Formation) - Interpolated from Driller's description.	79.21		B	5.00	5.50	5.00 (S)	50 (25/18,17,15 for 50mm)
						D	6.00			
		6.50	*End of hole at 6.50 m*	76.81					6.50 (S)	50 (25/16,15,19 for 50mm)

REMARKS

1. Groundwater encountered at approximately 4.1m bgl.
2. Slight solvent odour noted between 0.3m bgl and 2.3m bgl.
3. Hole cased to 5.0m bgl.
4. Hole installed with 53mm HDPE Standpipe with gas tap and raised cover. Response zone between 1.0m bgl and 6.0m bgl.
5. Hole position determined from the site topographical survey plan.
6. Hole level determined from an optical levelling survey.

SOIL SAMPLE TYPE
D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS
SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER
▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409258.00	334080.00	83.31
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

BWB CONSULTING
Environmental Division
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Tel : 0115 9241100
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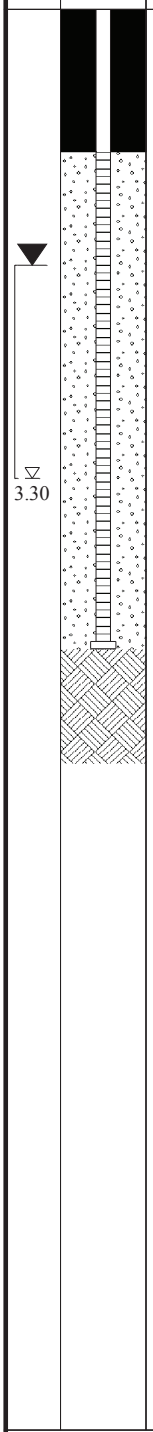
Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	BH9
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	Dando Rig	**Start Date** 07/07/2010	**End Date** 08/07/2010



Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
		0.30	MADE GROUND: Fine to coarse angular road stone GRAVEL - Interpolated from Driller's description	80.87						
		0.50	MADE GROUND: Fine to coarse angular brick GRAVEL fill - Interpolated from Driller's description.	80.67		B D	0.50	1.00		
			Very soft to firm CLAY. (Alluvium) - Interpolated from Driller's description.						1.00 (C)	N=1 (1,0/0,0,1,0)
									2.00 (C)	N=10 (1,0/2,3,3,2)
		2.20	Firm sandy gravelly CLAY. Gravel is rounded fine to coarse quartz. (Alluvium) - interpolated from Driller's description.	78.97		B D	2.50	3.00		
									3.00 (C)	N=16 (2,2/3,3,4,6)
▽		3.30	Weak red brown MUDSTONE. (Mercia Mudstone Formation) - Interpolated from Driller's description.	77.87					3.50 (S)	N=27 (7,6/7,7,6,7)
						D	4.50		4.50 (S)	50 (10,10/13,13,12,12 for 50mm)
						B	5.00	5.50		
		5.30	*End of hole at 5.30 m*	75.87					5.50 (S)	50 (25 for 60mm/17,14,14,5 for 0m

REMARKS

1. Groundwater encountered at approximately 3.3m bgl
2. No visual or olfactory evidence of contamination.
3. Hole cased to 4.5m bgl.
4. Hole installed with 53mm HDPE Standpiepe with gas tap and raised cover. Response zone between 1.0m bgl and 4.5m bgl.
5. Hole position determined from the site topographical survey plan.
6. Hole level determined from an optical levelling survey.

SOIL SAMPLE TYPE
D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS
SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER
▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409274.00	334135.00	81.17
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

BWB CONSULTING
Environmental Division
3-4 Kayes Walk
The Lace Market
Nottingham
NG1 1PY
Tel : 0115 9241100
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Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	TP135
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	JCB 3CX	**Start Date** 08/07/2010	**End Date** 08/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
			MADE GROUND: Dense vegetation and long grass over dark brown ashy sandy angular to rounded fine to coarse brick, asphalt, concrete, quartz and clinker GRAVEL with roots to 0.5m. Frequent cans, plastics, metal fragments and barbed wire.			DJV	0.90			
		2.90		80.30						
			Soft grey becoming red brown slightly gravelly CLAY. Gravel is rounded fine to coarse quartz. (Fluvioglacial Deposits)			DJV	3.10			
		3.50	*End of hole at 3.50 m*	79.70						

REMARKS

1. No groundwater encountered.
2. No visual or olfactory evidence of contamination.
3. Hole backfilled with arisings on completion.
4. Granular strata very unstable.
5. Hole terminated to hole instability.
6. Hole position and elevation determined from the site topographical survey plan.

SOIL SAMPLE TYPE

D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS

SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER

▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409294.00	334112.00	83.20
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

BWB CONSULTING
Environmental Division
3-4 Kayes Walk
The Lace Market
Nottingham
NG1 1PY
Tel : 0115 9241100
Fax : 0115 9503966

Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	TP136
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	JCB 3CX	**Start Date** 08/07/2010	**End Date** 08/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
		0.60	MADE GROUND: Vegetation over brown sandy angular to rounded fine to coarse limestone, brick and quartz GRAVEL.	81.80		DJV	0.50			
			MADE GROUND: Brown black sandy angular fine to medium clinker GRAVEL with occasional glass and wood.			DJV	1.00			
		1.90	Soft grey brown CLAY. (Alluvium)	80.50						
		3.00	Orange brown slightly sandy cobbley very gravelly CLAY. Gravel is rounded fine to coarse quartz. (Fluvioglacial Deposits)	79.40						
		3.40	*End of hole at 3.40 m*	79.00						

REMARKS

1. No groundwater encountered.
2. No visual or olfactory evidence of contamination.
3. Hole backfilled with arisings on completion.
4. Granular strata very unstable.
5. Hole terminated to hole instability.
6. Hole position and elevation determined from the site topographical survey plan.

SOIL SAMPLE TYPE

D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS

SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER

▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409264.00	334099.00	82.40
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

BWB CONSULTING
Environmental Division
3-4 Kayes Walk
The Lace Market
Nottingham
NG1 1PY
Tel : 0115 9241100
Fax : 0115 9503966

Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	TP137
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	JCB 3CX	**Start Date** 08/07/2010	**End Date** 08/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
		0.30	MADE GROUND: Grass and vegetation over light grey brown sandy sub angular to angular fine to coarse limestone GRAVEL.	83.20						
			MADE GROUND: Brown grey gravelly cobbley fine to coarse grained SAND with ash and clinker in a matrix with occasional very soft blue grey silty clay (blue Billy). Gravel is angular fine to coarse brick, limestone, slag and concrete including large boulder sized slabs. Slight solvent like odour noted.			DJV	0.70		
						DJV	2.00			
		2.69		80.81						
		2.70	MADE GROUND: Concrete slab.	80.80						
			End of hole at 2.70 m							

REMARKS

1. No groundwater encountered.
2. Slight solvent odours and blue billy noted throughout.
3. Hole backfilled with arisings on completion.
4. Granular strata very unstable.
5. Hole terminated to hole instability.
6. Hole position and elevation determined from the site topographical survey plan.

SOIL SAMPLE TYPE
D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS
SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER
▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409234.00	334114.00	83.50
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

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Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	WS1
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	GeoTool Window Sampler	**Start Date** 07/07/2010	**End Date** 07/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
			MADE GROUND: Grass over brown slightly clayey gravelly SAND including fragments of plastic and glass. Gravel is angular to rounded fine to medium brick and quartz.			DJV	0.10	0.70		
		0.70		85.30						
			MADE GROUND: Firm to stiff brown slightly sandy gravelly CLAY. Gravel is angular to rounded fine to medium coal, sandstone and quartz.			DJV	1.20	1.60		
		1.90		84.10						
			Grey and brown fine to coarse grained SAND and sub rounded to rounded quartz GRAVEL with occasional cobbles. (Fluvioglacial Deposits)							
		3.00		83.00						
			End of hole at 3.00 m							

REMARKS

1. No groundwater encountered.
2. No visual or olfactory evidence of contamination.
3. Hole backfilled with arisings on completion.
4. Hole position and elevation determined from the site topographical survey plan.

SOIL SAMPLE TYPE

D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS

SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER

▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409202.00	334174.00	86.00
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

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Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	WS2
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	GeoTool Window Sampler	**Start Date** 07/07/2010	**End Date** 07/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
			MADE GROUND: Grass over brown slightly clayey gravelly SAND including fragments of glass. Gravel is angular to rounded fine to medium brick, concrete and quartz.			DJV	0.10	0.80		
		0.80		85.20						
			MADE GROUND: Firm locally soft brown slightly sandy gravelly CLAY. Gravel is angular to rounded fine to coarse brick and quartz. No recovery			DJV	1.10	1.50		
		3.00	*End of hole at 3.00 m*	83.00						

REMARKS

1. No groundwater encountered.
2. No visual or olfactory evidence of contamination.
3. Hole backfilled with arisings on completion.
4. Hole position and elevation determined from the site topographical survey plan.

SOIL SAMPLE TYPE

D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS

SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER

▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409250.00	334180.00	86.00
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

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Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	WS3
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	GeoTool Window Sampler	**Start Date** 07/07/2010	**End Date** 07/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
		0.05	MADE GROUND: Asphalt.	85.95		DJV	0.10	0.90		
			MADE GROUND: Brown and grey sandy angular fine to coarse concrete and brick GRAVEL.							
		0.90		85.10						
		1.10	MADE GROUND: Dark brown and grey gravelly fine to coarse grained SAND. Gravel is angular to rounded fine to coarse quartz and concrete with asphalt fragments.	84.90		DJV	1.20	2.00		
			MADE GROUND: Firm brown sandy gravelly CLAY. Gravel is angular to rounded fine to medium brick and quartz.							
		2.70		83.30						
		3.00	Stiff red brown CLAY. (Mercia Mudstone Formation)	83.00						
			End of hole at 3.00 m							

REMARKS

1. No groundwater encountered.
2. No visual or olfactory evidence of contamination.
3. Hole backfilled with arisings on completion.
4. Hole position and elevation determined from the site topographical survey plan.

SOIL SAMPLE TYPE

D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS

SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER

▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409226.00	334151.00	86.00
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

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Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	WS4
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	GeoTool Window Sampler	**Start Date** 07/07/2010	**End Date** 07/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
			MADE GROUND: Short grass and moss over dark brown sandy angular to rounded fine to coarse concrete, limestone and clinker GRAVEL with ash.			DJV	0.10	0.50		
		0.50		84.50						
			MADE GROUND: Soft to firm brown sandy gravelly CLAY. Gravel is angular to rounded fine to coarse slag and quartz. Slight hydrocarbon odour noted.			DJV	1.00	1.50		
		1.50		83.50						
			Soft to firm red brown CLAY. (Mercia Mudstone Formation)							
		2.00		83.00						
			End of hole at 2.00 m							

REMARKS

1. No groundwater encountered.
2. Slight hydrocarbon odour noted between 0.5m bgl and 1.5m bgl.
3. Hole backfilled with arisings on completion.
4. Hole position and elevation determined from the site topographical survey plan.

SOIL SAMPLE TYPE

D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS

SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER

▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409199.00	334064.00	85.00
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

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Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	WS5
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	GeoTool Window Sampler	**Start Date** 07/07/2010	**End Date** 07/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
		0.05	MADE GROUND: Asphalt.	84.45		DJV	0.10	1.00		
			MADE GROUND: Dark brown clayey sandy angular to rounded fine to coarse brick, slag and quartz							
		2.00	*End of hole at 2.00 m*	82.50						

REMARKS

1. No groundwater encountered.
2. No visual or olfactory evidence of contamination.
3. Hole backfilled with arisings on completion.
4. Hole position and elevation determined from the site topographical survey plan.

SOIL SAMPLE TYPE

D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS

SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER

▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409223.00	334095.00	84.50
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

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Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	WS6
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	GeoTool Window Sampler	**Start Date** 07/07/2010	**End Date** 07/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
			MADE GROUND: Short grass and moss over dark brown and dark grey sandy angular to rounded fine to coarse quartz, brick, slag and clinker GRAVEL with ash.			DJV	0.30	1.00		
		2.00	*End of hole at 2.00 m*	81.50						

REMARKS

1. No groundwater encountered.
2. No visual or olfactory evidence of contamination.
3. Hole backfilled with arisings on completion.
4. Hole position and elevation determined from the site topographical survey plan.

SOIL SAMPLE TYPE
D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS
SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER
▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409262.00	334088.00	83.50
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

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Project Title	The Dove Way, Uttoxeter	**Hole Ref.**	WS7
Client	Clowes Securities & ESBC	**Project No.**	NTE285
Plant used	GeoTool Window Sampler	**Start Date** 07/07/2010	**End Date** 07/07/2010

Groundwater Strike	Groundwater Well	Depth (m)	Description of Strata	Level (mAOD)	Legend	Samples Type	Samples Depth From	Samples Depth To	In-situ Testing Depth (m) (SPT Type)	In-situ Testing Result
		0.05	MADE GROUND: Asphalt.	84.85						
		0.40	MADE GROUND: BROWN sandy angular to sub angular fine to coarse granite and concrete GRAVEL.	84.50						
			MADE GROUND: Red brown sandy angular fine to coarse brick GRAVEL.							
		1.60	MADE GROUND: Brown clayey angular fine to coarse quartz GRAVEL.	83.30		DJV	1.60	2.00		
		2.00	*End of hole at 2.00 m*	82.90						

REMARKS

1. No groundwater encountered.
2. No visual or olfactory evidence of contamination.
3. Hole backfilled with arisings on completion.
4. Hole position and elevation determined from the site topographical survey plan.

SOIL SAMPLE TYPE

D - 500g to 1kg Disturbed
B - 5kg to 20kg Disturbed
U - 100mm dia. Undisturbed
J - 250ml Amber Glass Jar
V - Glass Vial

IN-SITU TESTS

SV - Hand Shear Vane
HP - Hand Penetrometer
N = SPT blows over 300mm
S = Split Spoon Sampler
C = Solid Cone
PID - Photo Ionisation Detector (ppm)

GROUNDWATER

▽ Groundwater strike
▼ Standing groundwater level

EASTING	NORTHING	GROUND LEVEL
409234.00	334114.00	84.90
LOGGED BY	**SCALE**	**SHEET**
RTR	1:50	Sheet 1 of 1

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Trial Pit No.

TPA

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Trial Pit Excavation	**Co-ordinates:**	N/R
Site:	Pennycroft, Uttoxeter			**Ground Level:**	N/R
		Plant:	JCB 3CX	**Start Date:**	08.10.13
Client:	East Staffs BC			**Finish Date:**	08.10.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Roadstone with gravel of brick and tarmac planings.	0.2				
MADE GROUND: whole bricks and concrete.	0.4				
MADE GROUND: Dark brown, sandy fine to coarse GRAVEL of concrete, brick, clinker, coal and brick cobbles. Strong tar odour.	1.0	D/J	1.0		
	1.4	D/J	1.4		
Brickwork obstruction @ 1.4mbgl. Trial pit extended into trench in southerly direction.					
2.0 – 7.0 metres along trench. MADE GROUND: Black, clayey, sandy fine to coarse GRAVEL of ash-clinker, brick, sandstone and limestone. Tar stained and strong odour.	0.4 – 1.4				
Soft reddish brown very sandy CLAY. Slight tar stain and odour noted throughout.	1.6				
Trial Trench terminated at 1.0mbgl & 7m in length					

Key:			
	Bulk (Bulk Bag)	D. Disturbed	V. 40ml Glass Vial
	W. Water	G. Amber Glass Jar / Bottle	N. 'N' value
	PID. Photo Ionisation Detector (ppm)	T. Plastic Tub	HP. Hand Penetrometer

Contamination Observations During Excavation				PID Monitoring		
Depth Observed	Made ground and perched water within the gas holder contaminated with tar residues.			Depth: PPM:	Depth: PPM:	Depth: PPM:
Seepage at 1.4m along trench						

NOTES:
Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).
Backfill: The trial pit was backfilled on completion with arisings and levelled to existing ground level.

N/R - Not Required N/A - Not Applicable Logged By: RS
All depths in metres below ground level; Approved By: RPS

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Trial Pit No.

TPB

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Trial Pit Excavation	**Co-ordinates:**	N/R
Site:	Pennycroft, Uttoxeter			**Ground Level:**	N/R
		Plant:	JCB 3CX	**Start Date:**	08.10.13
Client:	East Staffs BC			**Finish Date:**	08.10.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Roadstone with gravel of brick and tarmac planings.	0.2				
MADE GROUND: whole bricks and concrete.	0.5				
MADE GROUND: Black, clayey, sandy fine to coarse GRAVEL of ash-clinker, brick, sandstone and limestone. Tar stained and strong odour. Trial pit extended into trench at right angles to TPA in westerly direction.	1.4				
2.0 – 4.0 metres along trench. MADE GROUND: Black, clayey, sandy fine to coarse GRAVEL of ash-clinker, brick, sandstone and limestone. Tar stained and strong odour Heavy perched water ingress at 2.2m, filled trench to 1.6mbgl.	1.4 2.5	D/J	1.4 @ 3.0m		
Trial Trench terminated at 1.0 – 2.5mbgl & 4m in length					

Key:			
	Bulk (Bulk Bag)	D. Disturbed	V. 40ml Glass Vial
	W. Water	G. Amber Glass Jar / Bottle	N. 'N' value
	PID. Photo Ionisation Detector (ppm)	T. Plastic Tub	HP. Hand Penetrometer

Contamination Observations During Excavation				PID Monitoring		
Depth Observed	Made ground and perched water within the gas holder contaminated with tar residues.			Depth: PPM:	Depth: PPM:	Depth: PPM:
Seepage at 1.4 at start of trench. Heavy flow at 4m along trench at 2.2mbgl.						

NOTES:

Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Backfill: The trial pit was backfilled on completion with arisings and levelled to existing ground level.

N/R - Not Required N/A - Not Applicable

All depths in metres below ground level;

Logged By: RS

Approved By: RPS

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Trial Pit No.

TPB1

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Trial Pit Excavation	**Co-ordinates:**	N/R
				Ground Level:	N/R
Site:	Pennycroft, Uttoxeter	**Plant:**	JCB 3CX	**Start Date:**	08.10.13
Client:	East Staffs BC			**Finish Date:**	08.10.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Roadstone with gravel of brick and tarmac planings.	0.2				
MADE GROUND: whole bricks and concrete.	0.6				
MADE GROUND: Black ashy, gravelly fill of brick, concrete and wood with strong tar odour		D/J	1.0		
Trial pit extended to the east by 5m. Brick wall encountered at 4.5m along trench. Red brown soft sandy CLAY, with slight tar odour noted beyond wall.	2.9	D/J	2.6 @ 5m		
Trial trench terminated at 2.9mbgl and 5m length					

Key:			
	Bulk (Bulk Bag)	D. Disturbed	V. 40ml Glass Vial
	W. Water	G. Amber Glass Jar / Bottle	N. 'N' value
	PID. Photo Ionisation Detector (ppm)	T. Plastic Tub	HP. Hand Penetrometer

Contamination Observations During Excavation				PID Monitoring		
Depth Observed	Made ground and perched water within the gas holder contaminated with tar residues.			Depth: PPM:	Depth: PPM:	Depth: PPM:
Water ingress at 2.1m						

NOTES:

Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Backfill: The trial pit was backfilled on completion with arisings and levelled to existing ground level.

N/R - Not Required N/A - Not Applicable

All depths in metres below ground level;

Logged By: RPS

Approved By: RPS

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Trial Pit No.

TPG

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Trial Pit Excavation	**Co-ordinates:**	N/R
Site:	Pennycroft, Uttoxeter			**Ground Level:**	N/R
		Plant:	JCB 3CX	**Start Date:**	08.10.13
Client:	East Staffs BC			**Finish Date:**	08.10.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Brown slightly clayey sand with fill of bricks and waste including plastic, polythene, carpet, road cones, kerbstones, rope etc. Above ground tipping.	+2.0m GL	D/J	+1.0		
MADE GROUND: Tarmac.	0.3				
MADE GROUND: Roadstone with gravel of brick and tarmac planings.	0.6				
MADE GROUND: Sandy clay with gravel of brick, pottery, plastic and asbestos fragments.	1.75				
Grey/black sandy gravelly CLAY with slight tar odour	2.0	D/J	1.8		
Black sandy gravelly soft CLAY	3.0				
Brown slightly clayey sand with much gravel	3.2	D/J	3.2		
Trial Pit terminated at 3.2mbgl					

Key:
Bulk (Bulk Bag) — D. Disturbed — V. 40ml Glass Vial
W. Water — G. Amber Glass Jar / Bottle — N. 'N' value
PID. Photo Ionisation Detector (ppm) — T. Plastic Tub — HP. Hand Penetrometer

Contamination Observations During Excavation				PID Monitoring		
Depth Observed	2m high waste spoil at surface. Tarmac underlain by sandy fill to 1.75mbgl. Tar stained clays to 3.0mbgl			Depth: PPM:	Depth: PPM:	Depth: PPM:
Seepage at 2.0m and strata noted to be damp to base of trial pit.						

NOTES:
Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).
Backfill: The trial pit was backfilled on completion with arisings and levelled to existing ground level.
Trial pit stable.

N/R - Not Required
N/A - Not Applicable
All depths in metres below ground level;

Logged By: RPS
Approved By: RPS

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Trial Pit No.

TPH

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Trial Pit Excavation	**Co-ordinates:**	N/R
Site:	Pennycroft, Uttoxeter			**Ground Level:**	N/R
		Plant:	JCB 3CX	**Start Date:**	08.10.13
Client:	East Staffs BC			**Finish Date:**	08.10.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Fire residues at surface – ash, burnt wood.					
Black/brown ash with clinker, brick, and roadstone	0.7	D/J	0.4		
MADE GROUND: Black/brown Ash/clinker with sulphurous odour.	2.9	D/J	07.-1.6		
Dark brown stiff slightly sandy CLAY	3.2				
Brown slightly clayey sand with much gravel	3.4				
Trial Pit terminated at 3.4mbgl					

Key:			
	Bulk (Bulk Bag)	D. Disturbed	V. 40ml Glass Vial
	W. Water	G. Amber Glass Jar / Bottle	N. 'N' value
	PID. Photo Ionisation Detector (ppm)	T. Plastic Tub	HP. Hand Penetrometer

Contamination Observations During Excavation			PID Monitoring		
Depth Observed	Made ground including ash and clinker to 2.9mbg.		Depth: PPM:	Depth: PPM:	Depth: PPM:
Damp from 3.0m.					

NOTES:

Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Backfill: The trial pit was backfilled on completion with arisings and levelled to existing ground level. Partial collapse at 3.0m and below.

N/R - Not Required N/A - Not Applicable Logged By: RPS

All depths in metres below ground level; Approved By: RPS

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Trial Pit No.

TPI

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Trial Pit Excavation	**Co-ordinates:**	N/R
				Ground Level:	N/R
Site:	Pennycroft, Uttoxeter	**Plant:**	JCB 3CX	**Start Date:**	08.10.13
Client:	East Staffs BC			**Finish Date:**	08.10.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Red brown roadstone	0.2				
MADE GROUND: Clayey sand with brick, plastic, tiles/pottery and concrete gravel of brick and tarmac planings.	1.7	D/J	1.0		
Brown/yellow slightly clayey sand and gravel with slight tar odour. Damp from 2.5m	3.2	D/J	3.2		
Trial Pit terminated at 3.2mbgl					

Key:	Bulk (Bulk Bag)	D. Disturbed	V. 40ml Glass Vial
	W. Water	G. Amber Glass Jar / Bottle	N. 'N' value
	PID. Photo Ionisation Detector (ppm)	T. Plastic Tub	HP. Hand Penetrometer

Contamination Observations During Excavation				PID Monitoring		
Depth Observed	Made ground to1.7mbgl. Slight tar odour in sand and gravel from 1.7-3.2mbgl.			Depth: PPM:	Depth: PPM:	Depth: PPM:
Damp from 2.5m.						

NOTES:

Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Backfill: The trial pit was backfilled on completion with arisings and levelled to existing ground level. Trial pit stable.

N/R - Not Required N/A - Not Applicable

All depths in metres below ground level;

Logged By: RPS

Approved By: RPS

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Trial Pit No.

TPJ

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Trial Pit Excavation	**Co-ordinates:**	N/R
				Ground Level:	N/R
Site:	Pennycroft, Uttoxeter	**Plant:**	JCB 3CX	**Start Date:**	08.10.13
Client:	East Staffs BC			**Finish Date:**	08.10.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Slightly clayey sand with gravel of brick and concrete.	0.5 1.4	D/J	0.5		
MADE GROUND: Slightly clayey silty sand with waste including brick, plastic, concrete, kerbstones, glass, re-bar and polythene.	3.2	D/J	3.2		
Orange brown clayey sand and gravel	3.5	D/J	3.4		
Trial Pit terminated at 3.2mbgl					

Key:			
	Bulk (Bulk Bag)	D. Disturbed	V. 40ml Glass Vial
	W. Water	G. Amber Glass Jar / Bottle	N. 'N' value
	PID. Photo Ionisation Detector (ppm)	T. Plastic Tub	HP. Hand Penetrometer

Contamination Observations During Excavation				PID Monitoring		
Depth Observed	Made ground 3.2mbgl – waste/fill.			Depth: PPM:	Depth: PPM:	Depth: PPM:
Damp from 3.2m.						

NOTES:

Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Backfill: The trial pit was backfilled on completion with arisings and levelled to existing ground level. Trial pit stable.

N/R - Not Required N/A - Not Applicable

All depths in metres below ground level;

Logged By: RPS

Approved By: RPS

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Trial Pit No.

TPK

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Trial Pit Excavation	**Co-ordinates:**	N/R
Site:	Pennycroft, Uttoxeter			**Ground Level:**	N/R
		Plant:	JCB 3CX	**Start Date:**	08.10.13
Client:	East Staffs BC			**Finish Date:**	08.10.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Sandy clay with roadstone	0.5				
MADE GROUND: Black brown slightly sandy soft CLAY with gravel of sandstone and ash. Slight tar odour.	2.1	D/J	1.0		
MADE GROUND: Black sandy gravelly soft CLAY with fragments of wood, brick and concrete. Slight tar odour.	3.0				
Brown/orange very sandy clay with occasional fine to coarse gravel	3.2	D/J	3.1		
Trial Pit terminated at 3.2mbgl					

Key:			
	Bulk (Bulk Bag)	D. Disturbed	V. 40ml Glass Vial
	W. Water	G. Amber Glass Jar / Bottle	N. 'N' value
	PID. Photo Ionisation Detector (ppm)	T. Plastic Tub	HP. Hand Penetrometer

Contamination Observations During Excavation				PID Monitoring		
Depth Observed	Made ground with ash and tar odour to 3.0m.			Depth: PPM:	Depth: PPM:	Depth: PPM:
Seepage at 2.5m.						

NOTES:

Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Backfill: The trial pit was backfilled on completion with arisings and levelled to existing ground level. Trial pit stable.

N/R - Not Required N/A - Not Applicable Logged By: RPS

All depths in metres below ground level; Approved By: RPS

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Trial Pit No.

HDB

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Hand Dug Pit	**Co-ordinates:**	N/R
				Ground Level:	N/R
Site:	Pennycroft, Uttoxeter				
		Plant:	Grafter	**Start Date:**	18.11.13
Client:	East Staffs BC			**Finish Date:**	18.11.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Tarmac underlain by sandy clay with roadstone, brick and concrete fragments	0.5	D/J	0.3		
Pit terminated at 0.5mbgl					

Key:			
	Bulk (Bulk Bag)	D. Disturbed	V. 40ml Glass Vial
	W. Water	G. Amber Glass Jar / Bottle	N. 'N' value
	PID. Photo Ionisation Detector (ppm)	T. Plastic Tub	HP. Hand Penetrometer

Contamination Observations During Excavation				PID Monitoring		
Depth Observed	Made ground with tarmac to 0.5m.			Depth: PPM:	Depth: PPM:	Depth: PPM:
Dry						

NOTES:

Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Backfill: The pit was backfilled on completion with arisings and levelled to existing ground level.

N/R - Not Required N/A - Not Applicable Logged By: RPS

All depths in metres below ground level; Approved By: RPS

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Trial Pit No.

HDC

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Hand Dug Pit	**Co-ordinates:**	N/R
				Ground Level:	N/R
Site:	Pennycroft, Uttoxeter				
		Plant:	Grafter	**Start Date:**	18.11.13
Client:	East Staffs BC			**Finish Date:**	18.11.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Tarmac underlain by red brown gravel of roadstone, brick, tarmac and concrete	0.5	D/J	0.4		
Pit terminated at 0.5mbgl					

Key:			
	Bulk (Bulk Bag)	D. Disturbed	V. 40ml Glass Vial
	W. Water	G. Amber Glass Jar / Bottle	N. 'N' value
	PID. Photo Ionisation Detector (ppm)	T. Plastic Tub	HP. Hand Penetrometer

Contamination Observations During Excavation				PID Monitoring		
Depth Observed	Made ground with brick, tarmac gravel to 0.5m.			Depth: PPM:	Depth: PPM:	Depth: PPM:
Dry						

NOTES:

Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Backfill: The pit was backfilled on completion with arisings and levelled to existing ground level.

N/R - Not Required N/A - Not Applicable Logged By: RPS

All depths in metres below ground level; Approved By: RPS

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Trial Pit No.

HDD

Sheet 1 of 1

Project No:	IV.58.13	**Method:**	Hand Dug Pit	**Co-ordinates:**	N/R
				Ground Level:	N/R
Site:	Pennycroft, Uttoxeter				
		Plant:	Grafter	**Start Date:**	18.11.13
Client:	East Staffs BC			**Finish Date:**	18.11.13

Description of Strata	Depth (m)	Sampling Type & Depth (m)		Legend	U100 / N Value Field / Lab. Testing
MADE GROUND: Tarmac underlain by black sandy gravel of tarmac, roadstone, brick and concrete.	0.5	D/J	0.25		
Pit terminated at 0.5mbgl					

Key:			
	Bulk (Bulk Bag)	D. Disturbed	V. 40ml Glass Vial
	W. Water	G. Amber Glass Jar / Bottle	N. 'N' value
	PID. Photo Ionisation Detector (ppm)	T. Plastic Tub	HP. Hand Penetrometer

Contamination Observations During Excavation				PID Monitoring		
Depth Observed	Made ground with black tarmac, brick, concrete gravel to 0.5m.			Depth: PPM:	Depth: PPM:	Depth: PPM:
Dry						

NOTES:

Services: Prior to excavation, the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Backfill: The pit was backfilled on completion with arisings and levelled to existing ground level.

N/R - Not Required N/A - Not Applicable Logged By: RPS

All depths in metres below ground level; Approved By: RPS

IV 58 13-Pennycroft, Dovecote Lane: WS A

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.10	MADE GROUND: TARMACADAM with limited dolomite sub-base.		
0.10	0.20	MADE GROUND: Light brown and light grey very sandy GRAVEL.		
0.20	0.80	MADE GROUND: Dark grey clayey, sandy fine to coarse GRAVEL of concrete, limestone, brick, clinker, coal, rare tarmac and many brick cobbles.		0.35-0.70 B
0.80	3.20	MADE GROUND: Dark grey, occasionally clayey, slightly sandy fine to coarse GRAVEL of ash-clinker, some concrete, brick, sandstone and limestone with occasional brick cobbles. Rare wood and tar stain and strong odour noted from 0.80m to base. Sample tube refusal at 3.20m		0.80-1.00 J2 2.00 J2 3.20 spt = 25/18/32 n=50/150mm
		End of borehole Water strike and SWL at 0.80m		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 08/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

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IV 58 13-Pennycroft, Dovecote Lane: WS A1

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.10	MADE GROUND: TARMACADAM.		
0.10	0.30	MADE GROUND: Dark grey very sandy fine to coarse GRAVEL of concrete, limestone, brick, clinker, coal, rare tarmac and many brick cobbles.		0.10-0.30 B
0.30	0.60	MADE GROUND: Dark grey, slightly sandy fine to coarse GRAVEL of ash-clinker, some concrete, brick, sandstone and limestone. Some possible slag noted.		0.30-0.60 B
0.60	1.40	Light brown, slightly clayey sandstone, limestone and quartz SAND + GRAVEL.		0.80-1.00 J2 1.00-1.50 B
1.40	3.00	Soft reddish brown very sandy CLAY. Light tar stain and odour noted throughout.		2.00 J 3.00 J
		End of borehole BH remained open and dry on completion		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 08/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

IV 58 13-Pennycroft, Dovecote Lane: WS A2

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.08	MADE GROUND: TARMACADAM with limited dolomite sub-base.		
0.08	0.28	MADE GROUND: Light brown and light grey very sandy GRAVEL.		0.10-0.20 B
0.28	0.55	MADE GROUND: Dark grey clayey, sandy fine to coarse GRAVEL of concrete, limestone, brick, clinker, coal, rare tarmac and many brick cobbles.		
0.55	2.00	MADE GROUND: Dark grey, occasionally clayey, slightly sandy fine to coarse GRAVEL of ash-clinker, some concrete, brick, sandstone and limestone with occasional brick cobbles. Rare wood and tar stain and strong odour noted from 0.75m to base.		0.60-1.00 B 0.70 J2 1.50 J2
		End of borehole Water strike and SWL at 0.70m Installed 1.00m slotted/1.00m plain pipe		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 08/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

IV 58 13-Pennycroft, Dovecote Lane: WS B

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.22	MADE GROUND: Dolomite and limestone GRAVEL with some concrete and brick.		
0.22	0.25	MADE GROUND: Red shale GRAVEL.		
0.45	3.20	MADE GROUND: Dark grey, occasionally clayey, slightly sandy fine to coarse GRAVEL of ash-clinker, some concrete, brick, sandstone and limestone with occasional brick cobbles. Rare wood and tar stain and strong odour noted from 0.75m to base. Possible rare slag noted. Much concrete gravel below 2.90m Sample tube refusal at 3.20m		0.25-0.50 J2 1.00 J2 2.00 J2 3.00 J2 3.20 spt = 9/13/21/29 n=50/150mm
		End of borehole Water strike and SWL at 0.75m Installed 2.00m slotted/0.40m plain pipe		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 08/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

IV 58 13-Pennycroft, Dovecote Lane: WS C

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.09	MADE GROUND: TARMACADAM.		
0.09	0.16	MADE GROUND: Red and grey fine to coarse red shale GRAVEL with some tarmac and limestone. Sub-base.		0.10-0.16 J2
0.16	0.45	MADE GROUND: Dark brown and red sandy brick FILL with much concrete, clinker and limestone gravel.		
0.45	1.00	MADE GROUND: Dark grey, occasionally clayey, slightly sandy fine to coarse GRAVEL of ash-clinker, some concrete, brick, sandstone and limestone with occasional brick cobbles. Rare wood and light tar stain noted.		0.50-0.70 J2
1.00	1.70	Firm becoming soft reddish brown very sandy CLAY with much limestone, sandstone and sandstone gravel.		
1.70	2.10	Dark grey very clayey, gravelly fine to coarse SAND. Tar stain and smell noted.		1.70-1.90 J2
2.10	3.00	Soft reddish brown sandy CLAY with black tar stain and odour to 2.35m.		2.10-2.30 J2 2.50-3.00 J2
		End of borehole Borehole remained open and dry on completion Backfilled with arisings		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 08/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

IV 58 13-Pennycroft, Dovecote Lane: WS D

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.10	MADE GROUND: TARMACADAM.		
0.10	0.28	MADE GROUND: Grey fine sandy to coarse GRAVEL of tarmac, dolomite, limestone, brick and concrete.		0.10-0.28 J2
0.28	1.60	MADE GROUND: Red sandy brick FILL with some brick and concrete gravel. Sample tube refusal at 1.60m		1.00-1.60 B 1.60 spt = 7/18/19/31/25mm n=50/100mm
		End of borehole Borehole remained open and dry on completion Backfilled with arisings		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 08/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

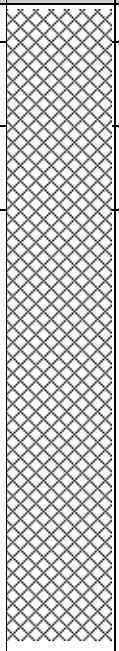
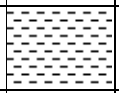
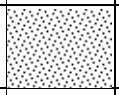
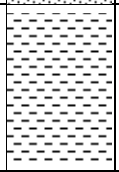
IV 58 13-Pennycroft, Dovecote Lane: WS E

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.08	MADE GROUND: TARMACADAM.		
0.08	0.27	MADE GROUND: Dolomite sub-base.		
0.27	0.60	MADE GROUND: Grey slightly clayey, very sandy fine to coarse GRAVEL of limestone, brick, concrete, some coal, clinker and slate.		0.30-0.60 B
0.60	2.20	MADE GROUND: Dark brown and brown CLAY FILL with much fine to coarse gravel of brick, limestone, concrete and clinker.		1.00-1.50 B
2.20	3.80	Brown very sandy, slightly gravelly CLAY with black tar stain and odour below 2.80m.		3.00 J 3.70 B
3.80	3.95	Black slightly clayey limestone and sandstone SAND + GRAVEL. Tar odour noted		3.80 J
		End of borehole Borehole remained open and dry on completion Installed 3.00m slotted/0.90m plain pipe		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 09/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

IV 58 13-Pennycroft, Dovecote Lane: WS F

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.15	MADE GROUND: Limestone GRAVEL over dolomite.		
0.15	0.60	MADE GROUND: Dark grey, very sandy fine to coarse GRAVEL of concrete, clinker, brick and some coal. Brick cobbles noted.		0.20-0.50 B
0.60	0.90	MADE GROUND: Grey concrete SAND + GRAVEL.		
0.90	3.00	MADE GROUND: Brown and dark brown sandy fine to coarse GRAVEL of brick, limestone, concrete and clinker.		1.00-1.50 B
3.00	3.40	Soft grey and brown very sandy CLAY.		3.00-3.40 B
3.40	3.80	Brown limestone and sandstone SAND + GRAVEL.		
3.80	4.45	Stiff reddish brown sandy CLAY.		3.80-4.00 B 4.00 spt = 3/7/5/5/6/7 n=23
		End of borehole Borehole remained open and dry on completion		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 09/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

IV 58 13-Pennycroft, Dovecote Lane: WS G

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.10	MADE GROUND: Turf over topsoil. Brown gravelly SAND.		
0.10	1.70	MADE GROUND: Black ash-clinker FILL with much brick, some limestone, sandstone, concrete and coal.		0.50-1.00 B
1.70	2.00	MADE GROUND: Soft light brown sandy CLAY FILL with much brick gravel.		1.70-2.00 B
2.00	2.40	MADE GROUND: Dark grey clayey limestone and sandstone SAND + GRAVEL with much brick, clinker and concrete. Stain and sheen but no obvious odour.		2.00-2.40 B
2.40	2.70	Soft grey and brown sandy CLAY.		2.40-2.70 B
2.70	3.00	Brown limestone and sandstone SAND + GRAVEL.		
		End of borehole BH remained open and dry on completion		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 10/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

IV 58 13-Pennycroft, Dovecote Lane: WS H

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.17	MADE GROUND: Turf over topsoil. Brown gravelly fine to coarse SAND.		
0.17	0.30	MADE GROUND: Red clayey, brick FILL with much limestone, sandstone, rare glass and clinker gravel.		
0.30	1.70	MADE GROUND: Dark brown clayey fine to coarse SAND with much fine to coarse gravel of brick, coal, limestone, sandstone and clinker.		1.00 B
1.70	2.70	Dense becoming very dense reddish brown very clayey slightly sandy limestone and sandstone GRAVEL.		2.00 B 2.00 spt = 8/8/7/8/10/10 n=35 2.70 spt = 7/9/11/13/17/10/50mm n=50/275mm
		End of borehole Borehole remained open and dry on completion Backfilled with arisings		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 09/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

IV 58 13-Pennycroft, Dovecote Lane: WS I

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.13	MADE GROUND: Turf over topsoil. Brown gravelly SAND.		
0.13	0.70	MADE GROUND: Grey brick, concrete and breeze block FILL with rare possible asbestos tile.		0.20-0.50 B
0.70	1.00	MADE GROUND: Light brown sandy CLAY FILL.		
1.00	1.30	MADE GROUND: Dark grey sandy fine to coarse GRAVEL of clinker, brick, limestone and concrete.		1.00-1.30 B
1.30	1.50	MADE GROUND: Black ash-clinker FILL. Tar stain and odour.		1.30-1.50 B
1.50	3.00	Dark grey very sandy CLAY with much gravel at base. Tar odour and slight stain throughout.		1.50-2.00 B 2.00-3.00 B
		End of borehole Water strike and SWL at 1.30m Installed 0.20m bentonite/1.80m slotted/1.00m plain pipe		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 10/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

IV 58 13-Pennycroft, Dovecote Lane: WS J

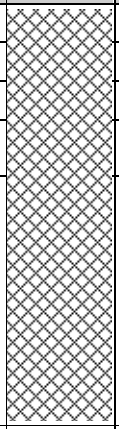
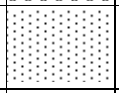
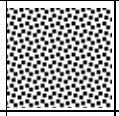
Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.10	MADE GROUND: Turf over topsoil. Reddish brown gravelly fine to coarse SAND.		0.00-0.50 B
0.10	1.30	MADE GROUND: Very dense brown fine to coarse SAND with much fine to coarse gravel of brick, coal, limestone, sandstone and rare clinker. Some possible asbestos tile noted.		0.50-1.00 B 1.00 spt = 11/13/11/39 n=50/150 1.30 spt = 50
		End of borehole Borehole remained open and dry on completion Backfilled with arisings		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 09/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

GEO Environmental Engineering

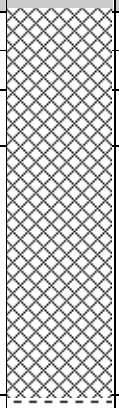
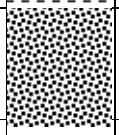
IV 58 13-Pennycroft, Dovecote Lane: WS K

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.12	MADE GROUND: TARMACADAM.		
0.12	0.33	MADE GROUND: Tarmac and limestone GRAVEL sub-base.		0.12-0.30 J
0.33	0.45	MADE GROUND: Fine grey limestone COBBLES.		
0.45	0.70	MADE GROUND: Sandy brick FILL with some concrete, limestone and clinker.		
0.70	1.70	MADE GROUND: Brown very sandy CLAY FILL with much limestone, sandstone, rare coal and clinker gravel.		1.00-1.50 B
1.70	2.10	Relic Topsoil. Dark brown organic, slightly clayey fine to coarse SAND.		1.70-2.00 B
2.10	2.50	Dense brown limestone and sandstone SAND + GRAVEL.		
		End of borehole BH remained open and dry on completion Installed 2.00m slotted/0.50m plain pipe		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 10/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

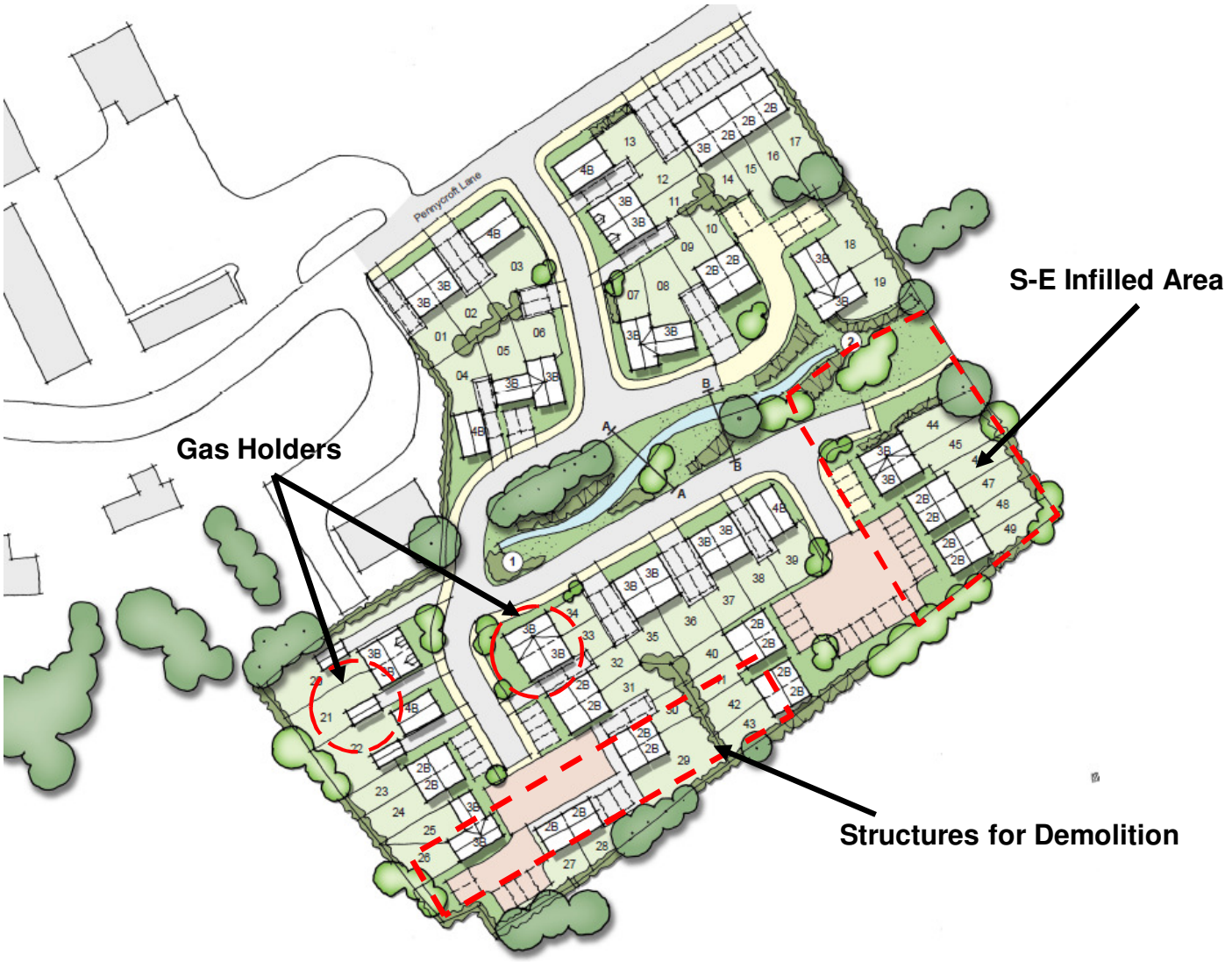
IV 58 13-Pennycroft, Dovecote Lane: WS L

Depth From (m)	Depth To (m)	Strata Description	Legend	Testing / Samples
0.00	0.12	MADE GROUND: TARMACADAM.		
0.12	0.33	MADE GROUND: Tarmac and limestone GRAVEL sub-base.		0.12-0.30 J
0.45	0.70	MADE GROUND: Sandy brick FILL with some concrete, limestone and clinker.		
0.70	1.70	MADE GROUND: Dark brown and brown CLAY FILL with much fine to coarse gravel of brick, limestone, concrete and clinker.		1.30-1.50 B
1.70	2.10	Soft grey and brown sandy CLAY.		2.0-2.10 B
2.10	2.50	Dense brown limestone and sandstone SAND + GRAVEL.		
		End of borehole BH remained open and dry on completion Installed 2.00m slotted/0.50m plain pipe		

Site: Pennycroft, Uttoxeter
Client: Ivy House
Client Reference: N/A
Engineer: GE
Site Works Date: 10/10/2013
Plant: Archway Competitor C130 Superheavy

Log Notes:
Spt = Standard Penetration test (blows per 300mm n300)
HSV = Hand Shear Vane (result in kN/m^2)
CBR = California Bearing Ratio by Mexe Cone Penetrometer (result as percentage)
LP = Limited Penetration (HSV/CBR)
NP = No penetration (HSV/CBR)
B = Bulk Bag, J = Amber Glass Jar, T = Plastic Tub

APPENDIX E



KEY:

DO NOT SCALE

IVY HOUSE environmental
Scotland Farm, Ockbrook, Derby, DE72 3RX
rps@ivyhousenv.co.uk • www.ivyhousenv.co.uk • 01332 820 488

TITLE: Site Areas –Remedial Strategy

PROJECT: Pennycroft Lane, Uttoxeter

PROJECT No: IV.58.13

DATE: 11/2013

SCALE : NTS

DRAWN : RPS

DWG No:

APPENDIX F

Richard Sutton
Ivy House Environmental Ltd
Scotland Farm
Ockbrook
Derby
DE72 3RX

QTS Environmental Ltd
Unit 1
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ME17 2JN
t: 01622 850410
russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 13-17152

Site Reference:	Pennycroft, Uttoxeter
Project / Job Ref:	IV.58.13
Order No:	None Supplied
Sample Receipt Date:	14/10/2013
Sample Scheduled Date:	14/10/2013
Report Issue Number:	1
Reporting Date:	22/10/2013

Authorised by:

Russell Jarvis
Director
On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old
Director
On behalf of QTS Environmental Ltd

QTS Environmental Ltd
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Soil Analysis Certificate						
QTS Environmental Report No: 13-17152	**Date Sampled**	09/10/13	09/10/13	09/10/13	09/10/13	09/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA1	WSA2	WSB	WSC	WSC
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	2.00	0.70	2.00	2.10 - 2.30	2.50 - 3.00
Reporting Date: 22/10/2013	**QTSE Sample No**	82473	82474	82475	82476	82477

Determinand	Unit	MDL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025			None Detected		
pH	pH Units	N / a	MCERTS			8.7		
Total Cyanide	mg/kg	< 2	NONE			< 2		
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2		< 2	< 2
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2		< 2	< 2
Thiocyanate as SCN	mg/kg	< 3	NONE	< 3	< 3		< 3	< 3
Total Sulphate as SO_4	mg/kg	< 200	NONE			7471		
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	NONE			1.38		
Organic Matter	%	< 0.1	NONE			2.5		
Arsenic (As)	mg/kg	< 2	MCERTS	6	24	12	5	< 2
W/S Boron	mg/kg	< 1	NONE	1.9	4.1		3.8	3.6
Cadmium (Cd)	mg/kg	< 0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium (Cr)	mg/kg	< 2	MCERTS	20	34	16	51	53
Chromium (hexavalent)	mg/kg	< 2	NONE			< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	12	148	73	16	12
Lead (Pb)	mg/kg	< 3	MCERTS	15	121	35	6	6
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	18	57	21	51	53
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3	< 3	< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	52	94	48	61	62
Total Phenols (monohydric)	mg/kg	< 2	NONE			< 2		
EPH (C10 - C40)	mg/kg	< 6	MCERTS	311		358		

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C
Analysis carried out on the dried sample is corrected for the stone content
Subcontracted analysis (S)

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Soil Analysis Certificate						
QTS Environmental Report No: 13-17152	**Date Sampled**	09/10/13	09/10/13	09/10/13	09/10/13	09/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSD	WSE	WSG	WSG	WSH
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	1.00 - 1.60	3.70	1.15	2.00 - 2.40	1.00
Reporting Date: 22/10/2013	**QTSE Sample No**	82478	82479	82480	82481	82482

Determinand	Unit	MDL	Accreditation					
Asbestos Screen [S]	N/a	N/a	ISO17025	None Detected	None Detected			None Detected
pH	pH Units	N / a	MCERTS	7.9	7.2			7.1
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2			< 2
Complex Cyanide	mg/kg	< 2	NONE			< 2	< 2	
Free Cyanide	mg/kg	< 2	NONE			< 2	< 2	
Thiocyanate as SCN	mg/kg	< 3	NONE			< 3	< 3	
Total Sulphate as SO_4	mg/kg	< 200	NONE	2691	898			2637
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	NONE	0.48	0.21			1.02
Organic Matter	%	< 0.1	NONE	4.3	2			5.1
Arsenic (As)	mg/kg	< 2	MCERTS	3	4	20	26	13
W/S Boron	mg/kg	< 1	NONE			2.1	1.5	
Cadmium (Cd)	mg/kg	< 0.5	MCERTS	1.6	< 0.5	0.5	0.6	0.9
Chromium (Cr)	mg/kg	< 2	MCERTS	14	12	20	12	26
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			< 2
Copper (Cu)	mg/kg	< 4	MCERTS	12	10	54	40	62
Lead (Pb)	mg/kg	< 3	MCERTS	29	21	256	58	197
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	10	11	21	17	30
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3	< 3	< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	58	46	121	59	208
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2			< 2
EPH (C10 - C40)	mg/kg	< 6	MCERTS	901	< 6			116

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C
Analysis carried out on the dried sample is corrected for the stone content
Subcontracted analysis [S]

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Soil Analysis Certificate						
QTS Environmental Report No: 13-17152	**Date Sampled**	09/10/13				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WS7				
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied				
Order No: None Supplied	**Depth (m)**	0.50 - 1.00				
Reporting Date: 22/10/2013	**QTSE Sample No**	82483				

Determinand	Unit	MDL	Accreditation					
Asbestos Screen [S]	N/a	N/a	ISO17025	None Detected				
pH	pH Units	N / a	MCERTS	7.5				
Total Cyanide	mg/kg	< 2	NONE	< 2				
Complex Cyanide	mg/kg	< 2	NONE					
Free Cyanide	mg/kg	< 2	NONE					
Thiocyanate as SCN	mg/kg	< 3	NONE					
Total Sulphate as SO_4	mg/kg	< 200	NONE	1012				
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	NONE	0.25				
Organic Matter	%	< 0.1	NONE	1.3				
Arsenic (As)	mg/kg	< 2	MCERTS	5				
W/S Boron	mg/kg	< 1	NONE					
Cadmium (Cd)	mg/kg	< 0.5	MCERTS	1.3				
Chromium (Cr)	mg/kg	< 2	MCERTS	12				
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2				
Copper (Cu)	mg/kg	< 4	MCERTS	11				
Lead (Pb)	mg/kg	< 3	MCERTS	32				
Mercury (Hg)	mg/kg	< 1	NONE	< 1				
Nickel (Ni)	mg/kg	< 3	MCERTS	11				
Selenium (Se)	mg/kg	< 3	NONE	< 3				
Zinc (Zn)	mg/kg	< 3	MCERTS	114				
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2				
EPH (C10 - C40)	mg/kg	< 6	MCERTS					

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C
Analysis carried out on the dried sample is corrected for the stone content
Subcontracted analysis [S]

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Maidstone
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Soil Analysis Certificate - Speciated PAHs						
QTS Environmental Report No: 13-17152	**Date Sampled**	09/10/13	09/10/13	09/10/13	09/10/13	09/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSB	WSD	WSE	WSH	WS7
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	2.00	1.00 - 1.60	3.70	1.00	0.50 - 1.00
Reporting Date: 22/10/2013	**QTSE Sample No**	82475	82478	82479	82482	82483

Determinand	Unit	MDL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	1.80	0.30	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	0.59	0.33	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	0.69	0.46	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	1.23	0.59	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	5.73	6.43	< 0.1	0.20	0.62
Anthracene	mg/kg	< 0.1	MCERTS	1.49	1.23	< 0.1	< 0.1	0.17
Fluoranthene	mg/kg	< 0.1	MCERTS	6.14	10.20	< 0.1	0.77	1.26
Pyrene	mg/kg	< 0.1	MCERTS	5.50	8.08	< 0.1	0.67	1.01
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	2.02	3.96	< 0.1	0.35	0.56
Chrysene	mg/kg	< 0.1	MCERTS	2.04	4.11	< 0.1	0.32	0.54
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	2.05	4.43	< 0.1	0.47	0.68
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.74	1.95	< 0.1	0.21	0.25
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	1.52	3.27	< 0.1	0.37	0.55
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.92	2.01	< 0.1	0.25	0.38
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.16	0.13	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.79	1.80	< 0.1	0.25	0.32
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	33.4	49.3	< 1.6	3.9	6.3

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Soil Analysis Certificate - TPH CWG Banded						
QTS Environmental Report No: 13-17152	**Date Sampled**	09/10/13	09/10/13	09/10/13	09/10/13	09/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA2	WSC	WSC	WSG	WSG
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	0.70	2.10 - 2.30	2.50 - 3.00	1.15	2.00 - 2.40
Reporting Date: 22/10/2013	**QTSE Sample No**	82474	82476	82477	82480	82481

Determinand	Unit	MDL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 1	NONE	< 1	25	< 1	< 1	< 1
Aliphatic >C10 - C12	mg/kg	< 1	NONE	2	57	< 1	< 1	< 1
Aliphatic >C12 - C16	mg/kg	< 1	NONE	33	177	< 1	11	< 1
Aliphatic >C16 - C21	mg/kg	< 1	NONE	119	154	< 1	59	< 1
Aliphatic >C21 - C34	mg/kg	< 6	NONE	155	109	< 6	136	< 6
Aliphatic (C5 - C34)	mg/kg	< 12	NONE	309	522	< 12	206	< 12
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	0.05	1.87	0.17	0.03	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	2.36	0.06	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 1	NONE	< 1	20	< 1	< 1	< 1
Aromatic >C10 - C12	mg/kg	< 1	NONE	2	31	< 1	< 1	< 1
Aromatic >C12 - C16	mg/kg	< 1	NONE	16	117	< 1	6	< 1
Aromatic >C16 - C21	mg/kg	< 1	NONE	81	159	< 1	55	< 1
Aromatic >C21 - C35	mg/kg	< 6	NONE	156	191	< 6	192	< 6
Aromatic (C5 - C35)	mg/kg	< 12	NONE	254	523	< 12	253	< 12
Total >C5 - C35	mg/kg	< 24	NONE	563	1045	< 24	459	< 24

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Soil Analysis Certificate - BTEX / MTBE						
QTS Environmental Report No: 13-17152	**Date Sampled**	09/10/13	09/10/13	09/10/13	09/10/13	09/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA2	WSC	WSC	WSG	WSG
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	0.70	2.10 - 2.30	2.50 - 3.00	1.15	2.00 - 2.40
Reporting Date: 22/10/2013	**QTSE Sample No**	82474	82476	82477	82480	82481

Determinand	Unit	MDL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	45	1866	166	33	< 2
Toluene	ug/kg	< 5	MCERTS	10	2357	57	13	< 5
Ethylbenzene	ug/kg	< 10	MCERTS	19	831	13	< 10	< 10
p & m-xylene	ug/kg	< 10	MCERTS	< 10	16098	96	23	< 10
o-xylene	ug/kg	< 10	MCERTS	< 10	2372	37	< 10	< 10

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Maidstone
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4480

Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
QTS Environmental Report No: 13-17152	**Date Sampled**	09/10/13	09/10/13	09/10/13	09/10/13	09/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA1	WSA2	WSB	WSC	WSC
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	2.00	0.70	2.00	2.10 - 2.30	2.50 - 3.00
Reporting Date: 22/10/2013	**QTSE Sample No**	82473	82474	82475	82476	82477

Determinand	Unit	MDL	Accreditation					
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	ug/kg	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Benzene	ug/kg	< 2	MCERTS	11	45	466	1866	166
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
TAME	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Toluene	ug/kg	< 5	MCERTS	< 5	10	34	2357	57
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	ug/kg	< 10	MCERTS	< 10	19	25	831	13
m,p-Xylene	ug/kg	< 10	MCERTS	< 10	< 10	47	16100	96
o-Xylene	ug/kg	< 10	MCERTS	< 10	< 10	51	2372	37
Styrene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	162	< 5
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	253	< 5
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	16	1323	12
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	31	3251	35
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	118	< 5
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C

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4480

Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
QTS Environmental Report No: 13-17152	**Date Sampled**	09/10/13	09/10/13	09/10/13		
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSD	WSG	WSG		
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied		
Order No: None Supplied	**Depth (m)**	1.00 - 1.60	1.15	2.00 - 2.40		
Reporting Date: 22/10/2013	**QTSE Sample No**	82478	82480	82481		

Determinand	Unit	MDL	Accreditation					
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10		
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10		
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,1-Dichloroethene	ug/kg	< 5	ISO17025	< 5	< 5	< 5		
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10	< 10		
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Benzene	ug/kg	< 2	MCERTS	9	33	< 2		
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
TAME	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Toluene	ug/kg	< 5	MCERTS	6	13	< 5		
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10		
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Ethyl Benzene	ug/kg	< 10	MCERTS	< 10	< 10	< 10		
m,p-Xylene	ug/kg	< 10	MCERTS	< 10	23	< 10		
o-Xylene	ug/kg	< 10	MCERTS	< 10	< 10	< 10		
Styrene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10	< 10		
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	8	< 5		
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	10	< 5		
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
1,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10	< 10		
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{o}C

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Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
QTS Environmental Report No: 13-17152	**Date Sampled**	09/10/13	09/10/13	09/10/13	09/10/13	09/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA1	WSA2	WSC	WSC	WSE
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	2.00	0.70	2.10 - 2.30	2.50 - 3.00	3.70
Reporting Date: 22/10/2013	**QTSE Sample No**	82473	82474	82476	82477	82479

Determinand	Unit	MDL	Accreditation					
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
0-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	0.3	43.4	< 0.1	< 0.1
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloroanaline	mg/kg	< 0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzofuran	mg/kg	< 0.1	MCERTS	< 0.1	3	15.9	< 0.1	< 0.1
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibutyl phthalate	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Carbazole	mg/kg	< 0.1	ISO17025	< 0.1	1.6	3.4	< 0.1	< 0.1
bis(2-ethylhexyl)phthalate	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
QTS Environmental Report No: 13-17152	**Date Sampled**	09/10/13	09/10/13			
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSG	WSG			
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied			
Order No: None Supplied	**Depth (m)**	1.15	2.00 - 2.40			
Reporting Date: 22/10/2013	**QTSE Sample No**	82480	82481			

Determinand	Unit	MDL	Accreditation					
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
1,2,4-Trichlorobenzene	mg/kg	< 0.1	**ISO17025**	< 0.1	< 0.1			
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Nitrobenzene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
0-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
bis(2-chloroethoxy)methane	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
bis(2-chloroethyl)ether	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
2,4-Dichlorophenol	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
2-Chlorophenol	mg/kg	< 0.1	**ISO17025**	< 0.1	< 0.1			
1,3-Dichlorobenzene	mg/kg	< 0.1	**ISO17025**	< 0.1	< 0.1			
1,4-Dichlorobenzene	mg/kg	< 0.1	**ISO17025**	< 0.1	< 0.1			
1,2-Dichlorobenzene	mg/kg	< 0.1	**ISO17025**	< 0.1	< 0.1			
2,4-Dimethylphenol	mg/kg	< 0.15	**ISO17025**	< 0.15	< 0.15			
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Hexachloroethane	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
p-Cresol	mg/kg	< 0.15	**MCERTS**	< 0.15	< 0.15			
2,4,6-Trichlorophenol	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
2,4,5-Trichlorophenol	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
2-Methylnaphthalene	mg/kg	< 0.1	**MCERTS**	0.5	< 0.1			
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Hexachlorobutadiene	mg/kg	< 0.1	**ISO17025**	< 0.1	< 0.1			
2,6-Dinitrotoluene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
2-Chloronaphthalene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
4-Chloroanaline	mg/kg	< 0.2	NONE	< 0.2	< 0.2			
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Bromophenyl phenyl ether	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Hexachlorobenzene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
2,4-Dinitrotoluene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Diethyl phthalate	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Dibenzofuran	mg/kg	< 0.1	**MCERTS**	1.1	< 0.1			
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Dibutyl phthalate	mg/kg	< 0.15	**ISO17025**	< 0.15	< 0.15			
Carbazole	mg/kg	< 0.1	**ISO17025**	0.9	0.2			
bis(2-ethylhexyl)phthalate	mg/kg	< 0.2	**MCERTS**	< 0.2	< 0.2			
Benzyl butyl phthalate	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Di-n-octyl phthalate	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Soil Analysis Certificate - Sample Descriptions
QTS Environmental Report No: 13-17152
Ivy House Environmental Ltd
Site Reference: Pennycroft, Uttoxeter
Project / Job Ref: IV.58.13
Order No: None Supplied
Reporting Date: 22/10/2013

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
82473	WSA1	None Supplied	2.00	10.7	Light brown sandy clay
82474	WSA2	None Supplied	0.70	20	Black sandy gravel
82475	WSB	None Supplied	2.00	21.4	Black sandy gravel
82476	WSC	None Supplied	2.10 - 2.30	18.7	Brown clay
82477	WSC	None Supplied	2.50 - 3.00	19.3	Red clay with rubble
82478	WSD	None Supplied	1.00 - 1.60	9.7	Brown sandy gravel
82479	WSE	None Supplied	3.70	13.5	Brown silt
82480	WSG	None Supplied	1.15	5.9	Brown sandy clay
82481	WSG	None Supplied	2.00 - 2.40	20.4	Brown sandy clay
82482	WSH	None Supplied	1.00	17.8	Brown sandy clay
82483	WS7	None Supplied	0.50 - 1.00	5.8	Light brown clayey sand with rubble and stones

Insufficient sample I/S
Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information
QTS Environmental Report No: 13-17152
Ivy House Environmental Ltd
Site Reference: Pennycroft, Uttoxeter
Project / Job Ref: IV.58.13
Order No: None Supplied
Reporting Date: 22/10/2013

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E021
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by turbidimeter	E020
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E023
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	D	Loss on Ignition @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	D	Phosphorus	Determination of phosphorus by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	AR	Sulphide	Determination of sulphide by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia, potassium iodide/iodate followed by ICP-OES	E002
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E009
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E009
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E010
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E009
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	VPH (C6 - C10)	Determination of hydrocarbons C6-C10 by headspace GC-MS	E001
Soil	AR	EPH TEXAS	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	TPH CWG	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	TPH LQM	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	EPH (with florisil cleanup)	Determination of acetone/hexane extractable hydrocarbons with florisil cleanup step by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001

Key

D Dried
AR As Received

Richard Sutton
Ivy House Environmental Ltd
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QTS Environmental Report No: 13-17089

Site Reference:	Pennycroft, Uttoxeter
Project / Job Ref:	IV.58.13
Order No:	None Supplied
Sample Receipt Date:	10/10/2013
Sample Scheduled Date:	10/10/2013
Report Issue Number:	2
Reporting Date:	20/11/2013

Authorised by:

Russell Jarvis
Director
On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old
Director
On behalf of QTS Environmental Ltd

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Soil Analysis Certificate						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13	08/10/13	08/10/13	08/10/13	08/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPA	TPA	TPB1A	TPG	TPG
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	+1.00m	None Supplied
Order No: None Supplied	**Depth (m)**	1.40 @ 4.00	1.00 @ 7.00	2.60 @ 5.00	None Supplied	1.60
Reporting Date: 20/11/2013	**QTSE Sample No**	82124	82125	82126	82127	82128

Determinand	Unit	MDL	Accreditation					
Asbestos Screen [S]	N/a	N/a	ISO17025				Detected	
Asbestos Matrix [S]	Material Type	N/a	ISO17025				Loose fibres	
Asbestos Type [S]	PLM Result	N/a	ISO17025				Chrysotile	
pH	pH Units	N / a	MCERTS				7.8	
Total Cyanide	mg/kg	< 2	NONE				< 2	
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2			< 2
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2			< 2
Thiocyanate as SCN	mg/kg	< 3	NONE	< 3	< 3			< 3
Total Sulphate as SO_4	mg/kg	< 200	NONE				1995	
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	NONE				0.10	
Organic Matter	%	< 0.1	NONE				8.5	
Arsenic (As)	mg/kg	< 2	MCERTS	2	16		5	29
W/S Boron	mg/kg	< 1	NONE	1.9	1.7			1.5
Cadmium (Cd)	mg/kg	< 0.5	MCERTS	< 0.5	0.5		2.9	0.6
Chromium (Cr)	mg/kg	< 2	MCERTS	49	17		31	32
Chromium (hexavalent)	mg/kg	< 2	NONE				< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	11	54		205	76
Lead (Pb)	mg/kg	< 3	MCERTS	18	280		594	221
Mercury (Hg)	mg/kg	< 1	NONE	< 1	1		4.7	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	51	27		26	17
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3		< 3	< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	67	97		439	181
Total Phenols (monohydric)	mg/kg	< 2	NONE				< 2	
EPH (C10 - C40)	mg/kg	< 6	MCERTS			< 6	707	

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C
Analysis carried out on the dried sample is corrected for the stone content
Subcontracted analysis [S]

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Soil Analysis Certificate						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13	08/10/13	08/10/13	08/10/13	08/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPG	TPI	TPI	TPH	TPH
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	3.20	1.00	3.20	0.70 - 1.60	3.40
Reporting Date: 20/11/2013	**QTSE Sample No**	82129	82130	82131	82132	82133

Determinand	Unit	MDL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025		None Detected		None Detected	
Asbestos Matrix (S)	Material Type	N/a	NONE					
Asbestos Type (S)	PLM Result	N/a	ISO17025					
pH	pH Units	N / a	MCERTS		7.7		7.7	
Total Cyanide	mg/kg	< 2	NONE		< 2		< 2	
Complex Cyanide	mg/kg	< 2	NONE	< 2				
Free Cyanide	mg/kg	< 2	NONE	< 2				
Thiocyanate as SCN	mg/kg	< 3	NONE	< 3				
Total Sulphate as SO_4	mg/kg	< 200	NONE		1376		1083	
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	NONE		0.08		0.06	
Organic Matter	%	< 0.1	NONE		3		2.7	
Arsenic (As)	mg/kg	< 2	MCERTS	5	11		6	
W/S Boron	mg/kg	< 1	NONE	< 1				
Cadmium (Cd)	mg/kg	< 0.5	MCERTS	< 0.5	0.8		< 0.5	
Chromium (Cr)	mg/kg	< 2	MCERTS	8	19		13	
Chromium (hexavalent)	mg/kg	< 2	NONE		< 2		< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	5	58		74	
Lead (Pb)	mg/kg	< 3	MCERTS	14	105		104	
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1		< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS	6	21		22	
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3		< 3	
Zinc (Zn)	mg/kg	< 3	MCERTS	30	165		61	
Total Phenols (monohydric)	mg/kg	< 2	NONE		< 2		< 2	
EPH (C10 - C40)	mg/kg	< 6	MCERTS			< 6	200	< 6

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C
Analysis carried out on the dried sample is corrected for the stone content
Subcontracted analysis (S)

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Soil Analysis Certificate							
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13	08/10/13	08/10/13		
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPJ	TPK	TPK		
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied		
Order No: None Supplied	**Depth (m)**	0.50	2.10	3.20		
Reporting Date: 20/11/2013	**QTSE Sample No**	82134	82135	82136		

Determinand	Unit	MDL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	None Detected				
Asbestos Matrix (S)	Material Type	N/a	NONE					
Asbestos Type (S)	PLM Result	N/a	ISO17025					
pH	pH Units	N / a	MCERTS	7.1				
Total Cyanide	mg/kg	< 2	NONE	< 2				
Complex Cyanide	mg/kg	< 2	NONE		< 2	< 2		
Free Cyanide	mg/kg	< 2	NONE		< 2	< 2		
Thiocyanate as SCN	mg/kg	< 3	NONE		< 3	< 3		
Total Sulphate as SO_4	mg/kg	< 200	NONE	777				
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	NONE	0.03				
Organic Matter	%	< 0.1	NONE	4				
Arsenic (As)	mg/kg	< 2	MCERTS	9	32	16		
W/S Boron	mg/kg	< 1	NONE		< 1	< 1		
Cadmium (Cd)	mg/kg	< 0.5	MCERTS	< 0.5	< 0.5	< 0.5		
Chromium (Cr)	mg/kg	< 2	MCERTS	17	26	19		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2				
Copper (Cu)	mg/kg	< 4	MCERTS	32	117	16		
Lead (Pb)	mg/kg	< 3	MCERTS	95	354	27		
Mercury (Hg)	mg/kg	< 1	NONE	< 1	1.2	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	17	20	27		
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3		
Zinc (Zn)	mg/kg	< 3	MCERTS	118	83	63		
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2				
EPH (C10 - C40)	mg/kg	< 6	MCERTS	50				

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C
Analysis carried out on the dried sample is corrected for the stone content
Subcontracted analysis (S)

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Soil Analysis Certificate - Speciated PAHs						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13	08/10/13	08/10/13	08/10/13	
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPG	TPI	TPH	TPJ	
Project / Job Ref: IV.58.13	**Additional Refs**	+1.00m	None Supplied	None Supplied	None Supplied	
Order No: None Supplied	**Depth (m)**	None Supplied	1.00	0.70 - 1.60	0.50	
Reporting Date: 20/11/2013	**QTSE Sample No**	82127	82130	82132	82134	

Determinand	Unit	MDL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Acenaphthylene	mg/kg	< 0.1	MCERTS	0.11	< 0.1	< 0.1	< 0.1	
Acenaphthene	mg/kg	< 0.1	MCERTS	0.56	< 0.1	< 0.1	< 0.1	
Fluorene	mg/kg	< 0.1	MCERTS	0.43	< 0.1	< 0.1	< 0.1	
Phenanthrene	mg/kg	< 0.1	MCERTS	5.04	0.57	0.68	0.76	
Anthracene	mg/kg	< 0.1	MCERTS	1.41	0.18	0.21	0.26	
Fluoranthene	mg/kg	< 0.1	MCERTS	11.80	1.75	2.51	2.02	
Pyrene	mg/kg	< 0.1	MCERTS	9.51	1.49	2.14	1.69	
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	4.84	0.92	1.41	1.29	
Chrysene	mg/kg	< 0.1	MCERTS	4.48	0.81	1.13	1.25	
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	5.80	1.11	1.82	1.78	
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	2.66	0.49	0.57	0.77	
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	4.32	0.80	1.42	1.63	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	2.73	0.50	0.90	0.91	
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.28	< 0.1	0.12	< 0.1	
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	2.61	0.48	0.69	0.69	
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	56.5	9.1	13.6	13.1	

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Soil Analysis Certificate - TPH CWG Banded						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13	08/10/13	08/10/13	08/10/13	08/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPA	TPA	TPG	TPG	TPK
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	1.40 @ 4.00	1.00 @ 7.00	1.60	3.20	2.10
Reporting Date: 20/11/2013	**QTSE Sample No**	82124	82125	82128	82129	82135

Determinand	Unit	MDL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	12.60	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 1	NONE	< 1	69	< 1	< 1	< 1
Aliphatic >C10 - C12	mg/kg	< 1	NONE	< 1	119	9	< 1	< 1
Aliphatic >C12 - C16	mg/kg	< 1	NONE	< 1	606	37	< 1	< 1
Aliphatic >C16 - C21	mg/kg	< 1	NONE	< 1	1716	62	< 1	< 1
Aliphatic >C21 - C34	mg/kg	< 6	NONE	< 6	810	47	< 6	< 6
Aliphatic (C5 - C34)	mg/kg	< 12	NONE	< 12	3331	154	< 12	< 12
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	0.12	11.90	0.06	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	0.48	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 1	NONE	< 1	88	< 1	< 1	< 1
Aromatic >C10 - C12	mg/kg	< 1	NONE	< 1	104	3	< 1	< 1
Aromatic >C12 - C16	mg/kg	< 1	NONE	< 1	238	12	< 1	< 1
Aromatic >C16 - C21	mg/kg	< 1	NONE	< 1	705	35	< 1	< 1
Aromatic >C21 - C35	mg/kg	< 6	NONE	< 6	515	44	< 6	< 6
Aromatic (C5 - C35)	mg/kg	< 12	NONE	< 12	1661	93	< 12	< 12
Total >C5 - C35	mg/kg	< 24	NONE	< 24	4993	248	< 24	< 24

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Soil Analysis Certificate - TPH CWG Banded							
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13					
Ivy House Environmental Ltd	**Time Sampled**	None Supplied					
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPK					
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied					
Order No: None Supplied	**Depth (m)**	3.20					
Reporting Date: 20/11/2013	**QTSE Sample No**	82136					

Determinand	Unit	MDL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01				
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05				
Aliphatic >C8 - C10	mg/kg	< 1	NONE	< 1				
Aliphatic >C10 - C12	mg/kg	< 1	NONE	< 1				
Aliphatic >C12 - C16	mg/kg	< 1	NONE	< 1				
Aliphatic >C16 - C21	mg/kg	< 1	NONE	< 1				
Aliphatic >C21 - C34	mg/kg	< 6	NONE	< 6				
Aliphatic (C5 - C34)	mg/kg	< 12	NONE	< 12				
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01				
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05				
Aromatic >C8 - C10	mg/kg	< 1	NONE	< 1				
Aromatic >C10 - C12	mg/kg	< 1	NONE	< 1				
Aromatic >C12 - C16	mg/kg	< 1	NONE	< 1				
Aromatic >C16 - C21	mg/kg	< 1	NONE	< 1				
Aromatic >C21 - C35	mg/kg	< 6	NONE	< 6				
Aromatic (C5 - C35)	mg/kg	< 12	NONE	< 12				
Total >C5 - C35	mg/kg	< 24	NONE	< 24				

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Soil Analysis Certificate - BTEX / MTBE						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13	08/10/13	08/10/13	08/10/13	08/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPA	TPA	TPG	TPG	TPK
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	1.40 @ 4.00	1.00 @ 7.00	1.60	3.20	2.10
Reporting Date: 20/11/2013	**QTSE Sample No**	82124	82125	82128	82129	82135

Determinand	Unit	MDL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	121	11887	55	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	12	478	18	< 5	< 5
Ethylbenzene	ug/kg	< 10	MCERTS	16	24871	50	< 10	< 10
p & m-xylene	ug/kg	< 10	MCERTS	18	16134	112	< 10	< 10
o-xylene	ug/kg	< 10	MCERTS	15	13639	83	< 10	< 10

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Soil Analysis Certificate - BTEX / MTBE						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPK				
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied				
Order No: None Supplied	**Depth (m)**	3.20				
Reporting Date: 20/11/2013	**QTSE Sample No**	82136				

Determinand	Unit	MDL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2				
Toluene	ug/kg	< 5	MCERTS	< 5				
Ethylbenzene	ug/kg	< 10	MCERTS	< 10				
p & m-xylene	ug/kg	< 10	MCERTS	< 10				
o-xylene	ug/kg	< 10	MCERTS	< 10				

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13	08/10/13	08/10/13	08/10/13	08/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPA	TPA	TPB1A	TPG	TPG
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	1.40 @ 4.00	1.00 @ 7.00	2.60 @ 5.00	1.60	3.20
Reporting Date: 20/11/2013	**QTSE Sample No**	82124	82125	82126	82128	82129

Determinand	Unit	MDL	Accreditation					
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	ug/kg	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Benzene	ug/kg	< 2	MCERTS	121	11890	71	55	< 2
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
TAME	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Toluene	ug/kg	< 5	MCERTS	12	478	< 5	18	< 5
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	ug/kg	< 10	MCERTS	16	24870	12	50	< 10
m,p-Xylene	ug/kg	< 10	MCERTS	18	16130	< 10	112	< 10
o-Xylene	ug/kg	< 10	MCERTS	15	13640	< 10	83	< 10
Styrene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	377	< 5	8	< 5
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	321	< 5	7	< 5
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	316	< 5	177	< 5
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	11	32620	< 5	197	< 5
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	149	< 5	8	< 5
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C

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Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13	08/10/13	08/10/13	08/10/13	
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TP1	TP4	TP6	TP6	
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: None Supplied	**Depth (m)**	3.20	3.40	2.10	3.20	
Reporting Date: 20/11/2013	**QTSE Sample No**	82131	82133	82135	82136	

Determinand	Unit	MDL	Accreditation					
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,1-Dichloroethene	ug/kg	< 5	ISO17025	< 5	< 5	< 5	< 5	
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
TAME	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Ethyl Benzene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
m,p-Xylene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
o-Xylene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
Styrene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
1,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C

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Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13	08/10/13	08/10/13	08/10/13	08/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPA	TPA	TPB1A	TPG	TPG
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	1.40 @ 4.00	1.00 @ 7.00	2.60 @ 5.00	1.60	3.20
Reporting Date: 20/11/2013	**QTSE Sample No**	82124	82125	82126	82128	82129

Determinand	Unit	MDL	Accreditation					
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
0-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	0.26	< 0.15
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	0.1	3.5	< 0.1	2.3	< 0.1
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloroanaline	mg/kg	< 0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.1	< 0.1	< 0.1
Dibenzofuran	mg/kg	< 0.1	MCERTS	0.1	10.3	< 0.1	6.6	0.1
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibutyl phthalate	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Carbazole	mg/kg	< 0.1	ISO17025	0.2	4.8	0.1	1.9	0.1
bis(2-ethylhexyl)phthalate	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13	08/10/13	08/10/13	08/10/13	
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TP1	TP4	TP6	TP8	
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: None Supplied	**Depth (m)**	3.20	3.40	2.10	3.20	
Reporting Date: 20/11/2013	**QTSE Sample No**	82131	82133	82135	82136	

Determinand	Unit	MDL	Accreditation					
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
0-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	< 0.15	
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	< 0.15	
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
2,4,5-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.2	< 0.1	
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
4-Chloroanaline	mg/kg	< 0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Dibenzofuran	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.2	< 0.1	
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Dibutyl phthalate	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	< 0.15	
Carbazole	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	0.2	< 0.1	
bis(2-ethylhexyl)phthalate	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	

Analytical results are expressed on a dry weight basis where samples are dried at less than 30^{O}C

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Leachate Analysis Certificate						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPB				
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied				
Order No: None Supplied	**Depth (m)**	1.40 @ 3.00				
Reporting Date: 20/11/2013	**QTSE Sample No**	82137				

Determinand	**Unit**	**MDL**	**Accreditation**					
Complex Cyanide	ug/l	< 5	NONE	< 5				
Free Cyanide	ug/l	< 5	NONE	< 5				
Thiocyanate as SCN	ug/l	< 10	NONE	< 10				
Arsenic	ug/l	< 10	NONE	< 10				
Boron	ug/l	< 50	NONE	59				
Cadmium	ug/l	< 0.5	NONE	< 0.5				
Chromium	ug/l	< 5	NONE	< 5				
Copper	ug/l	< 10	NONE	< 10				
Lead	ug/l	< 5	NONE	< 5				
Mercury	ug/l	< 0.05	NONE	< 0.05				
Nickel	ug/l	< 7	NONE	< 7				
Selenium	ug/l	< 5	NONE	< 5				
Zinc	ug/l	< 5	NONE	< 5				

Subcontracted analysis [S]

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Leachate Analysis Certificate - TPH CWG Banded							
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13					
Ivy House Environmental Ltd	**Time Sampled**	None Supplied					
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPB					
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied					
Order No: None Supplied	**Depth (m)**	1.40 @ 3.00					
Reporting Date: 20/11/2013	**QTSE Sample No**	82137					

Determinand	**Unit**	**MDL**	**Accreditation**					
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10				
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10				
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10				
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10				
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10				
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10				
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10				
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70				
Aromatic >C5 - C7	ug/l	< 10	NONE	43				
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10				
Aromatic >C8 - C10	ug/l	< 10	NONE	21				
Aromatic >C10 - C12	ug/l	< 10	NONE	40				
Aromatic >C12 - C16	ug/l	< 10	NONE	111				
Aromatic >C16 - C21	ug/l	< 10	NONE	72				
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10				
Aromatic (C5 - C35)	ug/l	< 70	NONE	287				
Total >C5 - C35	ug/l	< 140	NONE	287				

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Leachate Analysis Certificate - BTEX / MTBE						
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPB				
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied				
Order No: None Supplied	**Depth (m)**	1.40 @ 3.00				
Reporting Date: 20/11/2013	**QTSE Sample No**	82137				

Determinand	Unit	MDL	Accreditation					
Benzene	ug/l	< 1	ISO17025	43				
Toluene	ug/l	< 5	ISO17025	< 5				
Ethylbenzene	ug/l	< 5	ISO17025	20				
p & m-xylene	ug/l	< 10	ISO17025	< 10				
o-xylene	ug/l	< 5	ISO17025	< 5				

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UKAS TESTING 4480

Leachate Analysis Certificate - Volatile Organic Compounds (VOC)							
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13					
Ivy House Environmental Ltd	**Time Sampled**	None Supplied					
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPB					
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied					
Order No: None Supplied	**Depth (m)**	1.40 @ 3.00					
Reporting Date: 20/11/2013	**QTSE Sample No**	82137					

Determinand	Unit	MDL	Accreditation					
Dichlorodifluoromethane	ug/l	< 5	ISO17025	< 5				
Vinyl Chloride	ug/l	< 5	ISO17025	< 5				
Chloromethane	ug/l	< 5	ISO17025	< 5				
Chloroethane	ug/l	< 5	ISO17025	< 5				
Bromomethane	ug/l	< 5	ISO17025	< 5				
Trichlorofluoromethane	ug/l	< 5	ISO17025	< 5				
1,1-Dichloroethene	ug/l	< 5	ISO17025	< 5				
MTBE	ug/l	< 10	ISO17025	< 10				
trans-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5				
1,1-Dichloroethane	ug/l	< 5	ISO17025	< 5				
cis-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5				
2,2-Dichloropropane	ug/l	< 5	ISO17025	< 5				
Chloroform	ug/l	< 5	ISO17025	< 5				
Bromochloromethane	ug/l	< 10	ISO17025	< 10				
1,1,1-Trichloroethane	ug/l	< 5	ISO17025	< 5				
1,1-Dichloropropene	ug/l	< 5	ISO17025	< 5				
Carbon Tetrachloride	ug/l	< 5	ISO17025	< 5				
1,2-Dichloroethane	ug/l	< 10	ISO17025	< 10				
Benzene	ug/l	< 1	ISO17025	43				
1,2-Dichloropropane	ug/l	< 5	ISO17025	< 5				
Trichloroethene	ug/l	< 5	ISO17025	< 5				
Bromodichloromethane	ug/l	< 5	ISO17025	< 5				
Dibromomethane	ug/l	< 5	ISO17025	< 5				
TAME	ug/l	< 5	ISO17025	< 5				
cis-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5				
Toluene	ug/l	< 5	ISO17025	< 5				
trans-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5				
1,1,2-Trichloroethane	ug/l	< 10	ISO17025	< 10				
1,3-Dichloropropane	ug/l	< 5	ISO17025	< 5				
Tetrachloroethene	ug/l	< 5	ISO17025	< 5				
Dibromochloromethane	ug/l	< 5	ISO17025	< 5				
1,2-Dibromoethane	ug/l	< 5	ISO17025	< 5				
Chlorobenzene	ug/l	< 5	ISO17025	< 5				
1,1,1,2-Tetrachloroethane	ug/l	< 5	ISO17025	< 5				
Ethyl Benzene	ug/l	< 5	ISO17025	20				
m,p-Xylene	ug/l	< 10	ISO17025	< 10				
o-Xylene	ug/l	< 5	ISO17025	< 5				
Styrene	ug/l	< 5	ISO17025	< 5				
Bromoform	ug/l	< 10	ISO17025	< 10				
Isopropylbenzene	ug/l	< 5	ISO17025	< 5				
1,1,2,2-Tetrachloroethane	ug/l	< 10	ISO17025	< 10				
1,2,3-Trichloropropane	ug/l	< 5	ISO17025	< 5				
n-Propylbenzene	ug/l	< 5	ISO17025	< 5				
Bromobenzene	ug/l	< 5	ISO17025	< 5				
2-Chlorotoluene	ug/l	< 5	ISO17025	< 5				
1,3,5-Trimethylbenzene	ug/l	< 5	ISO17025	< 5				
4-Chlorotoluene	ug/l	< 5	ISO17025	< 5				
tert-Butylbenzene	ug/l	< 5	ISO17025	< 5				
1,2,4-Trimethylbenzene	ug/l	< 5	ISO17025	< 5				
sec-Butylbenzene	ug/l	< 5	ISO17025	< 5				
p-Isopropyltoluene	ug/l	< 5	ISO17025	< 5				
1,3-Dichlorobenzene	ug/l	< 5	ISO17025	< 5				
1,4-Dichlorobenzene	ug/l	< 5	ISO17025	< 5				
n-Butylbenzene	ug/l	< 5	ISO17025	< 5				
1,2-Dichlorobenzene	ug/l	< 5	ISO17025	< 5				
,2-Dibromo-3-chloropropane	ug/l	< 10	ISO17025	< 10				
Hexachlorobutadiene	ug/l	< 5	ISO17025	< 5				

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Leachate Analysis Certificate - Semi Volatile Organic Compounds (SVOC)							
QTS Environmental Report No: 13-17089	**Date Sampled**	08/10/13					
Ivy House Environmental Ltd	**Time Sampled**	None Supplied					
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	TPB					
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied					
Order No: None Supplied	**Depth (m)**	1.40 @ 3.00					
Reporting Date: 20/11/2013	**QTSE Sample No**	82137					

Determinand	**Unit**	**MDL**	**Accreditation**					
Phenol	ug/l	< 0.1	NONE	< 0.1				
1,2,4-Trichlorobenzene	ug/l	< 0.1	NONE	< 0.1				
2-Nitrophenol	ug/l	< 0.1	NONE	< 0.1				
Nitrobenzene	ug/l	< 0.1	NONE	< 0.1				
0-Cresol	ug/l	< 0.1	NONE	< 0.1				
bis(2-chloroethoxy)methane	ug/l	< 0.1	NONE	< 0.1				
bis(2-chloroethyl)ether	ug/l	< 0.1	NONE	< 0.1				
2,4-Dichlorophenol	ug/l	< 0.1	NONE	< 0.1				
2-Chlorophenol	ug/l	< 0.1	NONE	< 0.1				
1,3-Dichlorobenzene	ug/l	< 0.1	NONE	< 0.1				
1,4-Dichlorobenzene	ug/l	< 0.1	NONE	< 0.1				
1,2-Dichlorobenzene	ug/l	< 0.1	NONE	< 0.1				
2,4-Dimethylphenol	ug/l	< 0.1	NONE	< 0.1				
Isophorone	ug/l	< 0.1	NONE	< 0.1				
Hexachloroethane	ug/l	< 0.1	NONE	< 0.1				
p-Cresol	ug/l	< 0.1	NONE	< 0.1				
2,4,6-Trichlorophenol	ug/l	< 0.1	NONE	< 0.1				
2,4,5-Trichlorophenol	ug/l	< 0.1	NONE	< 0.1				
2-Nitroaniline	ug/l	< 0.1	NONE	< 0.1				
4-Chloro-3-methylphenol	ug/l	< 0.1	NONE	< 0.1				
2-Methylnaphthalene	ug/l	< 0.1	NONE	< 0.1				
Hexachlorocyclopentadiene	ug/l	< 0.1	NONE	< 0.1				
Hexachlorobutadiene	ug/l	< 0.1	NONE	< 0.1				
2,6-Dinitrotoluene	ug/l	< 0.1	NONE	< 0.1				
Dimethyl phthalate	ug/l	< 0.1	NONE	< 0.1				
2-Chloronaphthalene	ug/l	< 0.1	NONE	< 0.1				
4-Chloroanaline	ug/l	< 0.1	NONE	< 0.1				
4-Nitrophenol	ug/l	< 0.1	NONE	< 0.1				
4-Chlorophenyl phenyl ether	ug/l	< 0.1	NONE	< 0.1				
3-Nitroaniline	ug/l	< 0.1	NONE	< 0.1				
4-Nitroaniline	ug/l	< 0.1	NONE	< 0.1				
4-Bromophenyl phenyl ether	ug/l	< 0.1	NONE	< 0.1				
Hexachlorobenzene	ug/l	< 0.1	NONE	< 0.1				
2,4-Dinitrotoluene	ug/l	< 0.1	NONE	< 0.1				
Diethyl phthalate	ug/l	< 0.1	NONE	< 0.1				
Dibenzofuran	ug/l	< 0.1	NONE	13.2				
Azobenzene	ug/l	< 0.1	NONE	< 0.1				
Dibutyl phthalate	ug/l	< 0.1	NONE	< 0.1				
Carbazole	ug/l	< 0.1	NONE	49.1				
bis(2-ethylhexyl)phthalate	ug/l	< 0.1	NONE	< 0.1				
Benzyl butyl phthalate	ug/l	< 0.1	NONE	< 0.1				
Di-n-octyl phthalate	ug/l	< 0.1	NONE	< 0.1				

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Soil Analysis Certificate - Sample Descriptions
QTS Environmental Report No: 13-17089
Ivy House Environmental Ltd
Site Reference: Pennycroft, Uttoxeter
Project / Job Ref: IV.58.13
Order No: None Supplied
Reporting Date: 20/11/2013

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
82124	TPA	None Supplied	1.40 @ 4.00	16.9	Red sandy clay with stones
82125	TPA	None Supplied	1.00 @ 7.00	16.4	Black loamy clay with rubble
82126	TPB1A	None Supplied	2.60 @ 5.00	17.9	Red loamy clay
82127	TPG	+1.00m	None Supplied	9	Brown sandy loam with stones and vegetation
82128	TPG	None Supplied	1.60	25.8	Black loamy gravel
82129	TPG	None Supplied	3.20	13.6	Light brown gravelly clay with stones
82130	TPI	None Supplied	1.00	14.7	Grey loamy gravel with brick and stones
82131	TPI	None Supplied	3.20	13.1	Light brown clayey gravel with stones
82132	TPH	None Supplied	0.70 - 1.60	11.3	Grey loamy gravel with rubble and stones
82133	TPH	None Supplied	3.40	12.5	Grey sandy clay with stones
82134	TPJ	None Supplied	0.50	13.5	Brown sandy loam
82135	TPK	None Supplied	2.10	22.6	Grey loamy gravel with rubble
82136	TPK	None Supplied	3.20	11.3	Red sandy clay

Insufficient sample I/S
Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information
QTS Environmental Report No: 13-17089
Ivy House Environmental Ltd
Site Reference: Pennycroft, Uttoxeter
Project / Job Ref: IV.58.13
Order No: None Supplied
Reporting Date: 20/11/2013

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E021
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by turbidimeter	E020
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E023
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	D	Loss on Ignition @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	D	Phosphorus	Determination of phosphorus by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	AR	Sulphide	Determination of sulphide by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia, potassium iodide/iodate followed by ICP-OES	E002
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E009
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E009
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E010
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E009
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	VPH (C6 - C10)	Determination of hydrocarbons C6-C10 by headspace GC-MS	E001
Soil	AR	EPH TEXAS	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	TPH CWG	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	TPH LQM	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	EPH (with florisil cleanup)	Determination of acetone/hexane extractable hydrocarbons with florisil cleanup step by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001

Key

D Dried
AR As Received

ALcontrol Laboratories

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NG1 1PY

Attention: Richard Robinson

CERTIFICATE OF ANALYSIS

Date:	21 July 2010		
Customer:	H_BWB_NTT-81		
Sample Delivery Group (SDG):	100708-104	**Report No.:**	91025
Your Reference:	NTE 285		
Location:	THE DOVE WAY UTTOXETER		

We received 49 samples on Thursday July 08, 2010 and 28 of these samples were scheduled for analysis which was completed on Wednesday July 21, 2010. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Asbestos testing - we are not accredited for screening soil samples for asbestos fibres. We are only accredited to identify asbestos fibres in bulk material (ACM).

Approved By:

Iain Swinton

Operations Director - Land UK & Ireland

1291
GROUP

Validated

ALcontrol Laboratories Analytical Services

SDG:	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Sampled Date
1795358	TP101	0.20	05/07/2010
1795377	TP101	2.00	05/07/2010
1795474	TP102	1.00	05/07/2010
1795508	TP103	0.50	05/07/2010
1795533	TP103	2.00	05/07/2010
1795553	TP104	0.60	05/07/2010
1795581	TP105	0.70	05/07/2010
1795611	TP105	2.80	05/07/2010
1795655	TP106		05/07/2010
1795636	TP106	0.20	05/07/2010
1795674	TP107	0.60	05/07/2010
1795713	TP107	1.30	05/07/2010
1795808	TP108	0.50	06/07/2010
1795815	TP108	2.20	06/07/2010
1796216	TP110	0.80	07/07/2010
1796239	TP110	2.60	07/07/2010
1796247	TP111	0.40	07/07/2010
1796796	TP111	2.80	07/07/2010
1796270	TP112	0.80	07/07/2010
1796289	TP112	2.80	07/07/2010
1796306	TP113	0.30	07/07/2010
1796353	TP113	3.00	07/07/2010
1796622	TP116	0.20	07/07/2010
1796327	TP116	1.80	07/07/2010
1795825	TP124	0.80	06/07/2010
1795821	TP124	1.80	06/07/2010
1795848	TP125	0.50	06/07/2010
1796508	TP125	1.70	06/07/2010
1796957	TP125	2.20	06/07/2010
1796053	TP126	0.30	06/07/2010
1796418	TP126	2.20	06/07/2010
1796032	TP127	1.10	06/07/2010
1796087	TP127	2.00	06/07/2010
1796743	TP128	0.40	06/07/2010
1796970	TP128	0.50	06/07/2010
1796662	TP128	1.50	06/07/2010
1796720	TP129	0.60	06/07/2010
1796809	TP129	1.80	06/07/2010
1796767	TP130	0.20	06/07/2010
1796471	TP130	1.70	06/07/2010
1796700	TP131	0.75	06/07/2010
1796382	TP131	1.50	06/07/2010
1796784	TP132	0.60	06/07/2010

Validated

ALcontrol Laboratories Analytical Services

SDG:	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

1796587	TP133	0.60	06/07/2010
1796440	TP133	1.80	06/07/2010
1796915	WS2	0.10 - 0.80	07/07/2010
1796928	WS2	1.10 - 1.50	07/07/2010

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

ALcontrol Laboratories Analytical Services

SDG:	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

SOLID

Results Legend

X Test

N No Determination Possible

	Lab Sample No(s)	1795358		1795474		1795533		1795581		1795636		1795674		1795821		1795825		1796087		1796216		1796247		1796270		1796289		1796327		1796353		1796418			1796508		1796587			1796622		1796662		[illegible]
	Customer Sample Ref.	TP101		TP102		TP103		TP105		TP106		TP107		TP124		TP124		TP127		TP110		TP111		TP112		TP112		TP116		TP113		TP126			TP125		TP133			TP116		TP128		
	Depth (m)	0.20		1.00		2.00		0.70		0.20		0.60		1.80		0.80		2.00		0.80		0.40		0.80		2.80		1.80		3.00		2.20			1.70		0.60			0.20		1.50		
	Container	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	250g Amber Jar	60g VOC	1kg TUB	250g Amber Jar	250g Amber Jar	400g Tub	1kg TUB	250g Amber Jar	1kg TUB	250g Amber Jar	250g Amber Jar	60g VOC	250g Amber Jar	400g Tub	250g Amber Jar	60g VOC	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	60g VOC	250g Amber Jar	60g VOC	1kg TUB	250g Amber Jar	60g VOC	1kg TUB	250g Amber Jar	250g Amber Jar	400g Tub	250g Amber Jar
Anions by Kone (w)	All						X												X			X					X										X							
Asbestos Containing Material Screen	All																			X																								
Boron Water Soluble	All	X		X				X		X		X					X				X					X				X		X						X			X	X		
CEN Readings	All						X												X			X					X										X							
Cyanide Complex/Free/Total/Thiocyan	All						X												X			X					X										X							
Cyanides Complex/Free/Total/Thiocya	Cyanide, Complex		X		X				X		X		X			X				X							X				X		X				X			X			X	
	Cyanide, Free		X		X				X		X		X			X				X							X				X		X				X			X			X	
	Cyanide, Total		X		X				X		X		X			X				X							X				X		X				X			X			X	
Dissolved Metals by ICP-MS	All						X												X			X					X										X							
EPH CWG (Aliphatic) GC (S)	All													X										X				X				X			X			X						X
EPH CWG (Aromatic) GC (S)	All													X										X				X				X			X			X						X
GRO BTEX MTBE GC (S)	All														X										X				X					X		X			X					
Mercury Dissolved	All						X												X			X					X										X							
Metals by iCap-OES (Soil)	Arsenic	X		X				X		X		X					X				X					X				X		X						X			X	X		
	Barium	X		X				X		X		X					X				X					X				X		X						X			X	X		
	Beryllium	X		X				X		X		X					X				X					X				X		X						X			X	X		
	Cadmium	X		X				X		X		X					X				X					X				X		X						X			X	X		
	Chromium	X		X				X		X		X					X				X					X				X		X						X			X	X		
	Copper	X		X				X		X		X					X				X					X				X		X						X			X	X		
	Lead	X		X				X		X		X					X				X					X				X		X						X			X	X		
	Mercury	X		X				X		X		X					X				X					X				X		X						X			X	X		
	Nickel	X		X				X		X		X					X				X					X				X		X						X			X	X		
	Selenium	X		X				X		X		X					X				X					X				X		X						X			X	X		

1796743	1796767	1796784	1796796	1796809	1796915	1796928	Total
TP128	TP130	TP132	TP111	TP129	WS2	WS2	
0.40	0.20	0.60	2.80	1.80	0.10 - 0.80	1.10 - 1.50	
250g Amber Jar	1kg TUB	250g Amber Jar	60g VOC	250g Amber Jar	400g Tub	250g Amber Jar	
	X						06
	X						02
X		X	X	X	X	X	020
	X						06
	X						06
	X	X		X	X	X	020
	X	X		X	X	X	020
	X	X		X	X	X	020
	X						06
			X			X	09
			X			X	09
							09
	X						06
X		X	X	X	X	X	020
X		X	X	X	X	X	020
X		X	X	X	X	X	020
X		X	X	X	X	X	020
X		X	X	X	X	X	020
X		X	X	X	X	X	020
X		X	X	X	X	X	020
X		X	X	X	X	X	020
X		X	X	X	X	X	020

Validated

ALcontrol Laboratories Analytical Services

SDG:	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

		1795358	1795474	1795533	1795581	1795636	1795674	1795821	1795825	1796087	1796216	1796247	1796270	1796289	1796327	1796353	1796418	1796508	1796587	1796622	1796662	
		TP101	TP102	TP103	TP105	TP106	TP107	TP124	TP124	TP127	TP110	TP111	TP112	TP112	TP116	TP113	TP126	TP125	TP133	TP116	TP128	
		0.20	1.00	2.00	0.70	0.20	0.60	1.80	0.80	2.00	0.80	0.40	0.80	2.80	1.80	3.00	2.20	1.70	0.60	0.20	1.50	
		250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	250g Amber Jar	60g VOC	1kg TUB	250g Amber Jar	400g Tub	1kg TUB	250g Amber Jar	250g Amber Jar	60g VOC	250g Amber Jar	400g Tub	60g VOC	60g VOC	1kg TUB	250g Amber Jar	400g Tub	250g Amber Jar	250g Amber Jar	60g VOC	250g Amber Jar	400g Tub	250g Amber Jar	250g Amber Jar	60g VOC	1kg TUB	250g Amber Jar	400g Tub	250g Amber Jar	250g Amber Jar	250g Amber Jar
Metals by iCap-OES (Soil)	Vanadium	X	X		X	X	X		X		X		X	X		X	X		X	X	X	
	Zinc	X	X		X	X	X		X		X		X	X		X	X		X	X	X	
PAH by GCMS	All	X	X		X	X	X		X		X		X	X		X	X		X	X	X	
pH	All		X	X		X	X	X			X				X			X		X		X	
pH Value	All				X					X		X		X					X				
Phenols by HPLC (S)	All		X	X		X	X	X			X				X		X	X		X		X	
Sample description	All	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Organic Carbon	All	X	X		X	X	X		X		X			X		X	X		X	X	X	
Total Sulphur	All	X	X		X	X	X		X		X			X		X	X		X	X	X	
TPH C6-C40 Value of soil	All	X	X		X	X	X		X		X			X		X	X		X	X	X	
TPH CWG GC (S)	All							X					X		X		X	X	X			X
VOC MS (S)	All													X								
Water Soluble Sulphate 2:1	All	X	X		X	X	X		X		X			X		X	X		X	X	X	

Total				0 20	0 20	0 20	0 20	0 6	0 20	0 28	0 20	0 20	0 20	0 9	0 1	0 20
1796928	WS2	1.10 - 1.50	60g VOC													
			250g Amber Jar	X	X	X				X	X	X	X	X		X
			1kg TUB				X		X							
1796915	WS2	0.10 - 0.80	400g Tub				X		X							
			250g Amber Jar	X	X	X				X	X	X	X			X
1796809	TP129	1.80	400g Tub				X		X							
			250g Amber Jar	X	X	X				X	X	X	X			X
1796796	TP111	2.80	400g Tub				X		X							
			250g Amber Jar	X	X	X				X	X	X	X			X
1796784	TP132	0.60	60g VOC													
			250g Amber Jar	X	X	X				X	X	X	X	X		X
			1kg TUB				X		X							
1796767	TP130	0.20	250g Amber Jar	X	X	X				X	X	X	X			X
			1kg TUB				X	X	X							
1796743	TP128	0.40	250g Amber Jar	X	X	X				X	X	X	X			X

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ALcontrol Laboratories Analytical Services

SDG:	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

Sample Descriptions

Grain Sizes:
<0.063mm very fine,
0.063mm - 0.1mm fine,
0.1mm - 2mm medium,
2mm - 10mm coarse,
>10mm very coarse

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions
1795358	TP101	0.20	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones
1795474	TP102	1.00	Light Brown	Clay	<0.063 mm	Vegetation
1795533	TP103	2.00	Dark Brown	Sand	0.1 - 2 mm	Stones
1795581	TP105	0.70	Orange	Silty Clay	0.063 - 0.1 mm	N/A
1795636	TP106	0.20	Dark Brown	Silt Loam	0.063 - 0.1 mm	Vegetation
1795674	TP107	0.60	Light Brown	Clay Loam	<0.063 mm	None
1795821	TP124	1.80	Dark Brown	Sand	0.1 - 2 mm	Stones
1795825	TP124	0.80	Dark Brown	Silty Clay	0.063 - 0.1 mm	N/A
1796087	TP127	2.00	Light Brown	Sand	0.1 - 2 mm	Stones
1796216	TP110	0.80	Black	Silt	<0.063 mm	N/A
1796247	TP111	0.40	Dark Brown	Sandy Silt Loam	0.1 - 2 mm	Stones
1796270	TP112	0.80	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1796289	TP112	2.80	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones
1796327	TP116	1.80	Dark Brown	Silty Clay Loam	0.063 - 0.1 mm	Stones
1796353	TP113	3.00	Light Brown	Silty Sand	0.063 - 0.1 mm	Stones
1796418	TP126	2.20	Dark Brown	Sandy Clay	0.063 - 0.1 mm	Stones
1796508	TP125	1.70	Light Brown	Silty Sand	0.063 - 0.1 mm	Stones
1796587	TP133	0.60	Orange	Sand	0.1 - 2 mm	Stones
1796622	TP116	0.20	Light Brown	Clay Loam	0.063 - 0.1 mm	Stones
1796662	TP128	1.50	Dark Brown	Loamy Sand	0.1 - 2 mm	Stones
1796720	TP129	0.60	Light Brown	Clay Loam	0.063 - 0.1 mm	Vegetation
1796743	TP128	0.40	Light Brown	Clay	<0.063 mm	N/A
1796767	TP130	0.20	Light Brown	Silty Sand	0.1 - 2 mm	Brick
1796784	TP132	0.60	Light Brown	Silty Clay	0.063 - 0.1 mm	N/A
1796796	TP111	2.80	Light Brown	Clay Loam	0.063 - 0.1 mm	Stones
1796809	TP129	1.80	Dark Brown	Silt Loam	0.063 - 0.1 mm	Stones
1796915	WS2	0.10 - 0.80	Light Brown	Sandy Silt Loam	0.063 - 0.1 mm	Stones
1796928	WS2	1.10 - 1.50	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones

ALcontrol Laboratories Analytical Services

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Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

ALcontrol Laboratories Analytical Services

SDG:	100708-104	**Customer:**	BWB Consulting
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Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

Test Completion dates

SDG reference: 100708-104

Lab Sample No(s)	1795358	1795474	1795533	1795581	1795636	1795674	1795821	1795825	1796087	1796216	1796247	1796270
Customer Sample Ref.	TP101	TP102	TP103	TP105	TP106	TP107	TP124	TP124	TP127	TP110	TP111	TP112
Depth	0.20	1.00	2.00	0.70	0.20	0.60	1.80	0.80	2.00	0.80	0.40	0.80
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Anions by Kone (w)			15/07/2010						15/07/2010		16/07/2010	
Asbestos Containing Material Screen										14/07/2010		
Boron Water Soluble	14/07/2010	14/07/2010		14/07/2010	15/07/2010	15/07/2010		16/07/2010		16/07/2010		
CEN Readings			16/07/2010						16/07/2010		16/07/2010	
Cyanide Comp/Free/Total/Thiocyanate	14/07/2010	15/07/2010	16/07/2010	14/07/2010	15/07/2010	15/07/2010		16/07/2010	16/07/2010	15/07/2010	16/07/2010	
Dissolved Metals by ICP-MS			16/07/2010						16/07/2010		16/07/2010	
EPH CWG (Aliphatic) GC (S)							20/07/2010					19/07/2010
EPH CWG (Aromatic) GC (S)							20/07/2010					19/07/2010
GRO BTEX MTBE GC (S)							19/07/2010					20/07/2010
Mercury Dissolved			16/07/2010						16/07/2010		16/07/2010	
Metals by iCap-OES (Soil)	15/07/2010	15/07/2010		15/07/2010	16/07/2010	15/07/2010		15/07/2010		15/07/2010		
Moisture Meter			14/07/2010						14/07/2010		14/07/2010	
PAH by GCMS	14/07/2010	14/07/2010		14/07/2010	15/07/2010	15/07/2010		15/07/2010		16/07/2010		
pH	14/07/2010	14/07/2010		14/07/2010	15/07/2010	15/07/2010		15/07/2010		14/07/2010		
pH Value			15/07/2010						15/07/2010		16/07/2010	
Phenols by HPLC (S)	14/07/2010	14/07/2010		15/07/2010	15/07/2010	15/07/2010		16/07/2010		15/07/2010		
Sample description	13/07/2010	13/07/2010	13/07/2010	13/07/2010	14/07/2010	14/07/2010	14/07/2010	14/07/2010	13/07/2010	14/07/2010	13/07/2010	14/07/2010
Total Organic Carbon	15/07/2010	15/07/2010		15/07/2010	15/07/2010	15/07/2010		19/07/2010		19/07/2010		
Total Sulphur	15/07/2010	15/07/2010		14/07/2010	15/07/2010	15/07/2010		16/07/2010		16/07/2010		
TPH c6-40 Value of soil	15/07/2010	15/07/2010		15/07/2010	16/07/2010	16/07/2010		16/07/2010		16/07/2010		
TPH CWG GC (S)							21/07/2010					20/07/2010
VOC MS (S)												20/07/2010
Water Soluble Sulphate 2:1	14/07/2010	14/07/2010		14/07/2010	15/07/2010	15/07/2010		15/07/2010		15/07/2010		

1796289	1796327	1796353	1796418	1796508	1796587	1796622	1796662	1796720	1796743	1796767	1796784	1796796	1796809	1796915
TP112	TP116	TP113	TP126	TP125	TP133	TP116	TP128	TP129	TP128	TP130	TP132	TP111	TP129	WS2
2.80	1.80	3.00	2.20	1.70	0.60	0.20	1.50	0.60	0.40	0.20	0.60	2.80	1.80	0.10 - 0.80
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
16/07/2010					15/07/2010					16/07/2010				
										14/07/2010				
16/07/2010		16/07/2010	15/07/2010		15/07/2010	16/07/2010	16/07/2010		16/07/2010	15/07/2010	15/07/2010	16/07/2010	16/07/2010	16/07/2010
16/07/2010					16/07/2010					16/07/2010				
16/07/2010		15/07/2010	16/07/2010		16/07/2010	15/07/2010	15/07/2010		15/07/2010	16/07/2010	15/07/2010	16/07/2010	16/07/2010	16/07/2010
16/07/2010					16/07/2010					16/07/2010				
	16/07/2010		16/07/2010	16/07/2010	16/07/2010			20/07/2010			16/07/2010			
	16/07/2010		16/07/2010	16/07/2010	16/07/2010			20/07/2010			16/07/2010			
	21/07/2010		19/07/2010	20/07/2010	19/07/2010			20/07/2010			20/07/2010			
16/07/2010					16/07/2010					16/07/2010				
15/07/2010		15/07/2010	15/07/2010		15/07/2010	16/07/2010	16/07/2010		15/07/2010	15/07/2010	15/07/2010	16/07/2010	15/07/2010	15/07/2010
14/07/2010					14/07/2010					14/07/2010				
15/07/2010		15/07/2010	15/07/2010		15/07/2010	16/07/2010	16/07/2010		15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010
14/07/2010		15/07/2010	15/07/2010		15/07/2010	15/07/2010	15/07/2010		14/07/2010	14/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010
16/07/2010					15/07/2010					16/07/2010				
15/07/2010		16/07/2010	15/07/2010		15/07/2010	16/07/2010	16/07/2010		15/07/2010	15/07/2010	15/07/2010	16/07/2010	15/07/2010	15/07/2010
13/07/2010	14/07/2010	14/07/2010	14/07/2010	14/07/2010	13/07/2010	14/07/2010	14/07/2010	14/07/2010	14/07/2010	13/07/2010	14/07/2010	14/07/2010	14/07/2010	14/07/2010
19/07/2010		19/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010
16/07/2010		16/07/2010	15/07/2010		15/07/2010	16/07/2010	16/07/2010		16/07/2010	15/07/2010	15/07/2010	16/07/2010	16/07/2010	16/07/2010
16/07/2010		16/07/2010	16/07/2010		16/07/2010	16/07/2010	16/07/2010		16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010
	21/07/2010		19/07/2010	20/07/2010	19/07/2010			20/07/2010			20/07/2010			
15/07/2010		15/07/2010	15/07/2010		15/07/2010	16/07/2010	16/07/2010		15/07/2010	15/07/2010	15/07/2010	16/07/2010	15/07/2010	15/07/2010

1796928
WS2
1.10 - 1.50
SOLID
16/07/2010
16/07/2010
20/07/2010
20/07/2010
19/07/2010
15/07/2010
20/07/2010
15/07/2010
15/07/2010
14/07/2010
19/07/2010
16/07/2010
16/07/2010
20/07/2010
15/07/2010

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP101	TP102	TP103	TP105	TP106	TP107
			Depth (m)	0.20	1.00	2.00	0.70	0.20	0.60
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	05/07/2010	05/07/2010	05/07/2010	05/07/2010	05/07/2010	05/07/2010
			Date Received	08/07/2010	08/07/2010	08/07/2010	08/07/2010	08/07/2010	08/07/2010
			SDG Ref	100708-104	100708-104	100708-104	100708-104	100708-104	100708-104
			Lab Sample No.(s)	1795358	1795474	1795533	1795581	1795636	1795674
Moisture	%	PM114				15.4			
Moisture content ratio	%	PM114				18.2			
Dry matter content ratio	%	PM114				84.6			
Phenols, Total monohydric	<0.22 mg/kg	TM062 (S)		<0.22 M	<0.22 M		<0.22 M	<0.22 M	<0.22 M
Sulphate, 2:1 water soluble	<0.003 g/l	TM098		0.0046 M	0.0342 M		0.0218 M	0.008 M	0.0324 M
Sulphur, Total	<0.02 %	TM132		0.07 #	0.03 #		0.02 #	0.05 #	<0.02 #
Fraction Organic Carbon (FOC)	<0.002 -	TM132		0.0519 #	0.0065 #		0.0063 #	0.0593 #	0.0072 #
pH	1 pH Units	TM133		7.48 M	6.56 M		7.18 M	6.01 M	7.71 M
Cyanide, Total	<1 mg/kg	TM153		1.52 M	<1 M		<1 M	<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1	<1		<1	<1	<1
Cyanide, Complex	<1 mg/kg	TM153		1.45	<1		<1	<1	<1
TPH >C6-C40	<10 mg/kg	TM154		2120 #	55.2 #		48 #	299 #	215 #
Arsenic	<0.6 mg/kg	TM181		16.4 M	12.5 M		15.2 M	18.2 M	10 M
Barium	<0.6 mg/kg	TM181		499 #	328 #		380 #	446 #	311 #
Beryllium	<0.01 mg/kg	TM181		1.74 M	1.54 M		1.59 M	2.46 M	1.5 M
Cadmium	<0.02 mg/kg	TM181		1.17 M	<0.02 M		<0.02 M	0.685 M	<0.02 M
Chromium	<0.9 mg/kg	TM181		39.1 M	39.6 M		37.3 M	34.2 M	37.8 M
Copper	<1.4 mg/kg	TM181		80.9 M	19.5 M		18.4 M	74.7 M	15.6 M
Lead	<0.7 mg/kg	TM181		255 M	19.8 M		24 M	191 M	19.5 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M		<0.14 M	<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181		33.7 M	32.2 M		36.5 M	32.2 M	28.7 M
Selenium	<1 mg/kg	TM181		1.65 #	1.93 #		1.46 #	1.58 #	1.23 #
Vanadium	<0.2 mg/kg	TM181		47.4 #	49.4 #		48 #	45.4 #	46.4 #
Zinc	<1.9 mg/kg	TM181		339 M	130 M		118 M	323 M	104 M
Boron, water soluble	<1 mg/kg	TM222		1.73 M	<1 M		<1 M	1.14 M	1.16 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP101	TP102	TP105	TP106	TP107
			Depth (m)	0.20	1.00	0.70	0.20	0.60
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	05/07/2010	05/07/2010	05/07/2010	05/07/2010	05/07/2010
			Date Received	08/07/2010	08/07/2010	08/07/2010	08/07/2010	08/07/2010
			SDG Ref	100708-104	100708-104	100708-104	100708-104	100708-104
			Lab Sample No.(s)	1795358	1795474	1795581	1795636	1795674
Naphthalene-d8 % recovery**	%	TM218		100	95.2	98.1	93.2	96.8
Acenaphthene-d10 % recovery**	%	TM218		97.7	93.5	95.3	91.3	95.6
Phenanthrene-d10 % recovery**	%	TM218		97.3	92.3	93.5	91.1	94.9
Chrysene-d12 % recovery**	%	TM218		93.5	85.8	88	85.9	87.8
Perylene-d12 % recovery**	%	TM218		98.6	89.8	90	86.4	84.4
Naphthalene	<9 µg/kg	TM218		180 M	<9 M	<9 M	47.3 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		296 M	<12 M	<12 M	37.3 M	<12 M
Acenaphthene	<8 µg/kg	TM218		98 M	<8 M	<8 M	33.9 M	<8 M
Fluorene	<10 µg/kg	TM218		110 M	<10 M	<10 M	25.5 M	<10 M
Phenanthrene	<15 µg/kg	TM218		1730 M	<15 M	<15 M	633 M	<15 M
Anthracene	<16 µg/kg	TM218		643 M	<16 M	<16 M	163 M	<16 M
Fluoranthene	<17 µg/kg	TM218		6260 M	44 M	<17 M	1510 M	<17 M
Pyrene	<15 µg/kg	TM218		5510 M	39 M	<15 M	1230 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		3450 M	18.2 M	<14 M	652 M	<14 M
Chrysene	<10 µg/kg	TM218		3000 M	24.9 M	<10 M	631 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		5270 M	45.1 M	<15 M	971 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		2170 M	21.5 M	<14 M	299 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		4430 M	31.6 M	<15 M	649 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		3330 M	24.9 M	<18 M	416 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		811 M	<23 M	<23 M	120 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		3890 M	30.3 M	<24 M	472 M	<24 M
Polyaromatic hydrocarbons, Total USEPA 16	<118 µg/kg	TM218		41200 M	280 M	<118 M	7890 M	<118 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP110	TP111	TP111	TP112	TP113
			Depth (m)	0.80	0.40	2.80	2.80	3.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	07/07/2010	07/07/2010	07/07/2010	07/07/2010	07/07/2010
			Date Received	08/07/2010	08/07/2010	08/07/2010	08/07/2010	08/07/2010
			SDG Ref	100708-104	100708-104	100708-104	100708-104	100708-104
			Lab Sample No.(s)	1796216	1796247	1796796	1796289	1796353
Moisture	%	PM114			16.7		21.2	
Moisture content ratio	%	PM114			20.1		27	
Dry matter content ratio	%	PM114			83.3		78.8	
Asbestos Containing Material Screen	-	TM001		No ACM Detected				
Phenols, Total monohydric	<0.22 mg/kg	TM062 (S)		<0.22 #		<0.22 M	<0.22 M	<0.22 M
Sulphate, 2:1 water soluble	<0.003 g/l	TM098		0.0439 #		0.0741 M	0.0293 M	0.08 M
Sulphur, Total	<0.02 %	TM132		0.16 #		0.05 #	0.03 #	0.03 #
Fraction Organic Carbon (FOC)	<0.002 -	TM132		0.154 #		0.00899 #	0.00434 #	0.00456 #
pH	1 pH Units	TM133		7.59 #		7.1 M	6.98 M	7.17 M
Cyanide, Total	<1 mg/kg	TM153		<1 #		<1 M	<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1		<1	<1	<1
Cyanide, Complex	<1 mg/kg	TM153		<1		<1	<1	<1
TPH >C6-C40	<10 mg/kg	TM154		538 #		126 #	815 #	114 #
Arsenic	<0.6 mg/kg	TM181		7.38 #		10.1 M	10.5 M	7.45 M
Barium	<0.6 mg/kg	TM181		307 #		262 #	236 #	73.9 #
Beryllium	<0.01 mg/kg	TM181		0.75 #		1.26 M	0.858 M	0.642 M
Cadmium	<0.02 mg/kg	TM181		0.151 #		0.0373 M	<0.02 M	<0.02 M
Chromium	<0.9 mg/kg	TM181		9.08 #		29.9 M	24.2 M	12 M
Copper	<1.4 mg/kg	TM181		22.1 #		23.4 M	15.7 M	12.2 M
Lead	<0.7 mg/kg	TM181		11.9 #		67.3 M	20 M	19.7 M
Mercury	<0.14 mg/kg	TM181		<0.14 #		<0.14 M	<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181		10.5 #		26.3 M	24.3 M	10.9 M
Selenium	<1 mg/kg	TM181		<1 #		1.32 #	1.28 #	<1 #
Vanadium	<0.2 mg/kg	TM181		7.28 #		37.4 #	27.8 #	18.3 #
Zinc	<1.9 mg/kg	TM181		48.8 #		156 M	66.6 M	48.6 M
Boron, water soluble	<1 mg/kg	TM222		1.52 #		4.19 M	4.31 M	1.23 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP110	TP111	TP112	TP113		
			Depth (m)	0.80	2.80	2.80	3.00		
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
			Date Sampled	07/07/2010	07/07/2010	07/07/2010	07/07/2010		
			Date Received	08/07/2010	08/07/2010	08/07/2010	08/07/2010		
			SDG Ref	100708-104	100708-104	100708-104	100708-104		
			Lab Sample No.(s)	1796216	1796796	1796289	1796353		
Naphthalene-d8 % recovery**	%	TM218		103	99	104	104		
Acenaphthene-d10 % recovery**	%	TM218		105	96.3	104	102		
Phenanthrene-d10 % recovery**	%	TM218		102	95.3	102	100		
Chrysene-d12 % recovery**	%	TM218		86.8	86.6	96.8	95.6		
Perylene-d12 % recovery**	%	TM218		70.8	80.9	94.8	91.9		
Naphthalene	<9 µg/kg	TM218		1820 #	<9 M	17.3 M	<9 M		
Acenaphthylene	<12 µg/kg	TM218		16.8 #	<12 M	<12 M	<12 M		
Acenaphthene	<8 µg/kg	TM218		31.3 #	<8 M	90.7 M	<8 M		
Fluorene	<10 µg/kg	TM218		52.1 #	<10 M	149 M	<10 M		
Phenanthrene	<15 µg/kg	TM218		1820 #	34.8 M	457 M	<15 M		
Anthracene	<16 µg/kg	TM218		182 #	<16 M	131 M	<16 M		
Fluoranthene	<17 µg/kg	TM218		1120 #	102 M	108 M	<17 M		
Pyrene	<15 µg/kg	TM218		953 #	86.3 M	121 M	<15 M		
Benz(a)anthracene	<14 µg/kg	TM218		476 #	48.8 M	35.4 M	<14 M		
Chrysene	<10 µg/kg	TM218		456 #	48.3 M	36.3 M	<10 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218		740 #	45.8 M	29.8 M	<15 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218		172 #	21.7 M	<14 M	<14 M		
Benzo(a)pyrene	<15 µg/kg	TM218		397 #	29.5 M	22 M	<15 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		206 #	<18 M	<18 M	<18 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		73.8 #	<23 M	<23 M	<23 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218		629 #	<24 M	<24 M	<24 M		
Polyaromatic hydrocarbons, Total USEPA 16	<118 µg/kg	TM218		9140 #	417 M	1200 M	<118 M		

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	TP112
Depth (m)	0.80
Sample Type	Soil/Solid
Date Sampled	07/07/2010
Date Received	08/07/2010
SDG Ref	100708-104
Lab Sample No.(s)	1796270

Component	LOD/Units	Method	
GRO Surrogate % recovery**	%	TM089	11
GRO >C5-C12	<44 µg/kg	TM089	665
Benzene	<10 µg/kg	TM089	<10 M
Ethylbenzene	<3 µg/kg	TM089	<3 M
Toluene	<2 µg/kg	TM089	<2 M
m,p-Xylene	<6 µg/kg	TM089	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M
m,p,o-Xylene	<10 µg/kg	TM089	<10 M
BTEX, Total	<10 µg/kg	TM089	<10 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #
Aliphatics >C5-C6	<10 µg/kg	TM089	26.7
Aliphatics >C6-C8	<10 µg/kg	TM089	14.1
Aliphatics >C8-C10	<10 µg/kg	TM089	119
Aliphatics >C10-C12	<10 µg/kg	TM089	124
Aromatics >C6-C7	<10 µg/kg	TM089	<10
Aromatics >C7-C8	<10 µg/kg	TM089	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	178
Aromatics >EC10-EC12	<10 µg/kg	TM089	186
Total Aliphatics >C5-C12	<10 µg/kg	TM089	283
Total Aromatics >C6-C12	<10 µg/kg	TM089	364
Aliphatics >C12-C16	<100 µg/kg	TM173	332000
Aliphatics >C16-C21	<100 µg/kg	TM173	4170000
Aliphatics >C16-C35	<100 µg/kg	TM173	17900000
Aliphatics >C21-C35	<100 µg/kg	TM173	13700000
Aliphatics >C35-C44	<100 µg/kg	TM173	672000
Aromatics >EC12-EC16	<100 µg/kg	TM173	18300
Aromatics >EC16-EC21	<100 µg/kg	TM173	338000
Aromatics >EC21-EC35	<100 µg/kg	TM173	1390000
Aromatics >EC35-EC44	<100 µg/kg	TM173	176000
Aromatics >EC40-EC44	<100 µg/kg	TM173	66400
Total Aliphatics >C12-C44	<100 µg/kg	TM173	18900000
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	1930000
Total Aliphatics >C5-35	<100 µg/kg	TM173	18200000
Total Aliphatics >C5-C44	<100 µg/kg	TM173	18900000
Total Aromatics >C5-35	<100 µg/kg	TM173	1750000
Total Aromatics >C6-C44	<100 µg/kg	TM173	1930000
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173	20000000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	20800000

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	TP112
Depth (m)	0.80
Sample Type	Soil/Solid
Date Sampled	07/07/2010
Date Received	08/07/2010
SDG Ref	100708-104
Lab Sample No.(s)	1796270

Component	LOD/Units	Method		
Dibromofluoromethane**	%	TM116	101	
Toluene-d8**	%	TM116	75.6	
4-Bromofluorobenzene**	%	TM116	149	
Dichlorodifluoromethane	<4 µg/kg	TM116	<40	M
Chloromethane	<7 µg/kg	TM116	<70	#
Vinyl Chloride	<10 µg/kg	TM116	<100	#
Bromomethane	<13 µg/kg	TM116	<130	M
Chloroethane	<14 µg/kg	TM116	<140	M
Trichlorofluorormethane	<6 µg/kg	TM116	<60	M
1.1-Dichloroethene	<10 µg/kg	TM116	<100	#
Carbon Disulphide	<7 µg/kg	TM116	95	M
Dichloromethane	<10 µg/kg	TM116	<100	#
Methyl Tertiary Butyl Ether	<11 µg/kg	TM116	<110	M
trans-1-2-Dichloroethene	<11 µg/kg	TM116	<110	M
1.1-Dichloroethane	<8 µg/kg	TM116	<80	M
cis-1-2-Dichloroethene	<5 µg/kg	TM116	<50	M
2.2-Dichloropropane	<12 µg/kg	TM116	<120	M
Bromochloromethane	<14 µg/kg	TM116	<140	M
Chloroform	<8 µg/kg	TM116	<80	M
1.1.1-Trichloroethane	<7 µg/kg	TM116	<70	M
1.1-Dichloropropene	<11 µg/kg	TM116	<110	M
Carbontetrachloride	<14 µg/kg	TM116	<140	M
1.2-Dichloroethane	<5 µg/kg	TM116	<50	M
Benzene	<9 µg/kg	TM116	<90	M
Trichloroethene	<9 µg/kg	TM116	<90	M
1.2-Dichloropropane	<12 µg/kg	TM116	<120	M
Dibromomethane	<9 µg/kg	TM116	<90	M
Bromodichloromethane	<7 µg/kg	TM116	<70	M
cis-1-3-Dichloropropene	<14 µg/kg	TM116	<140	M
Toluene	<5 µg/kg	TM116	<50	M
trans-1-3-Dichloropropene	<14 µg/kg	TM116	<140	
1.1.2-Trichloroethane	<10 µg/kg	TM116	<100	M
1.3-Dichloropropane	<7 µg/kg	TM116	<70	#
Tetrachloroethene	<5 µg/kg	TM116	<50	M
Dibromochloromethane	<13 µg/kg	TM116	<130	M
1.2-Dibromoethane	<12 µg/kg	TM116	<120	M
Chorobenzene	<5 µg/kg	TM116	<50	M
1.1.1.2-Tetrachloroethane	<10 µg/kg	TM116	<100	M
Ethylbenzene	<4 µg/kg	TM116	<40	M

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	TP112
Depth (m)	0.80
Sample Type	Soil/Solid
Date Sampled	07/07/2010
Date Received	08/07/2010
SDG Ref	100708-104
Lab Sample No.(s)	1796270

Component	LOD/Units	Method	
p/m-Xylene	<14 µg/kg	TM116	<140 #
o-Xylene	<10 µg/kg	TM116	<100 M
Styrene	<10 µg/kg	TM116	<100 M
Bromoform	<10 µg/kg	TM116	<100 M
Isopropylbenzene	<5 µg/kg	TM116	<50 M
1.1.2.2-Tetrachloroethane	<10 µg/kg	TM116	<100 #
1.2.3-Trichloropropane	<17 µg/kg	TM116	<170 M
Bromobenzene	<10 µg/kg	TM116	<100 M
Propylbenzene	<11 µg/kg	TM116	<110 M
2-Chlorotoluene	<9 µg/kg	TM116	<90 M
1.3.5-Trimethylbenzene	<8 µg/kg	TM116	<80 #
4-Chlorotoluene	<12 µg/kg	TM116	<120 M
tert-Butylbenzene	<12 µg/kg	TM116	<120 #
1.2.4-Trimethylbenzene	<9 µg/kg	TM116	<90 #
sec-Butylbenzene	<10 µg/kg	TM116	<100 M
4-Isopropyltoluene	<11 µg/kg	TM116	<110 M
1.3-Dichlorobenzene	<6 µg/kg	TM116	<60 M
1.4-Dichlorobenzene	<5 µg/kg	TM116	<50 M
n-Butylbenzene	<10 µg/kg	TM116	<100 M
1.2-Dichlorobenzene	<12 µg/kg	TM116	<120 M
1.2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<140 M
Tert-amyl methyl ether	<15 µg/kg	TM116	<150
1.2.4-Trichlorobenzene	<6 µg/kg	TM116	<60 #
Hexachlorobutadiene	<12 µg/kg	TM116	<120 M
Naphthalene	<13 µg/kg	TM116	<130 M
1.2.3-Trichlorobenzene	<6 µg/kg	TM116	<60 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	TP116	TP124	TP126
Depth (m)	0.20	0.80	2.20
Sample Type	Soil/Solid	Soil/Solid	Soil/Solid
Date Sampled	07/07/2010	06/07/2010	06/07/2010
Date Received	08/07/2010	08/07/2010	08/07/2010
SDG Ref	100708-104	100708-104	100708-104
Lab Sample No.(s)	1796622	1795825	1796418

Component	LOD/Units	Method			
Phenols, Total monohydric	<0.22	mg/kg	TM062 (S)	<0.22 M	<0.22 M	<0.22 M
Sulphate, 2:1 water soluble	<0.003	g/l	TM098	0.19 M	0.117 M	0.062 M
Sulphur, Total	<0.02	%	TM132	0.07 #	0.14 #	0.05 #
Fraction Organic Carbon (FOC)	<0.002	-	TM132	0.0238 #	0.0326 #	0.00288 #
pH	1	pH Units	TM133	8.15 M	6.5 M	6.51 M
Cyanide, Total	<1	mg/kg	TM153	<1 M	<1 M	<1 M
Cyanide, Free	<1	mg/kg	TM153	<1	<1	<1
Cyanide, Complex	<1	mg/kg	TM153	<1	<1	<1
TPH >C6-C40	<10	mg/kg	TM154	1530 #	493 #	<10 #
Arsenic	<0.6	mg/kg	TM181	13 M	7.89 M	11.1 M
Barium	<0.6	mg/kg	TM181	291 #	291 #	47.5 #
Beryllium	<0.01	mg/kg	TM181	1.49 M	0.814 M	0.641 M
Cadmium	<0.02	mg/kg	TM181	0.386 M	0.306 M	<0.02 M
Chromium	<0.9	mg/kg	TM181	26.2 M	20.6 M	14 M
Copper	<1.4	mg/kg	TM181	42.7 M	20.8 M	14.2 M
Lead	<0.7	mg/kg	TM181	63.7 M	13.1 M	14.8 M
Mercury	<0.14	mg/kg	TM181	<0.14 M	<0.14 M	<0.14 M
Nickel	<0.2	mg/kg	TM181	22 M	15.7 M	13.3 M
Selenium	<1	mg/kg	TM181	1.05 #	<1 #	<1 #
Vanadium	<0.2	mg/kg	TM181	36.5 #	24 #	31.1 #
Zinc	<1.9	mg/kg	TM181	137 M	92.2 M	52 M
Boron, water soluble	<1	mg/kg	TM222	<1 M	<1 M	<1 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP116	TP124	TP126
			Depth (m)	0.20	0.80	2.20
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	07/07/2010	06/07/2010	06/07/2010
			Date Received	08/07/2010	08/07/2010	08/07/2010
			SDG Ref	100708-104	100708-104	100708-104
			Lab Sample No.(s)	1796622	1795825	1796418
Naphthalene-d8 % recovery**	%	TM218		95.5	112	103
Acenaphthene-d10 % recovery**	%	TM218		93.4	108	98.9
Phenanthrene-d10 % recovery**	%	TM218		93.3	106	94.8
Chrysene-d12 % recovery**	%	TM218		89.5	102	90.1
Perylene-d12 % recovery**	%	TM218		90.3	98.6	88.7
Naphthalene	<9 µg/kg	TM218		78.4 M	<9 M	103 M
Acenaphthylene	<12 µg/kg	TM218		46.8 M	<12 M	35.3 M
Acenaphthene	<8 µg/kg	TM218		15.6 M	<8 M	9.53 M
Fluorene	<10 µg/kg	TM218		17.3 M	<10 M	12.6 M
Phenanthrene	<15 µg/kg	TM218		287 M	<15 M	21.4 M
Anthracene	<16 µg/kg	TM218		105 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		1400 M	<17 M	29.4 M
Pyrene	<15 µg/kg	TM218		1470 M	<15 M	23.7 M
Benz(a)anthracene	<14 µg/kg	TM218		857 M	<14 M	16.6 M
Chrysene	<10 µg/kg	TM218		869 M	<10 M	15.1 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		1430 M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		527 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		1270 M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		815 M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		216 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		988 M	<24 M	<24 M
Polyaromatic hydrocarbons, Total USEPA 16	<118 µg/kg	TM218		10400 M	<118 M	267 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP116	TP124	TP125	TP126		
			Depth (m)	1.80	1.80	1.70	2.20		
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
			Date Sampled	07/07/2010	06/07/2010	06/07/2010	06/07/2010		
			Date Received	08/07/2010	08/07/2010	08/07/2010	08/07/2010		
			SDG Ref	100708-104	100708-104	100708-104	100708-104		
			Lab Sample No.(s)	1796327	1795821	1796508	1796418		
GRO Surrogate % recovery**	%	TM089		35	61	125	115		
GRO >C5-C12	<44 µg/kg	TM089		3510	<44	<44	<44		
Benzene	<10 µg/kg	TM089		<10 M	<10 M	<10 M	<10 M		
Ethylbenzene	<3 µg/kg	TM089		13.5 M	<3 M	<3 M	<3 M		
Toluene	<2 µg/kg	TM089		<2 M	<2 M	<2 M	<2 M		
m,p-Xylene	<6 µg/kg	TM089		101 M	<6 M	<6 M	<6 M		
o-Xylene	<3 µg/kg	TM089		62.1 M	<3 M	<3 M	<3 M		
m,p,o-Xylene	<10 µg/kg	TM089		163 M	<10 M	<10 M	<10 M		
BTEX, Total	<10 µg/kg	TM089		177 M	<10 M	<10 M	<10 M		
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089		<5 #	<5 #	<5 #	<5 #		
Aliphatics >C5-C6	<10 µg/kg	TM089		40.3	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089		73.1	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/kg	TM089		354	<10	<10	<10		
Aliphatics >C10-C12	<10 µg/kg	TM089		935	<10	<10	<10		
Aromatics >C6-C7	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics >C7-C8	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089		709	<10	<10	<10		
Aromatics >EC10-EC12	<10 µg/kg	TM089		1400	<10	<10	<10		
Total Aliphatics >C5-C12	<10 µg/kg	TM089		1400	<10	<10	<10		
Total Aromatics >C6-C12	<10 µg/kg	TM089		2110	<10	<10	<10		
Aliphatics >C12-C16	<100 µg/kg	TM173		77100	<100	16400	<100		
Aliphatics >C16-C21	<100 µg/kg	TM173		434000	<100	150000	<100		
Aliphatics >C16-C35	<100 µg/kg	TM173		2120000	520	641000	<100		
Aliphatics >C21-C35	<100 µg/kg	TM173		1690000	520	492000	<100		
Aliphatics >C35-C44	<100 µg/kg	TM173		650000	<100	24300	<100		
Aromatics >EC12-EC16	<100 µg/kg	TM173		18800	<100	3340	<100		
Aromatics >EC16-EC21	<100 µg/kg	TM173		103000	<100	16800	<100		
Aromatics >EC21-EC35	<100 µg/kg	TM173		398000	7540	64300	<100		
Aromatics >EC35-EC44	<100 µg/kg	TM173		134000	1330	9440	<100		
Aromatics >EC40-EC44	<100 µg/kg	TM173		48800	412	3440	<100		
Total Aliphatics >C12-C44	<100 µg/kg	TM173		2850000	520	682000	<100		
Total Aromatics >EC12-EC44	<100 µg/kg	TM173		654000	8860	93800	<100		
Total Aliphatics >C5-35	<100 µg/kg	TM173		2200000	520	658000	<100		
Total Aliphatics >C5-C44	<100 µg/kg	TM173		2850000	520	682000	<100		
Total Aromatics >C5-35	<100 µg/kg	TM173		521000	7540	84400	<100		
Total Aromatics >C6-C44	<100 µg/kg	TM173		656000	8860	93800	<100		
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173		2720000	8060	742000	<100		
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173		3510000	9380	776000	<100		

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP127	TP128	TP128	TP129	TP130
			Depth (m)	2.00	0.40	1.50	1.80	0.20
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	06/07/2010	06/07/2010	06/07/2010	06/07/2010	06/07/2010
			Date Received	08/07/2010	08/07/2010	08/07/2010	08/07/2010	08/07/2010
			SDG Ref	100708-104	100708-104	100708-104	100708-104	100708-104
			Lab Sample No.(s)	1796087	1796743	1796662	1796809	1796767
Moisture	%	PM114		16.1				11.2
Moisture content ratio	%	PM114		19.1				12.6
Dry matter content ratio	%	PM114		83.9				88.8
Asbestos Containing Material Screen	-	TM001						No ACM Detected
Phenols, Total monohydric	<0.22 mg/kg	TM062 (S)			<0.22 M	<0.22 M	<0.22 M	<0.22 M
Sulphate, 2:1 water soluble	<0.003 g/l	TM098			0.0269 M	0.561 M	0.112 M	0.0078 M
Sulphur, Total	<0.02 %	TM132			0.02 #	1.02 #	0.37 #	0.03 #
Fraction Organic Carbon (FOC)	<0.002 -	TM132			0.00503 #	0.0196 #	0.00456 #	0.0247 #
pH	1 pH Units	TM133			6.72 M	5.92 M	5.37 M	7.06 M
Cyanide, Total	<1 mg/kg	TM153			<1 M	<1 M	<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153			<1	<1	<1	<1
Cyanide, Complex	<1 mg/kg	TM153			<1	<1	<1	<1
TPH >C6-C40	<10 mg/kg	TM154			<10 #	249 #	158 #	265 #
Arsenic	<0.6 mg/kg	TM181			11 M	14 M	15.8 M	9.06 M
Barium	<0.6 mg/kg	TM181			343 #	54.7 #	69.3 #	211 #
Beryllium	<0.01 mg/kg	TM181			1.29 M	0.441 M	0.287 M	0.751 M
Cadmium	<0.02 mg/kg	TM181			<0.02 M	0.208 M	<0.02 M	0.296 M
Chromium	<0.9 mg/kg	TM181			35.6 M	7.93 M	6.17 M	17.9 M
Copper	<1.4 mg/kg	TM181			18.4 M	7.86 M	7.64 M	28.3 M
Lead	<0.7 mg/kg	TM181			14.2 M	6.16 M	4.65 M	84.1 M
Mercury	<0.14 mg/kg	TM181			<0.14 M	<0.14 M	<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181			29 M	21.4 M	10.1 M	14 M
Selenium	<1 mg/kg	TM181			1.84 #	<1 #	<1 #	<1 #
Vanadium	<0.2 mg/kg	TM181			41.8 #	13.3 #	9.05 #	23.9 #
Zinc	<1.9 mg/kg	TM181			108 M	43.4 M	20.4 M	100 M
Boron, water soluble	<1 mg/kg	TM222			<1 M	<1 M	<1 M	<1 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP128	TP128	TP129	TP130		
			Depth (m)	0.40	1.50	1.80	0.20		
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
			Date Sampled	06/07/2010	06/07/2010	06/07/2010	06/07/2010		
			Date Received	08/07/2010	08/07/2010	08/07/2010	08/07/2010		
			SDG Ref	100708-104	100708-104	100708-104	100708-104		
			Lab Sample No.(s)	1796743	1796662	1796809	1796767		
Naphthalene-d8 % recovery**	%	TM218		109	99.3	108	103		
Acenaphthene-d10 % recovery**	%	TM218		108	98.6	108	102		
Phenanthrene-d10 % recovery**	%	TM218		103	98.8	105	100		
Chrysene-d12 % recovery**	%	TM218		99.1	92.3	102	97.2		
Perylene-d12 % recovery**	%	TM218		92.1	90.7	98.4	94.4		
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	66.4 M		
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	587 M		
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	125 M		
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	440 M		
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	4480 M		
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	1070 M		
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<17 M	5260 M		
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	4050 M		
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	2130 M		
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	16.1 M	1700 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	20.4 M	1840 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	870 M		
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	1790 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	926 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	263 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	995 M		
Polyaromatic hydrocarbons, Total USEPA 16	<118 µg/kg	TM218		<118 M	<118 M	<118 M	26600 M		

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	TP129
Depth (m)	0.60
Sample Type	Soil/Solid
Date Sampled	06/07/2010
Date Received	08/07/2010
SDG Ref	100708-104
Lab Sample No.(s)	1796720

Component	LOD/Units	Method	
GRO Surrogate % recovery**	%	TM089	98
GRO >C5-C12	<44 µg/kg	TM089	<44
Benzene	<10 µg/kg	TM089	<10 M
Ethylbenzene	<3 µg/kg	TM089	<3 M
Toluene	<2 µg/kg	TM089	<2 M
m,p-Xylene	<6 µg/kg	TM089	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M
m,p,o-Xylene	<10 µg/kg	TM089	<10 M
BTEX, Total	<10 µg/kg	TM089	<10 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #
Aliphatics >C5-C6	<10 µg/kg	TM089	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10
Aromatics >C6-C7	<10 µg/kg	TM089	<10
Aromatics >C7-C8	<10 µg/kg	TM089	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10
Total Aliphatics >C5-C12	<10 µg/kg	TM089	<10
Total Aromatics >C6-C12	<10 µg/kg	TM089	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	7500
Aliphatics >C16-C21	<100 µg/kg	TM173	2970
Aliphatics >C16-C35	<100 µg/kg	TM173	8780
Aliphatics >C21-C35	<100 µg/kg	TM173	5800
Aliphatics >C35-C44	<100 µg/kg	TM173	474
Aromatics >EC12-EC16	<100 µg/kg	TM173	1370
Aromatics >EC16-EC21	<100 µg/kg	TM173	1500
Aromatics >EC21-EC35	<100 µg/kg	TM173	2970
Aromatics >EC35-EC44	<100 µg/kg	TM173	778
Aromatics >EC40-EC44	<100 µg/kg	TM173	<100
Total Aliphatics >C12-C44	<100 µg/kg	TM173	16800
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	6620
Total Aliphatics >C5-35	<100 µg/kg	TM173	16300
Total Aliphatics >C5-C44	<100 µg/kg	TM173	16800
Total Aromatics >C5-35	<100 µg/kg	TM173	5840
Total Aromatics >C6-C44	<100 µg/kg	TM173	6620
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173	22100
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	23400

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP132	TP133	WS2	WS2		
			Depth (m)	0.60	0.60	0.10 - 0.80	1.10 - 1.50		
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
			Date Sampled	06/07/2010	06/07/2010	07/07/2010	07/07/2010		
			Date Received	08/07/2010	08/07/2010	08/07/2010	08/07/2010		
			SDG Ref	100708-104	100708-104	100708-104	100708-104		
			Lab Sample No.(s)	1796784	1796587	1796915	1796928		
Moisture	%	PM114			5.76				
Moisture content ratio	%	PM114			6.11				
Dry matter content ratio	%	PM114			94.2				
Phenols, Total monohydric	<0.22 mg/kg	TM062 (S)		<0.22 M	<0.22 M	<0.22 M	<0.22 M		
Sulphate, 2:1 water soluble	<0.003 g/l	TM098		0.0219 M	0.0097 M	0.0141 M	0.131 M		
Sulphur, Total	<0.02 %	TM132		<0.02 #	<0.02 #	0.05 #	0.09 #		
Fraction Organic Carbon (FOC)	<0.002 -	TM132		0.00398 #	0.00217 #	0.0168 #	0.0515 #		
pH	1 pH Units	TM133		7.21 M	5.81 M	8.28 M	8.7 M		
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 M		
Cyanide, Free	<1 mg/kg	TM153		<1	<1	<1	<1		
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1		
TPH >C6-C40	<10 mg/kg	TM154		<10 #	11.9 #	510 #	436 #		
Arsenic	<0.6 mg/kg	TM181		10.7 M	9.39 M	8.91 M	10 M		
Barium	<0.6 mg/kg	TM181		253 #	53.9 #	284 #	255 #		
Beryllium	<0.01 mg/kg	TM181		0.92 M	0.374 M	0.848 M	0.698 M		
Cadmium	<0.02 mg/kg	TM181		<0.02 M	<0.02 M	0.334 M	0.214 M		
Chromium	<0.9 mg/kg	TM181		19.2 M	11.5 M	19.9 M	13.5 M		
Copper	<1.4 mg/kg	TM181		11.3 M	12 M	25.7 M	24.4 M		
Lead	<0.7 mg/kg	TM181		10.6 M	30.8 M	99.5 M	103 M		
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	<0.14 M	0.202 M		
Nickel	<0.2 mg/kg	TM181		20.8 M	8.97 M	18.7 M	13.9 M		
Selenium	<1 mg/kg	TM181		1.03 #	<1 #	<1 #	<1 #		
Vanadium	<0.2 mg/kg	TM181		26.1 #	21 #	27.1 #	20.6 #		
Zinc	<1.9 mg/kg	TM181		55.6 M	37.7 M	118 M	100 M		
Boron, water soluble	<1 mg/kg	TM222		<1 M	<1 M	<1 M	<1 M		

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP132	TP133	WS2	WS2		
			Depth (m)	0.60	0.60	0.10 - 0.80	1.10 - 1.50		
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
			Date Sampled	06/07/2010	06/07/2010	07/07/2010	07/07/2010		
			Date Received	08/07/2010	08/07/2010	08/07/2010	08/07/2010		
			SDG Ref	100708-104	100708-104	100708-104	100708-104		
			Lab Sample No.(s)	1796784	1796587	1796915	1796928		
Naphthalene-d8 % recovery**	%	TM218		102	102	98.9	106		
Acenaphthene-d10 % recovery**	%	TM218		103	102	96.7	104		
Phenanthrene-d10 % recovery**	%	TM218		99.4	99.9	92.3	100		
Chrysene-d12 % recovery**	%	TM218		95.6	94.8	88.7	94.4		
Perylene-d12 % recovery**	%	TM218		91.1	90.5	85.5	90.6		
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	61.8 M	25.2 M		
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	129 M	14.3 M		
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	70.5 M	22.1 M		
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	65.2 M	14.8 M		
Phenanthrene	<15 µg/kg	TM218		<15 M	30.7 M	1040 M	82.2 M		
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	349 M	31.1 M		
Fluoranthene	<17 µg/kg	TM218		<17 M	33.7 M	3050 M	184 M		
Pyrene	<15 µg/kg	TM218		<15 M	28.2 M	2570 M	158 M		
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	20.4 M	1720 M	130 M		
Chrysene	<10 µg/kg	TM218		<10 M	17.3 M	1320 M	98.7 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218		22.6 M	24.3 M	2460 M	174 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	833 M	62.2 M		
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	15.9 M	1860 M	112 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	1100 M	71.1 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	298 M	<23 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	1240 M	88.2 M		
Polyaromatic hydrocarbons, Total USEPA 16	<118 µg/kg	TM218		<118 M	171 M	18200 M	1270 M		

Validated

ALcontrol Laboratories Analytical Services

SDG	100708-104	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/616
Location:	THE DOVE WAY UTTOXETER	**Report No:**	91025

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	TP132	TP133	WS2			
Depth (m)	0.60	0.60	1.10 - 1.50			
Sample Type	Soil/Solid	Soil/Solid	Soil/Solid			
Date Sampled	06/07/2010	06/07/2010	07/07/2010			
Date Received	08/07/2010	08/07/2010	08/07/2010			
SDG Ref	100708-104	100708-104	100708-104			
Lab Sample No.(s)	1796784	1796587	1796928			

Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM089	117	118	33			
GRO >C5-C12	<44 µg/kg	TM089	<44	<44	607			
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M			
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M			
Toluene	<2 µg/kg	TM089	<2 M	<2 M	<2 M			
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M			
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M			
m,p,o-Xylene	<10 µg/kg	TM089	<10 M	<10 M	<10 M			
BTEX, Total	<10 µg/kg	TM089	<10 M	<10 M	<10 M			
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5 #	<5 #			
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	50.5			
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	202			
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	50.1			
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	88.1			
Aromatics >C6-C7	<10 µg/kg	TM089	<10	<10	<10			
Aromatics >C7-C8	<10 µg/kg	TM089	<10	<10	<10			
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	75.2			
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	132			
Total Aliphatics >C5-C12	<10 µg/kg	TM089	<10	<10	390			
Total Aromatics >C6-C12	<10 µg/kg	TM089	<10	<10	207			
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	<100	7750			
Aliphatics >C16-C21	<100 µg/kg	TM173	<100	<100	17000			
Aliphatics >C16-C35	<100 µg/kg	TM173	<100	<100	137000			
Aliphatics >C21-C35	<100 µg/kg	TM173	<100	<100	120000			
Aliphatics >C35-C44	<100 µg/kg	TM173	<100	<100	45600			
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	<100	7310			
Aromatics >EC16-EC21	<100 µg/kg	TM173	<100	<100	20800			
Aromatics >EC21-EC35	<100 µg/kg	TM173	<100	<100	119000			
Aromatics >EC35-EC44	<100 µg/kg	TM173	<100	<100	52700			
Aromatics >EC40-EC44	<100 µg/kg	TM173	<100	<100	21200			
Total Aliphatics >C12-C44	<100 µg/kg	TM173	<100	<100	191000			
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	<100	<100	200000			
Total Aliphatics >C5-35	<100 µg/kg	TM173	<100	<100	145000			
Total Aliphatics >C5-C44	<100 µg/kg	TM173	<100	<100	191000			
Total Aromatics >C5-35	<100 µg/kg	TM173	<100	<100	148000			
Total Aromatics >C6-C44	<100 µg/kg	TM173	<100	<100	200000			
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173	<100	<100	293000			
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	<100	<100	391000			

ALcontrol Laboratories Analytical Services

CEN 2:1 ONE STAGE BATCH TEST

ALcontrol Laboratories

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.207	**Moisture Content Ratio (%)**	18.2
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	84.6
Particle Size <4mm	>95%		

Case	
SDG	100708-104
Lab Sample Number(s)	1795533
Sampled Date	05-Jul-2010
Customer Sample Ref.	TP103
Depth (m)	2.00

Solid Waste Analysis

Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^n in 2:1 eluate C_2**	**2:1 conc^n leached A_2**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	mg/l	**mg/kg**			
Arsenic	0.00224	0.00448	-	-	-
Barium	0.043	0.086	-	-	-
Cadmium	0.000152	0.000304	-	-	-
Chromium	0.00152	0.00304	-	-	-
Copper	0.00315	0.0063	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00002	-	-	-
Molybdenum	-	-	-	-	-
Nickel	0.0182	0.0364	-	-	-
Lead	0.000793	0.00159	-	-	-
Antimony	-	-	-	-	-
Selenium	0.00172	0.00344	-	-	-
Zinc	0.00599	0.012	-	-	-
Chloride	-	-	-	-	-
Fluoride	-	-	-	-	-
Sulphate (soluble)	109	218	-	-	-
Total Dissolved Solids	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	7.14
Conductivity (µS/cm)	262.00
Temperature (ºC)	21.00
Volume Leachant (Litres)	0.318
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

ALcontrol Laboratories Analytical Services

ALcontrol Laboratories

CEN 2:1 ONE STAGE BATCH TEST

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.207	**Moisture Content Ratio (%)**	18.2
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	84.6
Particle Size <4mm	>95%		

Case	
SDG	100708-104
Lab Sample Number(s)	1795533
Sampled Date	05-Jul-2010
Customer Sample Ref.	TP103
Depth (m)	2.00

Solid Waste Analysis

Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^n in 2:1 eluate C_2	2:1 conc^n leached A_2	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	mg/l	mg/kg			
Beryllium	0.00035	0.0007	-	-	-
Boron	0.0816	0.163	-	-	-
pH	7	14	-	-	-
Total Cyanide (W)	<0.05	<0.1	-	-	-
Vanadium	0.00504	0.0101	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	7.14
Conductivity (µS/cm)	262.00
Temperature (ºC)	21.00
Volume Leachant (Litres)	0.318
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

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Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.209	**Moisture Content Ratio (%)**	19.1
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	83.9
Particle Size <4mm	>95%		

Case				
SDG	100708-104			
Lab Sample Number(s)	1796087			
Sampled Date	06-Jul-2010			
Customer Sample Ref.	TP127			
Depth (m)	2.00			

Solid Waste Analysis

Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^{n} in 2:1 eluate C_2**	**2:1 conc^{n} leached A_2**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	mg/l	**mg/kg**			
Arsenic	0.00217	0.00434	-	-	-
Barium	0.0535	0.107	-	-	-
Cadmium	<0.0001	<0.0002	-	-	-
Chromium	0.00146	0.00292	-	-	-
Copper	0.00259	0.00518	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00002	-	-	-
Molybdenum	-	-	-	-	-
Nickel	0.00289	0.00578	-	-	-
Lead	0.00112	0.00224	-	-	-
Antimony	-	-	-	-	-
Selenium	0.000859	0.00172	-	-	-
Zinc	0.00606	0.0121	-	-	-
Chloride	-	-	-	-	-
Fluoride	-	-	-	-	-
Sulphate (soluble)	20.5	41	-	-	-
Total Dissolved Solids	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	7.77
Conductivity (µS/cm)	1.83
Temperature (ºC)	20.60
Volume Leachant (Litres)	0.317
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.209	**Moisture Content Ratio (%)**	19.1
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	83.9
Particle Size <4mm	>95%		

Case				
SDG	100708-104			
Lab Sample Number(s)	1796087			
Sampled Date	06-Jul-2010			
Customer Sample Ref.	TP127			
Depth (m)	2.00			

Solid Waste Analysis

Total Organic Carbon (%)	-		-	-	-
Loss on Ignition (%)	-		-	-	-
Sum of BTEX (mg/kg)	-		-	-	-
Sum of 7 PCBs (mg/kg)	-		-	-	-
Mineral Oil (mg/kg)	-		-	-	-
PAH Sum of 17 (mg/kg)	-		-	-	-
pH (pH Units)	-		-	-	-
ANC to pH 6 (mol/kg)	-		-	-	-
ANC to pH 4 (mol/kg)	-		-	-	-

Eluate Analysis	**Conc^{n} in 2:1 eluate C_2**	**2:1 conc^{n} leached A_2**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	mg/l	**mg/kg**			
Beryllium	0.000097	0.000194	-	-	-
Boron	<0.0094	<0.0188	-	-	-
pH	6.6	13	-	-	-
Total Cyanide (W)	<0.05	<0.1	-	-	-
Vanadium	0.00204	0.00408	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	7.77
Conductivity (µS/cm)	1.83
Temperature (ºC)	20.60
Volume Leachant (Litres)	0.317
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

ALcontrol Laboratories Analytical Services

ALcontrol Laboratories

CEN 2:1 ONE STAGE BATCH TEST

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.210	**Moisture Content Ratio (%)**	20.1
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	83.3
Particle Size <4mm	>95%		

Case	
SDG	100708-104
Lab Sample Number(s)	1796247
Sampled Date	07-Jul-2010
Customer Sample Ref.	TP111
Depth (m)	0.40

Solid Waste Analysis

Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^n in 2:1 eluate C_2	2:1 conc^n leached A_2	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	mg/l	mg/kg			
Arsenic	0.000861	0.00172	-	-	-
Barium	0.0927	0.185	-	-	-
Cadmium	0.000112	0.000224	-	-	-
Chromium	0.00393	0.00786	-	-	-
Copper	0.00792	0.0158	-	-	-
Mercury Dissolved (CVAF)	0.0000261	0.0000522	-	-	-
Molybdenum	-	-	-	-	-
Nickel	0.00478	0.00956	-	-	-
Lead	0.000335	0.00067	-	-	-
Antimony	-	-	-	-	-
Selenium	0.00117	0.00234	-	-	-
Zinc	0.00627	0.0125	-	-	-
Chloride	-	-	-	-	-
Fluoride	-	-	-	-	-
Sulphate (soluble)	47	94	-	-	-
Total Dissolved Solids	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	8.02
Conductivity (µS/cm)	372.00
Temperature (ºC)	20.50
Volume Leachant (Litres)	0.315
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.210	**Moisture Content Ratio (%)**	20.1
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	83.3
Particle Size <4mm	>95%		

Case				
SDG	100708-104			
Lab Sample Number(s)	1796247			
Sampled Date	07-Jul-2010			
Customer Sample Ref.	TP111			
Depth (m)	0.40			

Solid Waste Analysis

Total Organic Carbon (%)	-		-	-	-
Loss on Ignition (%)	-		-	-	-
Sum of BTEX (mg/kg)	-		-	-	-
Sum of 7 PCBs (mg/kg)	-		-	-	-
Mineral Oil (mg/kg)	-		-	-	-
PAH Sum of 17 (mg/kg)	-		-	-	-
pH (pH Units)	-		-	-	-
ANC to pH 6 (mol/kg)	-		-	-	-
ANC to pH 4 (mol/kg)	-		-	-	-

Eluate Analysis	**Conc^{n} in 2:1 eluate C_2**	**2:1 conc^{n} leached A_2**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	mg/l	**mg/kg**			
Beryllium	<0.00007	<0.00014	-	-	-
Boron	0.217	0.434	-	-	-
pH	8.5	17	-	-	-
Total Cyanide (W)	<0.05	<0.1	-	-	-
Vanadium	0.00176	0.00352	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	8.02
Conductivity (µS/cm)	372.00
Temperature (ºC)	20.50
Volume Leachant (Litres)	0.315
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

ALcontrol Laboratories Analytical Services

CEN 2:1 ONE STAGE BATCH TEST

ALcontrol Laboratories

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.222	**Moisture Content Ratio (%)**	27.0
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	78.8
Particle Size <4mm	>95%		

Case	
SDG	100708-104
Lab Sample Number(s)	1796289
Sampled Date	07-Jul-2010
Customer Sample Ref.	TP112
Depth (m)	2.80

Solid Waste Analysis

Total Organic Carbon (%)	0.434	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	6.98	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^n in 2:1 eluate C_2 mg/l	2:1 conc^n leached A_2 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
Arsenic	0.00429	0.00858	-	-	-
Barium	0.0735	0.147	-	-	-
Cadmium	<0.0001	<0.0002	-	-	-
Chromium	0.00715	0.0143	-	-	-
Molybdenum	-	-	-	-	-
Nickel	0.00814	0.0163	-	-	-
Lead	0.00386	0.00772	-	-	-
Antimony	-	-	-	-	-
Selenium	0.00418	0.00836	-	-	-
Zinc	0.0352	0.0704	-	-	-
Chloride	-	-	-	-	-
Fluoride	-	-	-	-	-
Sulphate (soluble)	49.1	98.2	-	-	-
Total Dissolved Solids	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-
Copper	0.0112	0.0224	-	-	-
Mercury Dissolved (CVAF)	0.0000248	0.0000496	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	7.39
Conductivity (µS/cm)	200.00
Temperature (ºC)	20.40
Volume Leachant (Litres)	0.303
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.222	**Moisture Content Ratio (%)**	27.0
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	78.8
Particle Size <4mm	>95%		

Case				
SDG	100708-104			
Lab Sample Number(s)	1796289			
Sampled Date	07-Jul-2010			
Customer Sample Ref.	TP112			
Depth (m)	2.80			

Solid Waste Analysis

Total Organic Carbon (%)	0.434	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	6.98	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^{n} in 2:1 eluate C_2**	**2:1 conc^{n} leached A_2**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	mg/l	**mg/kg**			
Beryllium	0.000264	0.000528	-	-	-
Boron	1.12	2.24	-	-	-
pH	7.9	16	-	-	-
Total Cyanide (W)	<0.05	<0.1	-	-	-
Vanadium	0.0096	0.0192	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	7.39
Conductivity (µS/cm)	200.00
Temperature (ºC)	20.40
Volume Leachant (Litres)	0.303
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

ALcontrol Laboratories Analytical Services

ALcontrol Laboratories

CEN 2:1 ONE STAGE BATCH TEST

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.186	**Moisture Content Ratio (%)**	6.11
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	94.2
Particle Size <4mm	>95%		

Case	
SDG	100708-104
Lab Sample Number(s)	1796587
Sampled Date	06-Jul-2010
Customer Sample Ref.	TP133
Depth (m)	0.60

Solid Waste Analysis

Total Organic Carbon (%)	0.217	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.01	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	5.81	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^{n} in 2:1 eluate C_2**	**2:1 conc^{n} leached A_2**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	mg/l	**mg/kg**			
Arsenic	0.00273	0.00546	-	-	-
Barium	0.0299	0.0598	-	-	-
Cadmium	0.000131	0.000262	-	-	-
Chromium	0.00204	0.00408	-	-	-
Copper	0.0107	0.0214	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00002	-	-	-
Molybdenum	-	-	-	-	-
Nickel	0.00463	0.00926	-	-	-
Lead	0.00629	0.0126	-	-	-
Antimony	-	-	-	-	-
Selenium	<0.00039	<0.00078	-	-	-
Zinc	0.0275	0.055	-	-	-
Chloride	-	-	-	-	-
Fluoride	-	-	-	-	-
Sulphate (soluble)	28.3	56.6	-	-	-
Total Dissolved Solids	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	7.71
Conductivity (µS/cm)	93.30
Temperature (ºC)	20.80
Volume Leachant (Litres)	0.339
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

ALcontrol Laboratories

CEN 2:1 ONE STAGE BATCH TEST

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.186	**Moisture Content Ratio (%)**	6.11
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	94.2
Particle Size <4mm	>95%		

Case	
SDG	100708-104
Lab Sample Number(s)	1796587
Sampled Date	06-Jul-2010
Customer Sample Ref.	TP133
Depth (m)	0.60

Solid Waste Analysis

Total Organic Carbon (%)	0.217	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.01	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	5.81	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^{n} in 2:1 eluate C_2**	**2:1 conc^{n} leached A_2**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	mg/l	**mg/kg**			
Beryllium	0.000093	0.000186	-	-	-
Boron	<0.0094	<0.0188	-	-	-
pH	6.7	13	-	-	-
Total Cyanide (W)	<0.05	<0.1	-	-	-
Vanadium	0.00547	0.0109	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	7.71
Conductivity (µS/cm)	93.30
Temperature (ºC)	20.80
Volume Leachant (Litres)	0.339
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

ALcontrol Laboratories Analytical Services

CEN 2:1 ONE STAGE BATCH TEST

ALcontrol Laboratories

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.197	**Moisture Content Ratio (%)**	12.6
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	88.8
Particle Size <4mm	>95%		

Case	
SDG	100708-104
Lab Sample Number(s)	1796767
Sampled Date	06-Jul-2010
Customer Sample Ref.	TP130
Depth (m)	0.20

Solid Waste Analysis

Total Organic Carbon (%)	2.47	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	7.06	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^n in 2:1 eluate C_2	2:1 conc^n leached A_2	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	mg/l	mg/kg			
Arsenic	0.00173	0.00346	-	-	-
Barium	0.0963	0.193	-	-	-
Cadmium	0.00015	0.0003	-	-	-
Chromium	0.00586	0.0117	-	-	-
Copper	0.0189	0.0378	-	-	-
Mercury Dissolved (CVAF)	0.0000356	0.0000712	-	-	-
Molybdenum	-	-	-	-	-
Nickel	0.00559	0.0112	-	-	-
Lead	0.00111	0.00222	-	-	-
Antimony	-	-	-	-	-
Selenium	0.00211	0.00422	-	-	-
Zinc	0.00526	0.0105	-	-	-
Chloride	-	-	-	-	-
Fluoride	-	-	-	-	-
Sulphate (soluble)	16.5	33	-	-	-
Total Dissolved Solids	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	8.11
Conductivity (µS/cm)	415.00
Temperature (ºC)	20.40
Volume Leachant (Litres)	0.328
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference	NTE 285	**Client Location**	THE DOVE WAY UTTOXETER
Mass Sample taken (kg)	0.197	**Moisture Content Ratio (%)**	12.6
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	88.8
Particle Size <4mm	>95%		

Case				
SDG	100708-104			
Lab Sample Number(s)	1796767			
Sampled Date	06-Jul-2010			
Customer Sample Ref.	TP130			
Depth (m)	0.20			

Solid Waste Analysis

Total Organic Carbon (%)	2.47	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	7.06	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^n in 2:1 eluate C_2**	**2:1 conc^n leached A_2**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	mg/l	**mg/kg**			
Beryllium	<0.00007	<0.00014	-	-	-
Boron	<0.0094	<0.0188	-	-	-
pH	8.6	17	-	-	-
Total Cyanide (W)	<0.05	<0.1	-	-	-
Vanadium	0.00316	0.00632	-	-	-

Leach Test Information

Date Prepared	14-Jul-2010
pH (pH Units)	8.11
Conductivity (µS/cm)	415.00
Temperature (ºC)	20.40
Volume Leachant (Litres)	0.328
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

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Mcerts Certification does not apply to leachates

Table of Results - Appendix

SDG Number : 100708-104 **Client :** BWB Consulting **Client Ref :** NTE 285

REPORT KEY

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10-7

NDP	No Determination Possible	#	ISO 17025 Accredited	*	Subcontracted Test	M	MCERTS Accredited
NFD	No Fibres Detected	PFD	Possible Fibres Detected	»	Result previously reported (Incremental reports only)	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control

Method No	Reference	Description	Wet/Dry Sample [1]
PM001		Preparation of Samples for Metals Analysis	Dry
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material	Wet
PM114		Leaching Procedure for CEN Two Stage BatchTest 2:1/8:1 Cumulative	
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step	
TM001	In - house Method	Determination of asbestos containing material by screening on solids	
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC	Wet
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	Dry
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS	
TM132	In - house Method	ELTRA CS800 Operators Guide	Dry
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	Wet
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	Wet
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	Wet
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	Dry
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES	Dry
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry	
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	Dry
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546	Wet
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer	Dry
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate	
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter	

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.
9. NDP – No determination possible due to insufficient/unsuitable sample.
10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
12. Results relate only to the items tested
13. **Surrogate recoveries –** Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 – 130 %.
14. **Product analyses –** Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).
16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).
17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 – C10 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Last updated 1 April 2010

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GS MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GC MS
TPH by INFRA RED (IR)	TCE	LIQUID/LIQUID EXTRACTION	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID EXTRACTION	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GC FID

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
Solvent Extractable Matter	D&C	DCM	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Min oil)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Cleaned up)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG by GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB tot / PCB con	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (MS)	WET	HEXANE:ACETONE	Microwave TM218.	GC-MS
C8-C40 (C6-C40)EZ Flash	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Polyaromatic Hydrocarbons Rapid GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Semi Volatile Organic Compounds	WET	DCM:ACETONE	SONICATE	GC-MS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Visual Estimation Of Fibre Content.

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -

Trace – Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

ALcontrol Laboratories

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NG1 1PY

Attention: Richard Robinson

CERTIFICATE OF ANALYSIS

Date:	11 August 2010		
Customer:	H_BWB_NTT-84		
Sample Delivery Group (SDG):	100712-18	**Report No.:**	93287
Your Reference:			
Location:	THE DOVE WAY-NTE285		

We received 34 samples on Monday July 12, 2010 and 25 of these samples were scheduled for analysis which was completed on Wednesday August 11, 2010. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Asbestos testing - we are not accredited for screening soil samples for asbestos fibres. We are only accredited to identify asbestos fibres in bulk material (ACM).

Approved By:

Iain Swinton

Operations Director - Land UK & Ireland

1291
GROUP

Validated

ALcontrol Laboratories Analytical Services

SDG:	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
1804942	TP107		2.50	08/07/2010
1804805	TP109		0.70	08/07/2010
1804927	TP109		2.50	08/07/2010
1805000	TP114		0.50	08/07/2010
1805031	TP114		0.60	07/07/2010
1805048	TP116		0.90	08/07/2010
1805082	TP117		0.50	08/07/2010
1805100	TP117		1.80	08/07/2010
1939155	TP118		3.00	08/07/2010
1805350	TP119		0.50	08/07/2010
1805365	TP119		3.20	08/07/2010
1805387	TP120		0.80	08/07/2010
1805409	TP120		1.50	08/07/2010
1805433	TP120		3.00	08/07/2010
1805519	TP121		0.20	07/07/2010
1805459	TP121		0.90	07/07/2010
1805492	TP121		1.50	07/07/2010
1805510	TP123		0.20	07/07/2010
1805546	TP123		2.00	07/07/2010
1805575	TP134		0.30	08/07/2010
1805596	TP135		0.90	08/07/2010
1805613	TP135		3.10	08/07/2010
1805646	TP136		0.50	08/07/2010
1805675	TP136		1.00	08/07/2010
1805701	TP137		0.70	08/07/2010
1805736	TP137		2.00	08/07/2010
1805932	WS3		0.10 - 0.90	07/07/2010
1806100	WS3		1.20 - 2.00	07/07/2010
1806152	WS4		0.10 - 0.50	07/07/2010
1806221	WS4		1.00 - 1.50	07/07/2010
1806285	WS5		0.10 - 1.00	07/07/2010
1806302	WS6		0.30 - 1.00	07/07/2010
1806359	WS7		0.10 - 0.40	07/07/2010
1806335	WS7		1.60 - 2.00	07/07/2010

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

ALcontrol Laboratories Analytical Services

SDG:	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

SOLID

Results Legend

X Test

N No Determination Possible

		Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Container
Anions by Kone (w)	All	1804927	TP109		2.50	400g Tub
Asbestos Containing Material Screen	All	1805000	TP114		0.50	60g VOC
Boron Water Soluble	All	1805082	TP117		0.50	1kg TUB
CEN Readings	All	1805100	TP117		1.80	250g Amber Jar
Cyanide Complex/Free/Total/Thiocyan	All	1805350	TP119		0.50	250g Amber Jar
Cyanides Complex/Free/Total/Thiocya	Cyanide, Complex	1805365	TP119		3.20	400g Tub
	Cyanide, Free	1805387	TP120		0.80	1kg TUB
	Cyanide, Total	1805433	TP120		3.00	250g Amber Jar
Dissolved Metals by ICP-MS	All	1805459	TP121		0.90	60g VOC
EPH CWG (Aliphatic) GC (S)	All	1805546	TP123		2.00	400g Tub
EPH CWG (Aromatic) GC (S)	All	1805575	TP134		0.30	250g Amber Jar
GRO BTEX MTBE GC (S)	All	1805596	TP135		0.90	400g Tub
Mercury Dissolved	All	1805613	TP135		3.10	60g VOC
Metals by iCap-OES (Soil)	Arsenic	1805646	TP136		0.50	250g Amber Jar
	Barium	1805675	TP136		1.00	400g Tub
	Beryllium	1805701	TP137		0.70	250g Amber Jar
	Cadmium	1805736	TP137		2.00	400g Tub
	Chromium	1805932	WS3		0.10 - 0.90	1kg TUB
	Copper	1806100	WS3		1.20 - 2.00	250g Amber Jar
						400g Tub
						1kg TUB

1806221	1806285	1806302	1806335	1939155	Total
WS4	WS5	WS6	WS7	TP118	
1.00 - 1.50	0.10 - 1.00	0.30 - 1.00	1.60 - 2.00	3.00	
400g Tub	250g Amber Jar	1kg TUB	250g Amber Jar	250g Amber Jar	0
60g VOC	60g VOC	250g Amber Jar	60g VOC	400g Tub	10
400g Tub	400g Tub	60g VOC	400g Tub	60g VOC	0
		250g Amber Jar		400g Tub	6
	X	X	X	X	0
					21
		X			0
					10
		X			0
					10
	X	X	X	X	0
					21
	X	X	X	X	0
					21
	X	X	X	X	0
					21
		X			0
					10
		X	X		0
					8
		X	X		0
					8
X		X	X		0
					8
		X			0
					10
	X	X	X	X	0
					21
	X	X	X	X	0
					21
	X	X	X	X	0
					21
	X	X	X	X	0
					21
	X	X	X	X	0
					21
	X	X	X	X	0
					21

Validated

ALcontrol Laboratories Analytical Services

SDG:	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

		1804927		1805000		1805082		1805100		1805350			1805365		1805387			1805433		1805459		1805546		1805575		1805596			1805613		1805646		1805675		1805701			1805736		1805932		1806100		[illegible]
		TP109		TP114		TP117		TP117		TP119			TP119		TP120			TP120		TP121		TP123		TP134		TP135			TP135		TP136		TP136		TP137			TP137		WS3		WS3		
		2.50		0.50		0.50		1.80		0.50			3.20		0.80			3.00		0.90		2.00		0.30		0.90			3.10		0.50		1.00		0.70			2.00		0.10 - 0.90		1.20 - 2.00		
		400g Tub	60g VOC	1kg TUB	250g Amber Jar	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	1kg TUB	250g Amber Jar	60g VOC	250g Amber Jar	400g Tub	1kg TUB	250g Amber Jar	60g VOC	250g Amber Jar	400g Tub	1kg TUB	250g Amber Jar	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	60g VOC	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	250g Amber Jar	400g Tub	60g VOC	250g Amber Jar	400g Tub	1kg TUB	250g Amber Jar	250g Amber Jar	400g Tub	1kg TUB
Metals by iCap-OES (Soil)	Lead				X	X					X		X			X		X				X				X			X		X		X		X			X			X	X		
	Mercury				X	X					X		X			X		X				X				X			X		X		X		X			X			X	X		
	Nickel				X	X					X		X			X		X				X				X			X		X		X		X			X			X	X		
	Selenium				X	X					X		X			X		X				X				X			X		X		X		X			X			X	X		
	Vanadium				X	X					X		X			X		X				X				X			X		X		X		X			X			X	X		
	Zinc				X	X					X		X			X		X				X				X			X		X		X		X			X			X	X		
PAH by GCMS	All				X	X					X		X			X		X				X				X			X		X		X		X			X			X	X		
pH	All			X			X			X				X	X				X				X				X			X		X		X		X			X	X			X	X
pH Value	All								X					X						X			X		X					X									X	X				X
Phenols by HPLC (S)	All			X			X			X				X	X				X				X				X			X		X		X		X			X	X			X	X
Sample description	All	X			X	X		X			X		X			X		X			X	X		X		X			X		X		X		X			X			X	X		
Total Organic Carbon	All				X	X					X		X			X		X				X				X			X		X		X		X			X			X	X		
Total Sulphur	All				X	X					X		X			X		X				X				X			X		X		X		X			N			X	X		
TPH C6-C40 Value of soil	All				X	X					X		X			X		X				X				X			X		X		X		X			X			X	X		
TPH CWG GC (S)	All	X									X					X										X									X									
VOC MS (S)	All																																				X							
Water Soluble Sulphate 2:1	All				X	X					X		X			X		X				X				X			X		X		X		X			X			X	X		

1806221	1806285	1806302	1806335	1939155	Total
WS4	WS5	WS6	WS7	TP118	
1.00 - 1.50	0.10 - 1.00	0.30 - 1.00	1.80 - 2.00	3.00	
40g Tub	60g VOC	250g Amber Jar	40g Tub	250g Amber Jar	40g Tub	
		X		X		X		0 21
		X		X		X		0 21
		X		X		X		0 21
		X		X		X		0 21
		X		X		X		0 21
		X		X		X		0 21
		X		X		X		0 21
X			X				X	0 21
				X				0 10
X			X				X	0 21
		X		X		X		0 25
		X		X		X		0 21
		X		X		X		1 20
		X		X		X		0 21
				X				0 8
								0 1
		X		X		X		0 21

Validated

ALcontrol Laboratories Analytical Services

SDG:	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

Sample Descriptions

Grain Sizes:
<0.063mm very fine,
0.063mm - 0.1mm fine,
0.1mm - 2mm medium,
2mm - 10mm coarse,
>10mm very coarse

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions
1804927	TP109	2.50	Dark Brown	Sand	0.1 - 2 mm	Stones
1805000	TP114	0.50	Dark Brown	Silt Loam	0.063 - 0.1 mm	Stones
1805082	TP117	0.50	Dark Brown	Silty Clay	0.063 - 0.1 mm	N/A
1805100	TP117	1.80	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1805350	TP119	0.50	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1805365	TP119	3.20	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1805387	TP120	0.80	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1805433	TP120	3.00	Light Brown	Silty Sand	0.063 - 0.1 mm	Stones
1805459	TP121	0.90	Dark Brown	Silty Sand	0.063 - 0.1 mm	Stones
1805546	TP123	2.00	Dark Brown	Clay	<0.063 mm	N/A
1805575	TP134	0.30	Light Brown	Silty Clay	0.063 - 0.1 mm	Stones
1805596	TP135	0.90	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1805613	TP135	3.10	Light Brown	Silty Clay	0.063 - 0.1 mm	None
1805646	TP136	0.50	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Stones
1805675	TP136	1.00	Dark Brown	Silty Sand	0.063 - 0.1 mm	Stones
1805701	TP137	0.70	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1805736	TP137	2.00	Dark Brown	Silty Clay	0.063 - 0.1 mm	None
1805932	WS3	0.10 - 0.90	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1806100	WS3	1.20 - 2.00	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1806152	WS4	0.10 - 0.50	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1806221	WS4	1.00 - 1.50	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones
1806285	WS5	0.10 - 1.00	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1806302	WS6	0.30 - 1.00	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1806335	WS7	1.60 - 2.00	Dark Brown	Sand	0.1 - 2 mm	Stones
1939155	TP118	3.00	Light Brown	Sandy Clay	0.1 - 2 mm	Stones

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

ALcontrol Laboratories Analytical Services

SDG:	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

Test Completion dates

SDG reference: 100712-18

Lab Sample No(s)	1804927	1805000	1805082	1805100	1805350	1805365	1805387	1805433	1805459	1805546	1805575	1805596
Customer Sample Ref.	TP109	TP114	TP117	TP117	TP119	TP119	TP120	TP120	TP121	TP123	TP134	TP135
Depth	2.50	0.50	0.50	1.80	0.50	3.20	0.80	3.00	0.90	2.00	0.30	0.90
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Anions by Kone (w)				19/07/2010		20/07/2010			19/07/2010	20/07/2010	19/07/2010	
Asbestos Containing Material Screen		16/07/2010			16/07/2010						16/07/2010	
Boron Water Soluble		20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010	20/07/2010		20/07/2010		20/07/2010
CEN Readings				19/07/2010		20/07/2010			19/07/2010	20/07/2010	19/07/2010	
Cyanide Comp/Free/Total/Thiocyanate		19/07/2010	19/07/2010	20/07/2010	19/07/2010	21/07/2010	19/07/2010	19/07/2010	20/07/2010	21/07/2010	20/07/2010	19/07/2010
Dissolved Metals by ICP-MS				21/07/2010		21/07/2010			21/07/2010	21/07/2010	21/07/2010	
EPH CWG (Aliphatic) GC (S)	20/07/2010				20/07/2010		21/07/2010					20/07/2010
EPH CWG (Aromatic) GC (S)	20/07/2010				20/07/2010		21/07/2010					20/07/2010
GRO by GC-FID (S)	20/07/2010				20/07/2010		20/07/2010					20/07/2010
Mercury Dissolved				20/07/2010		20/07/2010			20/07/2010	20/07/2010	20/07/2010	
Metals by iCap-OES (Soil)		21/07/2010	19/07/2010		20/07/2010	19/07/2010	19/07/2010	19/07/2010		19/07/2010		20/07/2010
Moisture Meter				17/07/2010		16/07/2010			16/07/2010	16/07/2010	17/07/2010	
PAH by GCMS		19/07/2010	19/07/2010		19/07/2010	20/07/2010	19/07/2010	19/07/2010		19/07/2010		19/07/2010
pH		19/07/2010	16/07/2010		19/07/2010	16/07/2010	19/07/2010	19/07/2010		16/07/2010		16/07/2010
pH Value				20/07/2010		20/07/2010			20/07/2010	20/07/2010	20/07/2010	
Phenols by HPLC (S)		19/07/2010	19/07/2010		19/07/2010	19/07/2010	21/07/2010	21/07/2010		19/07/2010		19/07/2010
Sample description	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010
Total Organic Carbon		19/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010	19/07/2010		19/07/2010		19/07/2010
Total Sulphur		19/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010	19/07/2010		19/07/2010		19/07/2010
TPH c6-40 Value of soil		20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010	20/07/2010		20/07/2010		20/07/2010
TPH CWG GC (S)	21/07/2010				21/07/2010		21/07/2010					21/07/2010
VOC MS (S)												
Water Soluble Sulphate 2:1		20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010	20/07/2010		20/07/2010		20/07/2010

1805613	1805646	1805675	1805701	1805736	1805932	1806100	1806152	1806221	1806285	1806302	1806335	1939155
TP135	TP136	TP136	TP137	TP137	WS3	WS3	WS4	WS4	WS5	WS6	WS7	TP118
3.10	0.50	1.00	0.70	2.00	0.10 - 0.90	1.20 - 2.00	0.10 - 0.50	1.00 - 1.50	0.10 - 1.00	0.30 - 1.00	1.60 - 2.00	3.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
20/07/2010				19/07/2010	19/07/2010		19/07/2010			19/07/2010		
	16/07/2010				16/07/2010					16/07/2010		
20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010
20/07/2010				19/07/2010	19/07/2010		19/07/2010			19/07/2010		
21/07/2010	19/07/2010	19/07/2010	19/07/2010	20/07/2010	20/07/2010	19/07/2010	20/07/2010	19/07/2010	19/07/2010	20/07/2010	19/07/2010	19/07/2010
21/07/2010				21/07/2010	21/07/2010		21/07/2010			21/07/2010		
			20/07/2010					21/07/2010		21/07/2010	21/07/2010	
			20/07/2010					21/07/2010		21/07/2010	21/07/2010	
			20/07/2010					20/07/2010		20/07/2010	20/07/2010	
20/07/2010				20/07/2010	20/07/2010		20/07/2010			20/07/2010		
20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010
16/07/2010				17/07/2010	16/07/2010		16/07/2010			16/07/2010		
19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010
16/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	16/07/2010
20/07/2010				20/07/2010	20/07/2010		20/07/2010			20/07/2010		
20/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	19/07/2010	21/07/2010	19/07/2010	21/07/2010	21/07/2010	19/07/2010	21/07/2010	19/07/2010
16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010
19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010
19/07/2010	19/07/2010	19/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010
20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010
			21/07/2010					21/07/2010		21/07/2010	21/07/2010	
			20/07/2010									
20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP114	TP117	TP117	TP118	TP119
			Depth (m)	0.50	0.50	1.80	3.00	0.50
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	08/07/2010	08/07/2010	08/07/2010	08/07/2010	08/07/2010
			Date Received	12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010
			SDG Ref	100712-18	100712-18	100712-18	100712-18	100712-18
			Lab Sample No.(s)	1805000	1805082	1805100	1939155	1805350
			AGS Reference					
Moisture	%	PM114				26.2		
Moisture content ratio	%	PM114				35.4		
Dry matter content ratio	%	PM114				73.9		
Asbestos Containing Material Screen	-	TM001		No ACM Detected				No ACM Detected
Phenols, Total monohydric	<0.22 mg/kg	TM062 (S)		<0.22 M	<0.22 M		<0.22 M	<0.22 M
Sulphate, 2:1 water soluble	<0.003 g/l	TM098		0.463 M	0.0109 M		0.125 M	1.49 M
Sulphur, Total	<0.02 %	TM132		0.318 #	0.031 #		0.033 #	0.237 #
Fraction Organic Carbon (FOC)	<0.002 -	TM132		0.147 #	0.0178 #		0.00372 #	0.122 #
pH	1 pH Units	TM133		4.93 M	6.59 M		7.16 M	7.52 M
Cyanide, Total	<1 mg/kg	TM153		3.51 M	<1 M		<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1	<1		<1	<1
Cyanide, Complex	<1 mg/kg	TM153		2.89	<1		<1	<1
TPH >C6-C40	<10 mg/kg	TM154		2370 #	121 #		<10 #	1970 #
Arsenic	<0.6 mg/kg	TM181		22.2 M	9.76 M		6.27 M	42.9 M
Barium	<0.6 mg/kg	TM181		675 #	262 #		99.2 #	251 #
Beryllium	<0.01 mg/kg	TM181		1.97 M	1.39 M		0.632 M	5.26 M
Cadmium	<0.02 mg/kg	TM181		22.2 M	0.618 M		0.333 M	0.991 M
Chromium	<0.9 mg/kg	TM181		104 M	34.6 M		12.3 M	33.4 M
Copper	<1.4 mg/kg	TM181		468 M	35.6 M		11.8 M	187 M
Lead	<0.7 mg/kg	TM181		339 M	64.2 M		18.2 M	379 M
Mercury	<0.14 mg/kg	TM181		1.82 M	<0.14 M		<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181		57.1 M	31.5 M		13.1 M	69.9 M
Selenium	<1 mg/kg	TM181		9.95 #	1.5 #		<1 #	1.98 #
Vanadium	<0.2 mg/kg	TM181		24 #	36.2 #		16.6 #	41.7 #
Zinc	<1.9 mg/kg	TM181		388 M	192 M		62 M	542 M
Boron, water soluble	<1 mg/kg	TM222		4.03 M	<1 M		1.45 M	6.71 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP114	TP117	TP118	TP119
			Depth (m)	0.50	0.50	3.00	0.50
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	08/07/2010	08/07/2010	08/07/2010	08/07/2010
			Date Received	12/07/2010	12/07/2010	12/07/2010	12/07/2010
			SDG Ref	100712-18	100712-18	100712-18	100712-18
			Lab Sample No.(s)	1805000	1805082	1939155	1805350
			AGS Reference				
Naphthalene-d8 % recovery**	%	TM218		107	103	110	112
Acenaphthene-d10 % recovery**	%	TM218		109	100	112	113
Phenanthrene-d10 % recovery**	%	TM218		111	104	115	117
Chrysene-d12 % recovery**	%	TM218		97.2	85.8	101	99.9
Perylene-d12 % recovery**	%	TM218		105	87.4	115	108
Naphthalene	<9 µg/kg	TM218		516 M	<9 M	<9 M	828 M
Acenaphthylene	<12 µg/kg	TM218		64.4 M	<12 M	<12 M	204 M
Acenaphthene	<8 µg/kg	TM218		21.4 M	<8 M	<8 M	2540 M
Fluorene	<10 µg/kg	TM218		23.9 M	<10 M	<10 M	3120 M
Phenanthrene	<15 µg/kg	TM218		580 M	51.5 M	22.7 M	6370 M
Anthracene	<16 µg/kg	TM218		191 M	<16 M	<16 M	6380 M
Fluoranthene	<17 µg/kg	TM218		705 M	89.7 M	42.3 M	28900 M
Pyrene	<15 µg/kg	TM218		550 M	76.2 M	35.5 M	21400 M
Benz(a)anthracene	<14 µg/kg	TM218		449 M	54.3 M	31.5 M	8380 M
Chrysene	<10 µg/kg	TM218		431 M	63.9 M	22.4 M	7090 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		1550 M	77.8 M	38.6 M	8880 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		410 M	29.8 M	15.3 M	3750 M
Benzo(a)pyrene	<15 µg/kg	TM218		458 M	38.4 M	27.9 M	7310 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		728 M	33.8 M	<18 M	3770 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		166 M	<23 M	<23 M	1020 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		766 M	48 M	<24 M	4430 M
Polyaromatic hydrocarbons, Total USEPA 16	<118 µg/kg	TM218		7610 M	563 M	236 M	114000 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	TP109	TP119				
Depth (m)	2.50	0.50				
Sample Type	Soil/Solid	Soil/Solid				
Date Sampled	08/07/2010	08/07/2010				
Date Received	12/07/2010	12/07/2010				
SDG Ref	100712-18	100712-18				
Lab Sample No.(s)	1804927	1805350				
AGS Reference						

Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM089	74	68				
GRO >C5-C12	<44 µg/kg	TM089	185	716				
Benzene	<10 µg/kg	TM089	<10 M	<10 M				
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M				
Toluene	<2 µg/kg	TM089	<2 M	<2 M				
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M				
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M				
m,p,o-Xylene	<10 µg/kg	TM089	<10 M	<10 M				
BTEX, Total	<10 µg/kg	TM089	<10 M	<10 M				
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5 #				
Aliphatics >C5-C6	<10 µg/kg	TM089	10.6	16.1				
Aliphatics >C6-C8	<10 µg/kg	TM089	13	22.4				
Aliphatics >C8-C10	<10 µg/kg	TM089	40.6	40.6				
Aliphatics >C10-C12	<10 µg/kg	TM089	18.6	223				
Aromatics >C6-C7	<10 µg/kg	TM089	<10	<10				
Aromatics >C7-C8	<10 µg/kg	TM089	<10	<10				
Aromatics >EC8-EC10	<10 µg/kg	TM089	60.9	60.9				
Aromatics >EC10-EC12	<10 µg/kg	TM089	27.9	335				
Total Aliphatics >C5-C12	<10 µg/kg	TM089	82.8	302				
Total Aromatics >C6-C12	<10 µg/kg	TM089	88.8	396				
Aliphatics >C12-C16	<100 µg/kg	TM173	11500	18500				
Aliphatics >C16-C21	<100 µg/kg	TM173	4610	63900				
Aliphatics >C16-C35	<100 µg/kg	TM173	207000	410000				
Aliphatics >C21-C35	<100 µg/kg	TM173	202000	346000				
Aliphatics >C35-C44	<100 µg/kg	TM173	118000	149000				
Aromatics >EC12-EC16	<100 µg/kg	TM173	3020	23200				
Aromatics >EC16-EC21	<100 µg/kg	TM173	3370	153000				
Aromatics >EC21-EC35	<100 µg/kg	TM173	24200	448000				
Aromatics >EC35-EC44	<100 µg/kg	TM173	24500	155000				
Aromatics >EC40-EC44	<100 µg/kg	TM173	12800	64000				
Total Aliphatics >C12-C44	<100 µg/kg	TM173	336000	578000				
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	55100	780000				
Total Aliphatics >C5-35	<100 µg/kg	TM173	218000	429000				
Total Aliphatics >C5-C44	<100 µg/kg	TM173	336000	578000				
Total Aromatics >C5-35	<100 µg/kg	TM173	30700	625000				
Total Aromatics >C6-C44	<100 µg/kg	TM173	55200	780000				
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173	249000	1050000				
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	391000	1360000				

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP119	TP120	TP120	TP121	TP123	TP134
			Depth (m)	3.20	0.80	3.00	0.90	2.00	0.30
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	08/07/2010	08/07/2010	08/07/2010	07/07/2010	07/07/2010	08/07/2010
			Date Received	12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010
			SDG Ref	100712-18	100712-18	100712-18	100712-18	100712-18	100712-18
			Lab Sample No.(s)	1805365	1805387	1805433	1805459	1805546	1805575
			AGS Reference						
Moisture	%	PM114		15.3			20.7	16.2	10.1
Moisture content ratio	%	PM114		18.1			26.2	19.3	11.2
Dry matter content ratio	%	PM114		84.7			79.3	83.8	90
Asbestos Containing Material Screen	-	TM001							No ACM Detected
Phenols, Total monohydric	<0.22 mg/kg	TM062 (S)		<0.22 M	<0.22 M	2.1 M		<0.22 M	
Sulphate, 2:1 water soluble	<0.003 g/l	TM098		0.348 M	1.3 M	0.0652 M		0.0421 M	
Sulphur, Total	<0.02 %	TM132		0.078 #	0.931 #	0.02 #		0.02 #	
Fraction Organic Carbon (FOC)	<0.002 -	TM132		0.0163 #	0.0524 #	0.00223 #		0.00444 #	
pH	1 pH Units	TM133		7.41 M	7.69 M	7.79 M		7.21 M	
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1 M		<1 M	
Cyanide, Free	<1 mg/kg	TM153		<1	<1	<1		<1	
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1		<1	
TPH >C6-C40	<10 mg/kg	TM154		275 #	13800 #	<10 #		<10 #	
Arsenic	<0.6 mg/kg	TM181		12.6 M	6.69 M	6.31 M		7.55 M	
Barium	<0.6 mg/kg	TM181		127 #	524 #	57.3 #		158 #	
Beryllium	<0.01 mg/kg	TM181		0.767 M	7.11 M	0.469 M		0.772 M	
Cadmium	<0.02 mg/kg	TM181		0.415 M	<0.02 M	0.198 M		0.488 M	
Chromium	<0.9 mg/kg	TM181		28.2 M	38.9 M	7.58 M		22.2 M	
Copper	<1.4 mg/kg	TM181		133 M	20.4 M	7.72 M		16.3 M	
Lead	<0.7 mg/kg	TM181		47.9 M	23.5 M	14.4 M		21.8 M	
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	<0.14 M		<0.14 M	
Nickel	<0.2 mg/kg	TM181		27.5 M	12 M	9.64 M		24 M	
Selenium	<1 mg/kg	TM181		<1 #	3.44 #	<1 #		1.58 #	
Vanadium	<0.2 mg/kg	TM181		19.6 #	39 #	14.3 #		23.5 #	
Zinc	<1.9 mg/kg	TM181		99.5 M	103 M	35.1 M		97.5 M	
Boron, water soluble	<1 mg/kg	TM222		1.08 M	3.79 M	1.95 M		3.59 M	

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP119	TP120	TP120	TP123
			Depth (m)	3.20	0.80	3.00	2.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	08/07/2010	08/07/2010	08/07/2010	07/07/2010
			Date Received	12/07/2010	12/07/2010	12/07/2010	12/07/2010
			SDG Ref	100712-18	100712-18	100712-18	100712-18
			Lab Sample No.(s)	1805365	1805387	1805433	1805546
			AGS Reference				
Naphthalene-d8 % recovery**	%	TM218		107	102	104	101
Acenaphthene-d10 % recovery**	%	TM218		106	102	105	99.6
Phenanthrene-d10 % recovery**	%	TM218		110	105	110	104
Chrysene-d12 % recovery**	%	TM218		91.5	91.8	99.6	91.4
Perylene-d12 % recovery**	%	TM218		97	98.9	116	104
Naphthalene	<9 µg/kg	TM218		104 M	244 M	13.3 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		16.3 M	2130 M	23.5 M	<12 M
Acenaphthene	<8 µg/kg	TM218		38 M	65500 M	212 M	<8 M
Fluorene	<10 µg/kg	TM218		61.3 M	12100 M	89.3 M	<10 M
Phenanthrene	<15 µg/kg	TM218		220 M	9080 M	877 M	<15 M
Anthracene	<16 µg/kg	TM218		68.1 M	5400 M	165 M	<16 M
Fluoranthene	<17 µg/kg	TM218		529 M	17900 M	1360 M	<17 M
Pyrene	<15 µg/kg	TM218		413 M	13300 M	1110 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		167 M	3030 M	472 M	<14 M
Chrysene	<10 µg/kg	TM218		169 M	3100 M	436 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		193 M	2440 M	523 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		77.1 M	1170 M	182 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		163 M	2190 M	507 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		99.2 M	865 M	239 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	314 M	57 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		126 M	1350 M	287 M	<24 M
Polyaromatic hydrocarbons, Total USEPA 16	<118 µg/kg	TM218		2440 M	140000 M	6550 M	<118 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	TP120
Depth (m)	0.80
Sample Type	Soil/Solid
Date Sampled	08/07/2010
Date Received	12/07/2010
SDG Ref	100712-18
Lab Sample No.(s)	1805387
AGS Reference	

Component	LOD/Units	Method	
GRO Surrogate % recovery**	%	TM089	17
GRO >C5-C12	<44 µg/kg	TM089	812
Benzene	<10 µg/kg	TM089	<10 M
Ethylbenzene	<3 µg/kg	TM089	<3 M
Toluene	<2 µg/kg	TM089	<2 M
m,p-Xylene	<6 µg/kg	TM089	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M
m,p,o-Xylene	<10 µg/kg	TM089	<10 M
BTEX, Total	<10 µg/kg	TM089	<10 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #
Aliphatics >C5-C6	<10 µg/kg	TM089	11.8
Aliphatics >C6-C8	<10 µg/kg	TM089	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	154
Aliphatics >C10-C12	<10 µg/kg	TM089	157
Aromatics >C6-C7	<10 µg/kg	TM089	<10
Aromatics >C7-C8	<10 µg/kg	TM089	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	232
Aromatics >EC10-EC12	<10 µg/kg	TM089	236
Total Aliphatics >C5-C12	<10 µg/kg	TM089	323
Total Aromatics >C6-C12	<10 µg/kg	TM089	467
Aliphatics >C12-C16	<100 µg/kg	TM173	203000
Aliphatics >C16-C21	<100 µg/kg	TM173	200000
Aliphatics >C16-C35	<100 µg/kg	TM173	2040000
Aliphatics >C21-C35	<100 µg/kg	TM173	1840000
Aliphatics >C35-C44	<100 µg/kg	TM173	1720000
Aromatics >EC12-EC16	<100 µg/kg	TM173	206000
Aromatics >EC16-EC21	<100 µg/kg	TM173	258000
Aromatics >EC21-EC35	<100 µg/kg	TM173	1130000
Aromatics >EC35-EC44	<100 µg/kg	TM173	1100000
Aromatics >EC40-EC44	<100 µg/kg	TM173	504000
Total Aliphatics >C12-C44	<100 µg/kg	TM173	3960000
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	2690000
Total Aliphatics >C5-35	<100 µg/kg	TM173	2240000
Total Aliphatics >C5-C44	<100 µg/kg	TM173	3960000
Total Aromatics >C5-35	<100 µg/kg	TM173	1600000
Total Aromatics >C6-C44	<100 µg/kg	TM173	2700000
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173	3840000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	6660000

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP135	TP135	TP136	TP136	TP137	TP137
			Depth (m)	0.90	3.10	0.50	1.00	0.70	2.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	08/07/2010	08/07/2010	08/07/2010	08/07/2010	08/07/2010	08/07/2010
			Date Received	12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010
			SDG Ref	100712-18	100712-18	100712-18	100712-18	100712-18	100712-18
			Lab Sample No.(s)	1805596	1805613	1805646	1805675	1805701	1805736
			AGS Reference						
Moisture	%	PM114			27.8				33.5
Moisture content ratio	%	PM114			38.5				50.4
Dry matter content ratio	%	PM114			72.2				66.5
Asbestos Containing Material Screen	-	TM001				No ACM Detected			
Phenols, Total monohydric	<0.22 mg/kg	TM062 (S)		<0.22 M	<0.22 M	<0.22 M	<0.22 M	<0.22 M	<0.22 M
Sulphate, 2:1 water soluble	<0.003 g/l	TM098		0.163 M	0.209 M	1.4 M	0.728 M	0.0309 M	0.357 M
Sulphur, Total	<0.02 %	TM132		0.105 #	0.052 #	0.234 #	0.568 #	1.07 #	
Fraction Organic Carbon (FOC)	<0.002 -	TM132		0.0384 #	0.00987 #	0.0497 #	0.233 #	0.341 #	0.169 #
pH	1 pH Units	TM133		7.93 M	5.61 M	7.72 M	5.76 M	8.33 M	3.71 M
Cyanide, Total	<1 mg/kg	TM153		17.2 M	21 M	162 M	267 M	17.1 M	22100 M
Cyanide, Free	<1 mg/kg	TM153		<1	<1	<1	5.12	<1	<1
Cyanide, Complex	<1 mg/kg	TM153		16.9	20.7	163	262	16.3	22200
TPH >C6-C40	<10 mg/kg	TM154		896 #	97 #	1830 #	1210 #	773 #	8970 #
Arsenic	<0.6 mg/kg	TM181		10 M	8.5 M	12.6 M	21.2 M	3.85 M	50.8 M
Barium	<0.6 mg/kg	TM181		357 #	183 #	221 #	251 #	195 #	12.3 #
Beryllium	<0.01 mg/kg	TM181		0.918 M	0.844 M	1.21 M	1.27 M	1.43 M	2.12 M
Cadmium	<0.02 mg/kg	TM181		2.95 M	0.146 M	0.419 M	0.181 M	0.547 M	4.11 M
Chromium	<0.9 mg/kg	TM181		15.8 M	41.6 M	14.5 M	21.1 M	10.5 M	82.2 M
Copper	<1.4 mg/kg	TM181		63.6 M	28.4 M	34.1 M	66.5 M	92.9 M	79.6 M
Lead	<0.7 mg/kg	TM181		94.9 M	48.6 M	81.2 M	128 M	19.4 M	325 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	<0.14 M	0.246 M	<0.14 M	0.671 M
Nickel	<0.2 mg/kg	TM181		14.4 M	30.2 M	19.1 M	25.2 M	21.5 M	53.6 M
Selenium	<1 mg/kg	TM181		1.62 #	1.77 #	1.02 #	1.74 #	<1 #	<10 #
Vanadium	<0.2 mg/kg	TM181		24.5 #	38.5 #	24.2 #	39 #	27.5 #	39.5 #
Zinc	<1.9 mg/kg	TM181		265 M	86 M	55.2 M	64.6 M	29.6 M	328 M
Boron, water soluble	<1 mg/kg	TM222		3.27 M	2.4 M	1.82 M	1.9 M	1.19 M	1.11 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP135	TP135	TP136	TP136	TP137	TP137
			Depth (m)	0.90	3.10	0.50	1.00	0.70	2.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	08/07/2010	08/07/2010	08/07/2010	08/07/2010	08/07/2010	08/07/2010
			Date Received	12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010
			SDG Ref	100712-18	100712-18	100712-18	100712-18	100712-18	100712-18
			Lab Sample No.(s)	1805596	1805613	1805646	1805675	1805701	1805736
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		107	111	107	114	110	106
Acenaphthene-d10 % recovery**	%	TM218		108	110	107	114	109	99.6
Phenanthrene-d10 % recovery**	%	TM218		109	113	111	115	110	103
Chrysene-d12 % recovery**	%	TM218		92.7	95.2	96.5	96.2	92.3	87.4
Perylene-d12 % recovery**	%	TM218		103	105	99.8	98.8	95.5	87.4
Naphthalene	<9 µg/kg	TM218		168 M	<9 M	1210 M	2670 M	592 M	44700 M
Acenaphthylene	<12 µg/kg	TM218		307 M	<12 M	3490 M	3350 M	608 M	6420 M
Acenaphthene	<8 µg/kg	TM218		60.8 M	<8 M	600 M	609 M	52.5 M	2170 M
Fluorene	<10 µg/kg	TM218		100 M	<10 M	2600 M	748 M	179 M	12800 M
Phenanthrene	<15 µg/kg	TM218		1140 M	<15 M	23700 M	7630 M	2320 M	193000 M
Anthracene	<16 µg/kg	TM218		474 M	<16 M	8220 M	2780 M	677 M	21400 M
Fluoranthene	<17 µg/kg	TM218		2950 M	32.4 M	40300 M	17500 M	5310 M	242000 M
Pyrene	<15 µg/kg	TM218		2490 M	28.1 M	32700 M	14800 M	5110 M	178000 M
Benz(a)anthracene	<14 µg/kg	TM218		1490 M	28.8 M	20100 M	11100 M	2500 M	65500 M
Chrysene	<10 µg/kg	TM218		1290 M	16.3 M	16700 M	10400 M	2140 M	63200 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		2010 M	26.3 M	23400 M	21300 M	3490 M	71200 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		768 M	<14 M	8650 M	8090 M	1280 M	27100 M
Benzo(a)pyrene	<15 µg/kg	TM218		1570 M	<15 M	17000 M	9860 M	2480 M	31900 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		979 M	<18 M	9360 M	9900 M	1700 M	29500 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		276 M	<23 M	3060 M	2740 M	440 M	7180 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		1210 M	<24 M	10000 M	10800 M	2080 M	31500 M
Polyaromatic hydrocarbons, Total USEPA 16	<118 µg/kg	TM218		17300 M	132 M	221000 M	134000 M	30900 M	1030000 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP135	TP137			
			Depth (m)	0.90	0.70			
			Sample Type	Soil/Solid	Soil/Solid			
			Date Sampled	08/07/2010	08/07/2010			
			Date Received	12/07/2010	12/07/2010			
			SDG Ref	100712-18	100712-18			
			Lab Sample No.(s)	1805596	1805701			
			AGS Reference					
GRO Surrogate % recovery**	%	TM089		53	51			
GRO >C5-C12	<44 µg/kg	TM089		107	4190			
Benzene	<10 µg/kg	TM089		<10 M	<10 M			
Ethylbenzene	<3 µg/kg	TM089		<3 M	24.4 M			
Toluene	<2 µg/kg	TM089		<2 M	199 M			
m,p-Xylene	<6 µg/kg	TM089		<6 M	271 M			
o-Xylene	<3 µg/kg	TM089		<3 M	248 M			
m,p,o-Xylene	<10 µg/kg	TM089		<10 M	518 M			
BTEX, Total	<10 µg/kg	TM089		<10 M	741 M			
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089		<5 #	<5 #			
Aliphatics >C5-C6	<10 µg/kg	TM089		11.4	22.7			
Aliphatics >C6-C8	<10 µg/kg	TM089		10.4	87.2			
Aliphatics >C8-C10	<10 µg/kg	TM089		15.7	309			
Aliphatics >C10-C12	<10 µg/kg	TM089		13	1030			
Aromatics >C6-C7	<10 µg/kg	TM089		<10	<10			
Aromatics >C7-C8	<10 µg/kg	TM089		<10	199			
Aromatics >EC8-EC10	<10 µg/kg	TM089		23.6	1010			
Aromatics >EC10-EC12	<10 µg/kg	TM089		19.5	1540			
Total Aliphatics >C5-C12	<10 µg/kg	TM089		50.5	1450			
Total Aromatics >C6-C12	<10 µg/kg	TM089		43	2740			
Aliphatics >C12-C16	<100 µg/kg	TM173		11900	9490			
Aliphatics >C16-C21	<100 µg/kg	TM173		20500	17900			
Aliphatics >C16-C35	<100 µg/kg	TM173		107000	47900			
Aliphatics >C21-C35	<100 µg/kg	TM173		86800	30100			
Aliphatics >C35-C44	<100 µg/kg	TM173		42600	7000			
Aromatics >EC12-EC16	<100 µg/kg	TM173		57300	11000			
Aromatics >EC16-EC21	<100 µg/kg	TM173		227000	25500			
Aromatics >EC21-EC35	<100 µg/kg	TM173		507000	53100			
Aromatics >EC35-EC44	<100 µg/kg	TM173		209000	21700			
Aromatics >EC40-EC44	<100 µg/kg	TM173		87400	9410			
Total Aliphatics >C12-C44	<100 µg/kg	TM173		162000	64400			
Total Aromatics >EC12-EC44	<100 µg/kg	TM173		1000000	111000			
Total Aliphatics >C5-35	<100 µg/kg	TM173		119000	58900			
Total Aliphatics >C5-C44	<100 µg/kg	TM173		162000	65900			
Total Aromatics >C5-35	<100 µg/kg	TM173		791000	92400			
Total Aromatics >C6-C44	<100 µg/kg	TM173		1000000	114000			
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173		910000	151000			
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173		1160000	180000			

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	TP137
Depth (m)	0.70
Sample Type	Soil/Solid
Date Sampled	08/07/2010
Date Received	12/07/2010
SDG Ref	100712-18
Lab Sample No.(s)	1805701
AGS Reference	

Component	LOD/Units	Method		
Dibromofluoromethane**	%	TM116	113	
Toluene-d8**	%	TM116	97.8	
4-Bromofluorobenzene**	%	TM116	117	
Dichlorodifluoromethane	<4 µg/kg	TM116	<4	M
Chloromethane	<7 µg/kg	TM116	<7	#
Vinyl Chloride	<10 µg/kg	TM116	<10	#
Bromomethane	<13 µg/kg	TM116	<13	M
Chloroethane	<14 µg/kg	TM116	<14	M
Trichlorofluorormethane	<6 µg/kg	TM116	<6	M
1.1-Dichloroethene	<10 µg/kg	TM116	<10	#
Carbon Disulphide	<7 µg/kg	TM116	<7	M
Dichloromethane	<10 µg/kg	TM116	<10	#
Methyl Tertiary Butyl Ether	<11 µg/kg	TM116	<11	M
trans-1-2-Dichloroethene	<11 µg/kg	TM116	<11	M
1.1-Dichloroethane	<8 µg/kg	TM116	<8	M
cis-1-2-Dichloroethene	<5 µg/kg	TM116	<5	M
2.2-Dichloropropane	<12 µg/kg	TM116	<12	M
Bromochloromethane	<14 µg/kg	TM116	<14	M
Chloroform	<8 µg/kg	TM116	<8	M
1.1.1-Trichloroethane	<7 µg/kg	TM116	<7	M
1.1-Dichloropropene	<11 µg/kg	TM116	<11	M
Carbontetrachloride	<14 µg/kg	TM116	<14	M
1.2-Dichloroethane	<5 µg/kg	TM116	<5	M
Benzene	<9 µg/kg	TM116	34.8	M
Trichloroethene	<9 µg/kg	TM116	<9	M
1.2-Dichloropropane	<12 µg/kg	TM116	<12	M
Dibromomethane	<9 µg/kg	TM116	<9	M
Bromodichloromethane	<7 µg/kg	TM116	<7	M
cis-1-3-Dichloropropene	<14 µg/kg	TM116	<14	M
Toluene	<5 µg/kg	TM116	634	M
trans-1-3-Dichloropropene	<14 µg/kg	TM116	<14	
1.1.2-Trichloroethane	<10 µg/kg	TM116	<10	M
1.3-Dichloropropane	<7 µg/kg	TM116	<7	#
Tetrachloroethene	<5 µg/kg	TM116	<5	M
Dibromochloromethane	<13 µg/kg	TM116	<13	M
1.2-Dibromoethane	<12 µg/kg	TM116	<12	M
Chorobenzene	<5 µg/kg	TM116	<5	M
1.1.1.2-Tetrachloroethane	<10 µg/kg	TM116	<10	M
Ethylbenzene	<4 µg/kg	TM116	69.4	M

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	TP137
			Depth (m)	0.70
			Sample Type	Soil/Solid
			Date Sampled	08/07/2010
			Date Received	12/07/2010
			SDG Ref	100712-18
			Lab Sample No.(s)	1805701
			AGS Reference	
p/m-Xylene	<14 µg/kg	TM116		572 #
o-Xylene	<10 µg/kg	TM116		397 M
Styrene	<10 µg/kg	TM116		<10 M
Bromoform	<10 µg/kg	TM116		<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 M
1.1.2.2-Tetrachloroethane	<10 µg/kg	TM116		<10 #
1.2.3-Trichloropropane	<17 µg/kg	TM116		<17 M
Bromobenzene	<10 µg/kg	TM116		<10 M
Propylbenzene	<11 µg/kg	TM116		20.3 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M
1.3.5-Trimethylbenzene	<8 µg/kg	TM116		112 #
4-Chlorotoluene	<12 µg/kg	TM116		<12 M
tert-Butylbenzene	<12 µg/kg	TM116		<12 #
1.2.4-Trimethylbenzene	<9 µg/kg	TM116		353 #
sec-Butylbenzene	<10 µg/kg	TM116		<10 M
4-Isopropyltoluene	<11 µg/kg	TM116		<11 M
1.3-Dichlorobenzene	<6 µg/kg	TM116		<6 M
1.4-Dichlorobenzene	<5 µg/kg	TM116		<5 M
n-Butylbenzene	<10 µg/kg	TM116		<10 M
1.2-Dichlorobenzene	<12 µg/kg	TM116		<12 M
1.2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M
Tert-amyl methyl ether	<15 µg/kg	TM116		<15
1.2.4-Trichlorobenzene	<6 µg/kg	TM116		<6 #
Hexachlorobutadiene	<12 µg/kg	TM116		<12 M
Naphthalene	<13 µg/kg	TM116		170 M
1.2.3-Trichlorobenzene	<6 µg/kg	TM116		<6 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	WS3	WS3	WS4	WS4	WS5	WS6
Customer Sample Ref.			WS3	WS3	WS4	WS4	WS5	WS6
Depth (m)			0.10 - 0.90	1.20 - 2.00	0.10 - 0.50	1.00 - 1.50	0.10 - 1.00	0.30 - 1.00
Sample Type			Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
Date Sampled			07/07/2010	07/07/2010	07/07/2010	07/07/2010	07/07/2010	07/07/2010
Date Received			12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010
SDG Ref			100712-18	100712-18	100712-18	100712-18	100712-18	100712-18
Lab Sample No.(s)			1805932	1806100	1806152	1806221	1806285	1806302
AGS Reference								
Moisture	%	PM114	6.8		11.4			11
Moisture content ratio	%	PM114	7.3		12.8			12.3
Dry matter content ratio	%	PM114	93.2		88.7			89
Asbestos Containing Material Screen	-	TM001	No ACM Detected					No ACM Detected
Phenols, Total monohydric	<0.22 mg/kg	TM062 (S)	<0.22 M	<0.22 M	<0.22 M	<0.22 M	<0.22 M	<0.22 M
Sulphate, 2:1 water soluble	<0.003 g/l	TM098	0.0772 M	0.198 M	0.0868 M	0.298 M	0.0341 M	0.0922 M
Sulphur, Total	<0.02 %	TM132	0.238 #	0.112 #	0.152 #	0.54 #	0.274 #	0.312 #
Fraction Organic Carbon (FOC)	<0.002 -	TM132	0.0155 #	0.0211 #	0.0925 #	0.0386 #	0.197 #	0.236 #
pH	1 pH Units	TM133	8.52 M	7.85 M	8.11 M	6.81 M	8.44 M	8.11 M
Cyanide, Total	<1 mg/kg	TM153	3.74 M	8.06 M	6.9 M	194 M	10.8 M	17.1 M
Cyanide, Free	<1 mg/kg	TM153	<1	<1	<1	<1	<1	<1
Cyanide, Complex	<1 mg/kg	TM153	3.77	9.15	6.83	194	10.4	16.5
TPH >C6-C40	<10 mg/kg	TM154	3710 #	1170 #	2640 #	1080 #	789 #	3090 #
Arsenic	<0.6 mg/kg	TM181	2.21 M	11.4 M	6.28 M	9.33 M	18.9 M	14.2 M
Barium	<0.6 mg/kg	TM181	364 #	182 #	246 #	212 #	340 #	247 #
Beryllium	<0.01 mg/kg	TM181	3.22 M	0.723 M	0.953 M	1.25 M	1.61 M	3 M
Cadmium	<0.02 mg/kg	TM181	0.726 M	0.768 M	2.93 M	0.389 M	0.31 M	0.737 M
Chromium	<0.9 mg/kg	TM181	28 M	15.9 M	13.7 M	35.1 M	21.2 M	19.8 M
Copper	<1.4 mg/kg	TM181	14.8 M	38 M	36.3 M	27 M	88.8 M	94.4 M
Lead	<0.7 mg/kg	TM181	18.1 M	146 M	41 M	123 M	121 M	119 M
Mercury	<0.14 mg/kg	TM181	<0.14 M	0.147 M	<0.14 M	<0.14 M	<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181	3.94 M	14.7 M	19.7 M	33 M	45.6 M	36.6 M
Selenium	<1 mg/kg	TM181	1.48 #	<1 #	<1 #	1.56 #	<10 #	2.01 #
Vanadium	<0.2 mg/kg	TM181	45.2 #	24.3 #	28.4 #	33.3 #	47.4 #	45.6 #
Zinc	<1.9 mg/kg	TM181	50.3 M	132 M	65.7 M	83.7 M	79.4 M	88.3 M
Boron, water soluble	<1 mg/kg	TM222	1 M	2.64 M	<1 M	1.68 M	<1 M	1.37 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	WS3	WS3	WS4	WS4	WS5	WS6
			Depth (m)	0.10 - 0.90	1.20 - 2.00	0.10 - 0.50	1.00 - 1.50	0.10 - 1.00	0.30 - 1.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	07/07/2010	07/07/2010	07/07/2010	07/07/2010	07/07/2010	07/07/2010
			Date Received	12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010	12/07/2010
			SDG Ref	100712-18	100712-18	100712-18	100712-18	100712-18	100712-18
			Lab Sample No.(s)	1805932	1806100	1806152	1806221	1806285	1806302
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		105	111	103	110	109	55.6
Acenaphthene-d10 % recovery**	%	TM218		103	111	102	110	109	56
Phenanthrene-d10 % recovery**	%	TM218		106	114	102	113	112	58.5
Chrysene-d12 % recovery**	%	TM218		91.8	97	84.7	102	99.2	51.5
Perylene-d12 % recovery**	%	TM218		102	106	89.4	113	107	54.7
Naphthalene	<9 µg/kg	TM218		140 M	261 M	657 M	412 M	1350 M	3160 M
Acenaphthylene	<12 µg/kg	TM218		694 M	610 M	1010 M	1430 M	2860 M	1450 M
Acenaphthene	<8 µg/kg	TM218		1340 M	210 M	283 M	407 M	336 M	2970 M
Fluorene	<10 µg/kg	TM218		933 M	412 M	309 M	1740 M	696 M	3760 M
Phenanthrene	<15 µg/kg	TM218		7480 M	2960 M	5460 M	11000 M	10500 M	106000 M
Anthracene	<16 µg/kg	TM218		2710 M	1490 M	2060 M	4320 M	4400 M	23400 M
Fluoranthene	<17 µg/kg	TM218		11500 M	13300 M	16800 M	23300 M	28900 M	178000 M
Pyrene	<15 µg/kg	TM218		12500 M	10700 M	14400 M	18000 M	25400 M	132000 M
Benz(a)anthracene	<14 µg/kg	TM218		4160 M	6320 M	7280 M	12400 M	17700 M	64100 M
Chrysene	<10 µg/kg	TM218		3760 M	5840 M	6660 M	8760 M	14600 M	62200 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		12100 M	8740 M	11200 M	11100 M	24900 M	84600 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		4040 M	3430 M	4340 M	3990 M	9000 M	29300 M
Benzo(a)pyrene	<15 µg/kg	TM218		11100 M	7090 M	8600 M	8620 M	19000 M	52100 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		7260 M	4310 M	6240 M	3470 M	12900 M	36600 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		1700 M	1210 M	1550 M	1310 M	3570 M	8900 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		10500 M	5150 M	7560 M	3390 M	14100 M	42600 M
Polyaromatic hydrocarbons, Total USEPA 16	<118 µg/kg	TM218		91900 M	72100 M	94400 M	114000 M	190000 M	830000 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	WS4	WS6
			Depth (m)	1.00 - 1.50	0.30 - 1.00
			Sample Type	Soil/Solid	Soil/Solid
			Date Sampled	07/07/2010	07/07/2010
			Date Received	12/07/2010	12/07/2010
			SDG Ref	100712-18	100712-18
			Lab Sample No.(s)	1806221	1806302
			AGS Reference		
GRO Surrogate % recovery**	%	TM089		68	27
GRO >C5-C12	<44 µg/kg	TM089		486	142
Benzene	<10 µg/kg	TM089		12 M	<10 M
Ethylbenzene	<3 µg/kg	TM089		<3 M	<3 M
Toluene	<2 µg/kg	TM089		<2 M	<2 M
m,p-Xylene	<6 µg/kg	TM089		<6 M	<6 M
o-Xylene	<3 µg/kg	TM089		<3 M	<3 M
m,p,o-Xylene	<10 µg/kg	TM089		<10 M	<10 M
BTEX, Total	<10 µg/kg	TM089		12 M	<10 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089		<5 #	<5 #
Aliphatics >C5-C6	<10 µg/kg	TM089		16.2	13
Aliphatics >C6-C8	<10 µg/kg	TM089		219	23.9
Aliphatics >C8-C10	<10 µg/kg	TM089		45.3	14.9
Aliphatics >C10-C12	<10 µg/kg	TM089		50.3	21.6
Aromatics >C6-C7	<10 µg/kg	TM089		12	<10
Aromatics >C7-C8	<10 µg/kg	TM089		<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		67.9	22.4
Aromatics >EC10-EC12	<10 µg/kg	TM089		75.4	32.4
Total Aliphatics >C5-C12	<10 µg/kg	TM089		331	73.4
Total Aromatics >C6-C12	<10 µg/kg	TM089		155	54.8
Aliphatics >C12-C16	<100 µg/kg	TM173		19700	15900
Aliphatics >C16-C21	<100 µg/kg	TM173		28200	25700
Aliphatics >C16-C35	<100 µg/kg	TM173		85600	95000
Aliphatics >C21-C35	<100 µg/kg	TM173		57400	69200
Aliphatics >C35-C44	<100 µg/kg	TM173		23900	38800
Aromatics >EC12-EC16	<100 µg/kg	TM173		38700	25200
Aromatics >EC16-EC21	<100 µg/kg	TM173		345000	663000
Aromatics >EC21-EC35	<100 µg/kg	TM173		800000	1070000
Aromatics >EC35-EC44	<100 µg/kg	TM173		191000	279000
Aromatics >EC40-EC44	<100 µg/kg	TM173		66400	97800
Total Aliphatics >C12-C44	<100 µg/kg	TM173		129000	150000
Total Aromatics >EC12-EC44	<100 µg/kg	TM173		1370000	2040000
Total Aliphatics >C5-35	<100 µg/kg	TM173		106000	111000
Total Aliphatics >C5-C44	<100 µg/kg	TM173		130000	150000
Total Aromatics >C5-35	<100 µg/kg	TM173		1180000	1760000
Total Aromatics >C6-C44	<100 µg/kg	TM173		1370000	2040000
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173		1290000	1870000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173		1500000	2190000

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	WS7		
Depth (m)	1.60 - 2.00		
Sample Type	Soil/Solid		
Date Sampled	07/07/2010		
Date Received	12/07/2010		
SDG Ref	100712-18		
Lab Sample No.(s)	1806335		
AGS Reference			

Component	LOD/Units	Method					
Phenols, Total monohydric	<0.22 mg/kg	TM062 (S)	<0.22 M				
Sulphate, 2:1 water soluble	<0.003 g/l	TM098	1.44 M				
Sulphur, Total	<0.02 %	TM132	0.526 #				
Fraction Organic Carbon (FOC)	<0.002 -	TM132	0.00446 #				
pH	1 pH Units	TM133	7.75 M				
Cyanide, Total	<1 mg/kg	TM153	18.4 M				
Cyanide, Free	<1 mg/kg	TM153	<1				
Cyanide, Complex	<1 mg/kg	TM153	18.4				
TPH >C6-C40	<10 mg/kg	TM154	<10 #				
Arsenic	<0.6 mg/kg	TM181	44.2 M				
Barium	<0.6 mg/kg	TM181	65.3 #				
Beryllium	<0.01 mg/kg	TM181	0.686 M				
Cadmium	<0.02 mg/kg	TM181	0.124 M				
Chromium	<0.9 mg/kg	TM181	28.4 M				
Copper	<1.4 mg/kg	TM181	13.6 M				
Lead	<0.7 mg/kg	TM181	32.2 M				
Mercury	<0.14 mg/kg	TM181	<0.14 M				
Nickel	<0.2 mg/kg	TM181	19 M				
Selenium	<1 mg/kg	TM181	1.39 #				
Vanadium	<0.2 mg/kg	TM181	29 #				
Zinc	<1.9 mg/kg	TM181	50.2 M				
Boron, water soluble	<1 mg/kg	TM222	<1 M				

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	WS7
			Depth (m)	1.60 - 2.00
			Sample Type	Soil/Solid
			Date Sampled	07/07/2010
			Date Received	12/07/2010
			SDG Ref	100712-18
			Lab Sample No.(s)	1806335
			AGS Reference	
Naphthalene-d8 % recovery**	%	TM218		113
Acenaphthene-d10 % recovery**	%	TM218		113
Phenanthrene-d10 % recovery**	%	TM218		115
Chrysene-d12 % recovery**	%	TM218		102
Perylene-d12 % recovery**	%	TM218		112
Naphthalene	<9 µg/kg	TM218		12.5 M
Acenaphthylene	<12 µg/kg	TM218		<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M
Fluorene	<10 µg/kg	TM218		<10 M
Phenanthrene	<15 µg/kg	TM218		58.6 M
Anthracene	<16 µg/kg	TM218		<16 M
Fluoranthene	<17 µg/kg	TM218		105 M
Pyrene	<15 µg/kg	TM218		74.8 M
Benz(a)anthracene	<14 µg/kg	TM218		62.4 M
Chrysene	<10 µg/kg	TM218		71.4 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		116 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		40.3 M
Benzo(a)pyrene	<15 µg/kg	TM218		39.2 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		28.9 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		33.1 M
Polyaromatic hydrocarbons, Total USEPA 16	<118 µg/kg	TM218		643 M

Validated

ALcontrol Laboratories Analytical Services

SDG	100712-18	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-84	**Attention:**	Richard Robinson
Client Reference:		**Order No.:**	NE09/616
Location:	THE DOVE WAY-NTE285	**Report No:**	93287

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Customer Sample Ref.	WS7
Depth (m)	1.60 - 2.00
Sample Type	Soil/Solid
Date Sampled	07/07/2010
Date Received	12/07/2010
SDG Ref	100712-18
Lab Sample No.(s)	1806335
AGS Reference	

Component	LOD/Units	Method	
GRO Surrogate % recovery**	%	TM089	126
GRO >C5-C12	<44 µg/kg	TM089	<44
Benzene	<10 µg/kg	TM089	<10 M
Ethylbenzene	<3 µg/kg	TM089	<3 M
Toluene	<2 µg/kg	TM089	<2 M
m,p-Xylene	<6 µg/kg	TM089	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M
m,p,o-Xylene	<10 µg/kg	TM089	<10 M
BTEX, Total	<10 µg/kg	TM089	<10 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #
Aliphatics >C5-C6	<10 µg/kg	TM089	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10
Aromatics >C6-C7	<10 µg/kg	TM089	<10
Aromatics >C7-C8	<10 µg/kg	TM089	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10
Total Aliphatics >C5-C12	<10 µg/kg	TM089	<10
Total Aromatics >C6-C12	<10 µg/kg	TM089	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	1410
Aliphatics >C16-C21	<100 µg/kg	TM173	1370
Aliphatics >C16-C35	<100 µg/kg	TM173	5180
Aliphatics >C21-C35	<100 µg/kg	TM173	3800
Aliphatics >C35-C44	<100 µg/kg	TM173	1670
Aromatics >EC12-EC16	<100 µg/kg	TM173	2100
Aromatics >EC16-EC21	<100 µg/kg	TM173	13800
Aromatics >EC21-EC35	<100 µg/kg	TM173	26700
Aromatics >EC35-EC44	<100 µg/kg	TM173	8900
Aromatics >EC40-EC44	<100 µg/kg	TM173	3540
Total Aliphatics >C12-C44	<100 µg/kg	TM173	8260
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	51500
Total Aliphatics >C5-35	<100 µg/kg	TM173	6590
Total Aliphatics >C5-C44	<100 µg/kg	TM173	8260
Total Aromatics >C5-35	<100 µg/kg	TM173	42600
Total Aromatics >C6-C44	<100 µg/kg	TM173	51500
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173	49200
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	59800

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.237	**Moisture Content Ratio (%)**	35.4
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	73.9
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1805100			
Sampled Date	08-Jul-2010			
Customer Sample Ref.	TP117			
Depth (m)	1.80			

Solid Waste Analysis

Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^n in 2:1 eluate (mg/l) C_2**		**2:1 conc^n leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00176	<0.00012	0.00352	<0.0012	-	-	-
Barium	0.0487	<0.00003	0.0974	<0.0003	-	-	-
Cadmium	0.000209	<0.0001	0.000418	<0.001	-	-	-
Chromium	0.00184	<0.00022	0.00368	<0.0022	-	-	-
Copper	0.00858	<0.00085	0.0172	<0.0085	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.00313	<0.00015	0.00626	<0.0015	-	-	-
Lead	0.00248	<0.00002	0.00496	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.000887	<0.00039	0.00177	<0.0039	-	-	-
Zinc	0.0121	<0.00041	0.0242	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	90	<3	180	<3	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared	17-Jul-2010
pH (pH Units)	7.10
Conductivity (µS/cm)	267.00
Temperature (ºC)	21.10
Volume Leachant (Litres)	0.288
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.237	**Moisture Content Ratio (%)**	35.4
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	73.9
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1805100			
Sampled Date	08-Jul-2010			
Customer Sample Ref.	TP117			
Depth (m)	1.80			

Solid Waste Analysis

Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^{n} in 2:1 eluate (mg/l) C_2**		**2:1 conc^{n} leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Beryllium	0.000081	<0.00007	0.000162	<0.0007	-	-	-
Boron	0.301	<0.0094	0.602	<0.094	-	-	-
pH	7.5	<0.001	15	<0.01	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.1	<0.05	-	-	-
Vanadium	0.00182	<0.00024	0.00364	<0.0024	-	-	-

Leach Test Information

Date Prepared	17-Jul-2010
pH (pH Units)	7.10
Conductivity (µS/cm)	267.00
Temperature (ºC)	21.10
Volume Leachant (Litres)	0.288
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.207	**Moisture Content Ratio (%)**	18.1
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	84.7
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1805365			
Sampled Date	08-Jul-2010			
Customer Sample Ref.	TP119			
Depth (m)	3.20			

Solid Waste Analysis

Total Organic Carbon (%)	1.63	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	7.41	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^n in 2:1 eluate (mg/l) C_2**		**2:1 conc^n leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00236	<0.00012	0.00472	<0.0012	-	-	-
Barium	0.0737	<0.00003	0.147	<0.0003	-	-	-
Cadmium	<0.0001	<0.0001	<0.0002	<0.001	-	-	-
Chromium	0.00279	<0.00022	0.00558	<0.0022	-	-	-
Copper	0.00502	<0.00085	0.01	<0.0085	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.0146	<0.00015	0.0292	<0.0015	-	-	-
Lead	0.000404	<0.00002	0.000808	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.00167	<0.00039	0.00334	<0.0039	-	-	-
Zinc	0.00989	<0.00041	0.0198	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	1080	<15	2160	<15	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	7.67
Conductivity (µS/cm)	1,850.00
Temperature (ºC)	20.20
Volume Leachant (Litres)	0.318
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.207	**Moisture Content Ratio (%)**	18.1
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	84.7
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1805365			
Sampled Date	08-Jul-2010			
Customer Sample Ref.	TP119			
Depth (m)	3.20			

Solid Waste Analysis

Total Organic Carbon (%)	1.63	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	7.41	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Concⁿ in 2:1 eluate (mg/l) C_2**		**2:1 concⁿ leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Beryllium	<0.00007	<0.00007	<0.00014	<0.0007	-	-	-
Boron	0.793	<0.0094	1.59	<0.094	-	-	-
pH	8.1	<0.001	16	<0.01	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.1	<0.05	-	-	-
Vanadium	0.00131	<0.00024	0.00262	<0.0024	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	7.67
Conductivity (µS/cm)	1,850.00
Temperature (ºC)	20.20
Volume Leachant (Litres)	0.318
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

ALcontrol Laboratories Analytical Services

ALcontrol Laboratories

CEN 2:1 ONE STAGE BATCH TEST

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.220	**Moisture Content Ratio (%)**	26.2
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	79.3
Particle Size <4mm	>95%		

Case	
SDG	100712-18
Lab Sample Number(s)	1805459
Sampled Date	07-Jul-2010
Customer Sample Ref.	TP121
Depth (m)	0.90

Solid Waste Analysis

Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^{n} in 2:1 eluate (mg/l) C_2		2:1 conc^{n} leached (mg/kg) A_2		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.00118	<0.00012	0.00236	<0.0012	-	-	-
Barium	0.0774	<0.00003	0.155	<0.0003	-	-	-
Cadmium	0.000184	<0.0001	0.000368	<0.001	-	-	-
Chromium	0.0117	<0.00022	0.0234	<0.0022	-	-	-
Copper	0.0172	<0.00085	0.0344	<0.0085	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.00375	<0.00015	0.0075	<0.0015	-	-	-
Lead	0.00103	<0.00002	0.00206	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.00101	<0.00039	0.00202	<0.0039	-	-	-
Zinc	0.0111	<0.00041	0.0222	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	74.4	<3	149	<3	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	8.13
Conductivity (µS/cm)	413.00
Temperature (ºC)	20.80
Volume Leachant (Litres)	0.304
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

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Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.220	**Moisture Content Ratio (%)**	26.2
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	79.3
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1805459			
Sampled Date	07-Jul-2010			
Customer Sample Ref.	TP121			
Depth (m)	0.90			

Solid Waste Analysis

Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^{n} in 2:1 eluate (mg/l) C_2**		**2:1 conc^{n} leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Beryllium	<0.00007	<0.00007	<0.00014	<0.0007	-	-	-
Boron	0.343	<0.0094	0.686	<0.094	-	-	-
pH	8.4	<0.001	17	<0.01	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.1	<0.05	-	-	-
Vanadium	0.00168	<0.00024	0.00336	<0.0024	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	8.13
Conductivity (µS/cm)	413.00
Temperature (ºC)	20.80
Volume Leachant (Litres)	0.304
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

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ALcontrol Laboratories

CEN 2:1 ONE STAGE BATCH TEST

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.209	**Moisture Content Ratio (%)**	19.3
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	83.8
Particle Size <4mm	>95%		

Case	
SDG	100712-18
Lab Sample Number(s)	1805546
Sampled Date	07-Jul-2010
Customer Sample Ref.	TP123
Depth (m)	2.00

Solid Waste Analysis

Total Organic Carbon (%)	0.444	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	7.21	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^n in 2:1 eluate (mg/l) C_2		2:1 conc^n leached (mg/kg) A_2		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.00168	<0.00012	0.00336	<0.0012	-	-	-
Barium	0.0758	<0.00003	0.152	<0.0003	-	-	-
Cadmium	<0.0001	<0.0001	<0.0002	<0.001	-	-	-
Chromium	0.00274	<0.00022	0.00548	<0.0022	-	-	-
Copper	0.00765	<0.00085	0.0153	<0.0085	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.00293	<0.00015	0.00586	<0.0015	-	-	-
Lead	0.000655	<0.00002	0.00131	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.00142	<0.00039	0.00284	<0.0039	-	-	-
Zinc	0.00749	<0.00041	0.015	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	43.2	<3	86.4	<3	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	7.64
Conductivity (µS/cm)	165.00
Temperature (ºC)	19.60
Volume Leachant (Litres)	0.316
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

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Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.209	**Moisture Content Ratio (%)**	19.3
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	83.8
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1805546			
Sampled Date	07-Jul-2010			
Customer Sample Ref.	TP123			
Depth (m)	2.00			

Solid Waste Analysis

Total Organic Carbon (%)	0.444	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	7.21	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^n in 2:1 eluate (mg/l) C_2**		**2:1 conc^n leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Beryllium	0.000092	<0.00007	0.000184	<0.0007	-	-	-
Boron	0.922	<0.0094	1.84	<0.094	-	-	-
pH	8	<0.001	16	<0.01	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.1	<0.05	-	-	-
Vanadium	0.00331	<0.00024	0.00662	<0.0024	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	7.64
Conductivity (µS/cm)	165.00
Temperature (ºC)	19.60
Volume Leachant (Litres)	0.316
Volume of Eluate VE1 (Litres)	

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REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.194	**Moisture Content Ratio (%)**	11.2
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	90.0
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1805575			
Sampled Date	08-Jul-2010			
Customer Sample Ref.	TP134			
Depth (m)	0.30			

Solid Waste Analysis

Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^n in 2:1 eluate (mg/l) C_2**		**2:1 conc^n leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00586	<0.00012	0.0117	<0.0012	-	-	-
Barium	0.0127	<0.00003	0.0254	<0.0003	-	-	-
Cadmium	0.000129	<0.0001	0.000258	<0.001	-	-	-
Chromium	0.00237	<0.00022	0.00474	<0.0022	-	-	-
Copper	0.0159	<0.00085	0.0318	<0.0085	-	-	-
Mercury Dissolved (CVAF)	0.0000372	<0.00001	0.0000744	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.00241	<0.00015	0.00482	<0.0015	-	-	-
Lead	0.00157	<0.00002	0.00314	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.00195	<0.00039	0.0039	<0.0039	-	-	-
Zinc	0.00408	<0.00041	0.00816	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	<3	<3	<6	<3	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	8.35
Conductivity (µS/cm)	251.00
Temperature (ºC)	18.20
Volume Leachant (Litres)	0.330
Volume of Eluate VE1 (Litres)	

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Mcerts Certification does not apply to leachates

ALcontrol Laboratories Analytical Services

CEN 2:1 ONE STAGE BATCH TEST

ALcontrol Laboratories

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.194	**Moisture Content Ratio (%)**	11.2
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	90.0
Particle Size <4mm	>95%		

Case	
SDG	100712-18
Lab Sample Number(s)	1805575
Sampled Date	08-Jul-2010
Customer Sample Ref.	TP134
Depth (m)	0.30

Solid Waste Analysis

Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^n in 2:1 eluate (mg/l) C_2		2:1 conc^n leached (mg/kg) A_2		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Beryllium	0.000143	<0.00007	0.000286	<0.0007	-	-	-
Boron	0.0419	<0.0094	0.0838	<0.094	-	-	-
pH	8.5	<0.001	17	<0.01	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.1	<0.05	-	-	-
Vanadium	0.00471	<0.00024	0.00942	<0.0024	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	8.35
Conductivity (µS/cm)	251.00
Temperature (ºC)	18.20
Volume Leachant (Litres)	0.330
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

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ALcontrol Laboratories Analytical Services

CEN 2:1 ONE STAGE BATCH TEST

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.242	**Moisture Content Ratio (%)**	38.5
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	72.2
Particle Size <4mm	>95%		

Case	
SDG	100712-18
Lab Sample Number(s)	1805613
Sampled Date	08-Jul-2010
Customer Sample Ref.	TP135
Depth (m)	3.10

Solid Waste Analysis

Total Organic Carbon (%)	0.987	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	5.61	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^n in 2:1 eluate (mg/l) C_2**		**2:1 conc^n leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00381	<0.00012	0.00762	<0.0012	-	-	-
Barium	0.0418	<0.00003	0.0836	<0.0003	-	-	-
Cadmium	<0.0001	<0.0001	<0.0002	<0.001	-	-	-
Chromium	0.0024	<0.00022	0.0048	<0.0022	-	-	-
Copper	0.00658	<0.00085	0.0132	<0.0085	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.00226	<0.00015	0.00452	<0.0015	-	-	-
Lead	0.00254	<0.00002	0.00508	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.00188	<0.00039	0.00376	<0.0039	-	-	-
Zinc	0.0166	<0.00041	0.0332	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	234	<3	468	<3	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	6.24
Conductivity (µS/cm)	459.00
Temperature (ºC)	16.60
Volume Leachant (Litres)	0.283
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.242	**Moisture Content Ratio (%)**	38.5
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	72.2
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1805613			
Sampled Date	08-Jul-2010			
Customer Sample Ref.	TP135			
Depth (m)	3.10			

Solid Waste Analysis

Total Organic Carbon (%)	0.987	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	5.61	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^n in 2:1 eluate (mg/l) C_2**		**2:1 conc^n leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Beryllium	0.000083	<0.00007	0.000166	<0.0007	-	-	-
Boron	0.667	<0.0094	1.33	<0.094	-	-	-
pH	7.3	<0.001	15	<0.01	-	-	-
Total Cyanide (W)	0.25	<0.05	0.5	<0.05	-	-	-
Vanadium	0.00164	<0.00024	0.00328	<0.0024	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	6.24
Conductivity (µS/cm)	459.00
Temperature (ºC)	16.60
Volume Leachant (Litres)	0.283
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

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ALcontrol Laboratories Analytical Services

CEN 2:1 ONE STAGE BATCH TEST

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.264	**Moisture Content Ratio (%)**	50.4
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	66.5
Particle Size <4mm	>95%		

Case	
SDG	100712-18
Lab Sample Number(s)	1805736
Sampled Date	08-Jul-2010
Customer Sample Ref.	TP137
Depth (m)	2.00

Solid Waste Analysis

Total Organic Carbon (%)	16.9	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	3.71	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^n in 2:1 eluate (mg/l) C_2		2:1 conc^n leached (mg/kg) A_2		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.00339	<0.00012	0.00678	<0.0012	-	-	-
Barium	0.0338	<0.00003	0.0676	<0.0003	-	-	-
Cadmium	<0.0001	<0.0001	<0.0002	<0.001	-	-	-
Chromium	0.000715	<0.00022	0.00143	<0.0022	-	-	-
Copper	0.00594	<0.00085	0.0119	<0.0085	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.0014	<0.00015	0.0028	<0.0015	-	-	-
Lead	0.00155	<0.00002	0.0031	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.000833	<0.00039	0.00167	<0.0039	-	-	-
Zinc	0.0155	<0.00041	0.031	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	404	<3	808	<3	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	6.28
Conductivity (µS/cm)	803.00
Temperature (ºC)	20.10
Volume Leachant (Litres)	0.262
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

ALcontrol Laboratories

CEN 2:1 ONE STAGE BATCH TEST

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.264	**Moisture Content Ratio (%)**	50.4
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	66.5
Particle Size <4mm	>95%		

Case	
SDG	100712-18
Lab Sample Number(s)	1805736
Sampled Date	08-Jul-2010
Customer Sample Ref.	TP137
Depth (m)	2.00

Solid Waste Analysis

Total Organic Carbon (%)	16.9	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	3.71	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^{n} in 2:1 eluate (mg/l) C_2		2:1 conc^{n} leached (mg/kg) A_2		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Beryllium	<0.00007	<0.00007	<0.00014	<0.0007	-	-	-
Boron	0.104	<0.0094	0.208	<0.094	-	-	-
pH	6.7	<0.001	13	<0.01	-	-	-
Total Cyanide (W)	2.36	<0.05	4.72	<0.05	-	-	-
Vanadium	0.000799	<0.00024	0.0016	<0.0024	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	6.28
Conductivity (µS/cm)	803.00
Temperature (ºC)	20.10
Volume Leachant (Litres)	0.262
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

V1.5

ALcontrol Laboratories Analytical Services

ALcontrol Laboratories

CEN 2:1 ONE STAGE BATCH TEST

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.188	**Moisture Content Ratio (%)**	7.30
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	93.2
Particle Size <4mm	>95%		

Case	
SDG	100712-18
Lab Sample Number(s)	1805932
Sampled Date	07-Jul-2010
Customer Sample Ref.	WS3
Depth (m)	0.10 - 0.90

Solid Waste Analysis

Total Organic Carbon (%)	1.55	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	8.52	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^{n} in 2:1 eluate (mg/l) C_2		2:1 conc^{n} leached (mg/kg) A_2		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.00581	<0.00012	0.0116	<0.0012	-	-	-
Barium	0.0726	<0.00003	0.145	<0.0003	-	-	-
Cadmium	<0.0001	<0.0001	<0.0002	<0.001	-	-	-
Chromium	0.00353	<0.00022	0.00706	<0.0022	-	-	-
Copper	0.018	<0.00085	0.036	<0.0085	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.00545	<0.00015	0.0109	<0.0015	-	-	-
Lead	0.000735	<0.00002	0.00147	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.00702	<0.00039	0.014	<0.0039	-	-	-
Zinc	0.00418	<0.00041	0.00836	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	257	<3	514	<3	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	7.99
Conductivity (µS/cm)	708.00
Temperature (ºC)	20.00
Volume Leachant (Litres)	0.337
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.188	**Moisture Content Ratio (%)**	7.30
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	93.2
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1805932			
Sampled Date	07-Jul-2010			
Customer Sample Ref.	WS3			
Depth (m)	0.10 - 0.90			

Solid Waste Analysis

Total Organic Carbon (%)	1.55	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	8.52	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^n in 2:1 eluate (mg/l) C_2**		**2:1 conc^n leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Beryllium	<0.00007	<0.00007	<0.00014	<0.0007	-	-	-
Boron	0.396	<0.0094	0.792	<0.094	-	-	-
pH	8.4	<0.001	17	<0.01	-	-	-
Total Cyanide (W)	0.09	<0.05	0.18	<0.05	-	-	-
Vanadium	0.013	<0.00024	0.026	<0.0024	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	7.99
Conductivity (µS/cm)	708.00
Temperature (ºC)	20.00
Volume Leachant (Litres)	0.337
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

ALcontrol Laboratories Analytical Services

CEN 2:1 ONE STAGE BATCH TEST

ALcontrol Laboratories

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.197	**Moisture Content Ratio (%)**	12.8
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	88.7
Particle Size <4mm	>95%		

Case	
SDG	100712-18
Lab Sample Number(s)	1806152
Sampled Date	07-Jul-2010
Customer Sample Ref.	WS4
Depth (m)	0.10 - 0.50

Solid Waste Analysis

Total Organic Carbon (%)	9.25	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	8.11	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	Conc^{n} in 2:1 eluate (mg/l) C_2		2:1 conc^{n} leached (mg/kg) A_2		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.00263	<0.00012	0.00526	<0.0012	-	-	-
Barium	0.0615	<0.00003	0.123	<0.0003	-	-	-
Cadmium	0.000347	<0.0001	0.000694	<0.001	-	-	-
Chromium	0.00581	<0.00022	0.0116	<0.0022	-	-	-
Copper	0.0126	<0.00085	0.0252	<0.0085	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.00407	<0.00015	0.00814	<0.0015	-	-	-
Lead	0.00194	<0.00002	0.00388	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.00241	<0.00039	0.00482	<0.0039	-	-	-
Zinc	0.00236	<0.00041	0.00472	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	66	<3	132	<3	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	8.24
Conductivity (µS/cm)	341.00
Temperature (ºC)	20.70
Volume Leachant (Litres)	0.328
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.197	**Moisture Content Ratio (%)**	12.8
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	88.7
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1806152			
Sampled Date	07-Jul-2010			
Customer Sample Ref.	WS4			
Depth (m)	0.10 - 0.50			

Solid Waste Analysis

Total Organic Carbon (%)	9.25	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	8.11	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^{n} in 2:1 eluate (mg/l) C_2**		**2:1 conc^{n} leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Beryllium	<0.00007	<0.00007	<0.00014	<0.0007	-	-	-
Boron	0.0531	<0.0094	0.106	<0.094	-	-	-
pH	8.5	<0.001	17	<0.01	-	-	-
Total Cyanide (W)	1.24	<0.05	2.48	<0.05	-	-	-
Vanadium	0.0031	<0.00024	0.0062	<0.0024	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	8.24
Conductivity (µS/cm)	341.00
Temperature (ºC)	20.70
Volume Leachant (Litres)	0.328
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.197	**Moisture Content Ratio (%)**	12.3
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	89.0
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1806302			
Sampled Date	07-Jul-2010			
Customer Sample Ref.	WS6			
Depth (m)	0.30 - 1.00			

Solid Waste Analysis

Total Organic Carbon (%)	23.6	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.01	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	8.11	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^n in 2:1 eluate (mg/l) C_2**		**2:1 conc^n leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0011	<0.00012	0.0022	<0.0012	-	-	-
Barium	0.0336	<0.00003	0.0672	<0.0003	-	-	-
Cadmium	<0.0001	<0.0001	<0.0002	<0.001	-	-	-
Chromium	0.00297	<0.00022	0.00594	<0.0022	-	-	-
Copper	0.00486	<0.00085	0.00972	<0.0085	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.00196	<0.00015	0.00392	<0.0015	-	-	-
Lead	0.000045	<0.00002	0.00009	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.0037	<0.00039	0.0074	<0.0039	-	-	-
Zinc	0.00142	<0.00041	0.00284	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	97.8	<3	196	<3	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	7.59
Conductivity (µS/cm)	384.00
Temperature (ºC)	17.90
Volume Leachant (Litres)	0.328
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

REF-CEN12457-3

Client Reference		**Client Location**	THE DOVE WAY-NTE285
Mass Sample taken (kg)	0.197	**Moisture Content Ratio (%)**	12.3
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	89.0
Particle Size <4mm	>95%		

Case				
SDG	100712-18			
Lab Sample Number(s)	1806302			
Sampled Date	07-Jul-2010			
Customer Sample Ref.	WS6			
Depth (m)	0.30 - 1.00			

Solid Waste Analysis

Total Organic Carbon (%)	23.6	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.01	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	8.11	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**Conc^{n} in 2:1 eluate (mg/l) C_2**		**2:1 conc^{n} leached (mg/kg) A_2**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Beryllium	<0.00007	<0.00007	<0.00014	<0.0007	-	-	-
Boron	0.0885	<0.0094	0.177	<0.094	-	-	-
pH	8.3	<0.001	17	<0.01	-	-	-
Total Cyanide (W)	1.89	<0.05	3.78	<0.05	-	-	-
Vanadium	0.00179	<0.00024	0.00358	<0.0024	-	-	-

Leach Test Information

Date Prepared	16-Jul-2010
pH (pH Units)	7.59
Conductivity (µS/cm)	384.00
Temperature (ºC)	17.90
Volume Leachant (Litres)	0.328
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mcerts Certification does not apply to leachates

Table of Results - Appendix

SDG Number : 100712-18 **Client :** BWB Consulting **Client Ref :**

REPORT KEY

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10-7

NDP	No Determination Possible	#	ISO 17025 Accredited	*	Subcontracted Test	M	MCERTS Accredited
NFD	No Fibres Detected	PFD	Possible Fibres Detected	»	Result previously reported (Incremental reports only)	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control

Method No	Reference	Description	Wet/Dry Sample [1]
PM001		Preparation of Samples for Metals Analysis	Dry
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material	Wet
PM114		Leaching Procedure for CEN Two Stage BatchTest 2:1/8:1 Cumulative	
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step	
TM001	In - house Method	Determination of asbestos containing material by screening on solids	
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC	Wet
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	Dry
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS	
TM132	In - house Method	ELTRA CS800 Operators Guide	Dry
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	Wet
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	Wet
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	Wet
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	Dry
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES	Dry
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry	
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	Dry
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546	Wet
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer	Dry
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate	
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter	

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Notification of NDPs (No determination possible)

SDG Number	100712-18	**Location**	THE DOVE WAY-NTE285
Client	H_BWB_NTT	**Order No.**	NE09/616
Client Reference		**Report No.**	53069-1
Attention	Richard Robinson	**Date Received**	12/07/2010 08:34:21

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
1805736	TP137	2.00	Total Sulphur	Sample unsuitable for analysis

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.
9. NDP – No determination possible due to insufficient/unsuitable sample.
10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
12. Results relate only to the items tested
13. **Surrogate recoveries –** Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 – 130 %.
14. **Product analyses –** Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).
16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).
17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 – C10 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Last updated 1 April 2010

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GS MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GC MS
TPH by INFRA RED (IR)	TCE	LIQUID/LIQUID EXTRACTION	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID EXTRACTION	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GC FID

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
Solvent Extractable Matter	D&C	DCM	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Min oil)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Cleaned up)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG by GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB tot / PCB con	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (MS)	WET	HEXANE:ACETONE	Microwave TM218.	GC-MS
C8-C40 (C6-C40)EZ Flash	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Polyaromatic Hydrocarbons Rapid GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Semi Volatile Organic Compounds	WET	DCM:ACETONE	SONICATE	GC-MS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Visual Estimation Of Fibre Content.

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -

Trace – Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

APPENDIX G

ALcontrol Laboratories

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: mkt@alcontrol.com
Website: www.alcontrol.com

BWB Consulting
3-4 Kayes Walk
The Lace Market
Nottingham
Nottinghamshire
NG1 1PY

Attention: Richard Robinson

CERTIFICATE OF ANALYSIS

Date:	09 August 2010		
Customer:	H_BWB_NTT-81		
Sample Delivery Group (SDG):	100719-5	**Report No.:**	92959
Your Reference:	NTE 285		
Location:	THE DOVE WAY UTTOXETER		

We received 12 samples on Monday July 19, 2010 and 12 of these samples were scheduled for analysis which was completed on Monday August 09, 2010. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Asbestos testing - we are not accredited for screening soil samples for asbestos fibres. We are only accredited to identify asbestos fibres in bulk material (ACM).

Approved By:

Iain Swinton

Operations Director - Land UK & Ireland

UKAS TESTING
1291

GROUP

Validated

ALcontrol Laboratories Analytical Services

SDG:	100719-5	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/619
Location:	THE DOVE WAY UTTOXETER	**Report No:**	92959

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
1836076	BH1			15/07/2010
1835995	BH2			15/07/2010
1836005	BH3			15/07/2010
1836110	BH4			15/07/2010
1836201	BH5			15/07/2010
1836009	BH6			15/07/2010
1836214	BH7			15/07/2010
1836172	BH8			15/07/2010
1836164	BH9			15/07/2010
1836045	BROOK-DOWN			15/07/2010
1836018	BROOK-MID			15/07/2010
1836224	BROOK-UP			15/07/2010

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

ALcontrol Laboratories Analytical Services

SDG:	100719-5	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/619
Location:	THE DOVE WAY UTTOXETER	**Report No:**	92959

LIQUID

Results Legend

X Test

N No Determination Possible

		Lab Sample No(s)	1835995	1836005	1836009	1836018	1836045	1836076	1836110	1836164	
		Customer Sample Ref.	BH2	BH3	BH6	BROOK-MID	BROOK-DOWN	BH1	BH4	BH9	
		AGS Ref.									
		Depth (m)									
		Container	1l green glass bottle / 1l plastic / H2SO4 / NaOH / Vial	1l green glass bottle / 1l plastic / H2SO4 / NaOH / Vial	1l green glass bottle / 1l plastic / H2SO4 / NaOH / Vial	1l green glass bottle / 1l plastic / H2SO4 / NaOH / Vial	1l green glass bottle / 1l plastic / H2SO4 / NaOH / Vial	1l green glass bottle / 1l plastic / H2SO4 / NaOH / Vial	1l green glass bottle / 1l plastic / H2SO4 / NaOH / Vial	1l green glass bottle / 1l plastic / H2SO4 / NaOH / Vial	1l green glass bottle / 1l plastic / H2SO4
Ammonium	All		X	X	X	X	X	X	X	X	X
Anions by Kone (w)	All		X	X	X	X	X	X	X	X	X
Conductivity (at 20 deg.C)	All		X	X	X	X	X	X	X	X	X
Cyanide Comp/Free/Total/Thiocyanate	All				X				X		
Cyanide Complex/Free/Total/Thiocyan	All		X	X		X	X	X		X	
Dissolved Metals by ICP-MS	All		X	X	X	X	X	X	X	X	X
EPH (DRO) (C10-C40) Aqueous (W)	All		X	X	X	X	X	X	X	X	X
EPH CWG (Aliphatic) Aqueous GC (W)	All		X	X	X	X	X	X	X	X	X
EPH CWG (Aromatic) Aqueous GC (W)	All		X	X	X	X	X	X	X	X	X
GRO BTEX MTBE GC (W)	All		X	X		X	X	X		X	
GRO by GC-FID (W)	All				X				X		
Mercury Dissolved	All		X	X	X	X	X	X	X	X	X
PAH Spec MS - Aqueous (W)	All		X	X	X	X	X	X	X	X	X
pH Value	All		X	X	X	X	X	X	X	X	X
Phenols by HPLC (W)	All		X	X	X	X	X	X	X	X	
TPH CWG (W)	All		X	X	X	X	X	X	X	X	X

Total																				
					0 12	0 12	0 12	0 3	0 9	0 12	0 12	0 12	0 12	0 9	0 3	0 12	0 12	0 12	0 12	0 12
1836224	BROOK-UP			Vial										X						
				NaOH					X										X	
				H2SO4	X															
				1lplastic		X	X			X								X		
				1l green glass bottle							X	X	X			X	X			X
1836214	BH7			Vial										X						
				NaOH					X										X	
				H2SO4	X															
				1lplastic		X	X			X								X		
				1l green glass bottle							X	X	X			X	X			X
1836201	BH5			Vial											X					
				NaOH				X											X	
				H2SO4	X															
				1l green glass bottle		X	X			X	X	X	X			X	X	X		X
				Vial										X						
				NaOH					X										X	

Validated

ALcontrol Laboratories Analytical Services

SDG:	100719-5	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/619
Location:	THE DOVE WAY UTTOXETER	**Report No:**	92959

Test Completion dates

SDG reference: 100719-5

Lab Sample No(s)	1835995	1836005	1836009	1836018	1836045	1836076	1836110	1836164	1836172	1836201	1836214	1836224
Customer Sample Ref.	BH2	BH3	BH6	BROOK-MID	BROOK-DOWN	BH1	BH4	BH9	BH8	BH5	BH7	BROOK-UP
Depth												
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammonium	19/07/2010	19/07/2010	02/08/2010	20/07/2010	20/07/2010	19/07/2010	02/08/2010	20/07/2010	20/07/2010	02/08/2010	19/07/2010	20/07/2010
Anions by Kone (w)	21/07/2010	21/07/2010	03/08/2010	21/07/2010	21/07/2010	21/07/2010	03/08/2010	21/07/2010	21/07/2010	03/08/2010	21/07/2010	21/07/2010
Conductivity (at 20 deg.C)	20/07/2010	20/07/2010	02/08/2010	20/07/2010	20/07/2010	20/07/2010	02/08/2010	20/07/2010	20/07/2010	02/08/2010	20/07/2010	20/07/2010
Cyanide	20/07/2010	20/07/2010	02/08/2010	20/07/2010	20/07/2010	20/07/2010	02/08/2010	20/07/2010	20/07/2010	02/08/2010	20/07/2010	20/07/2010
Dissolved Metals by ICP-MS	21/07/2010	21/07/2010	02/08/2010	21/07/2010	21/07/2010	21/07/2010	02/08/2010	23/07/2010	23/07/2010	02/08/2010	21/07/2010	23/07/2010
EPH (DRO) (C10-C40) Aqueous (W)	20/07/2010	21/07/2010	02/08/2010	20/07/2010	20/07/2010	21/07/2010	02/08/2010	20/07/2010	20/07/2010	09/08/2010	20/07/2010	20/07/2010
EPH CWG (Aliphatic) Aqueous GC	22/07/2010	22/07/2010	03/08/2010	22/07/2010	22/07/2010	22/07/2010	03/08/2010	22/07/2010	22/07/2010	09/08/2010	22/07/2010	22/07/2010
EPH CWG (Aromatic) Aqueous GC	22/07/2010	22/07/2010	03/08/2010	22/07/2010	22/07/2010	22/07/2010	03/08/2010	22/07/2010	22/07/2010	09/08/2010	22/07/2010	22/07/2010
GRO by GC-FID (W)	22/07/2010	22/07/2010	05/08/2010	22/07/2010	22/07/2010	22/07/2010	05/08/2010	26/07/2010	22/07/2010	05/08/2010	22/07/2010	22/07/2010
Mercury Dissolved	21/07/2010	21/07/2010	03/08/2010	21/07/2010	21/07/2010	21/07/2010	02/08/2010	21/07/2010	21/07/2010	03/08/2010	21/07/2010	21/07/2010
PAH Spec MS - Aqueous (W)	21/07/2010	21/07/2010	04/08/2010	21/07/2010	21/07/2010	21/07/2010	04/08/2010	21/07/2010	21/07/2010	04/08/2010	21/07/2010	21/07/2010
pH Value	20/07/2010	20/07/2010	02/08/2010	20/07/2010	20/07/2010	20/07/2010	02/08/2010	20/07/2010	20/07/2010	02/08/2010	20/07/2010	20/07/2010
Phenols by HPLC (W)	22/07/2010	22/07/2010	02/08/2010	22/07/2010	22/07/2010	22/07/2010	02/08/2010	22/07/2010	22/07/2010	02/08/2010	22/07/2010	22/07/2010
TPH CWG (W)	22/07/2010	22/07/2010	05/08/2010	22/07/2010	22/07/2010	22/07/2010	05/08/2010	26/07/2010	22/07/2010	09/08/2010	22/07/2010	22/07/2010

Validated

ALcontrol Laboratories Analytical Services

SDG:	100719-5	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/619
Location:	THE DOVE WAY UTTOXETER	**Report No:**	92959

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	BH1	BH2	BH3	BH4	BH5	BH6
			Depth (m)						
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010
			Date Received	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010
			SDG Ref	100719-5	100719-5	100719-5	100719-5	100719-5	100719-5
			Lab Sample No.(s)	1836076	1835995	1836005	1836110	1836201	1836009
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		0.266 #	17.5 #	23.1 #	12.1 #	0.566 #	<0.2 #
Conductivity @ 20 deg.C	<0.014 mS/cm	TM120		1.22 #	1.6 #	1.16 #	1.28 #	0.529 #	0.603 #
Arsenic (diss.filt)	<0.12 µg/l	TM152		2.88 #	1.17 #	1.79 #	0.775 #	0.608 #	0.931 #
Barium (diss.filt)	<0.03 µg/l	TM152		54.8 #	159 #	429 #	67.5 #	52.9 #	90.7 #
Beryllium (diss.filt)	<0.07 µg/l	TM152		<0.07 #	<0.07 #	<0.07 #	<0.07 #	<0.07 #	<0.07 #
Boron (diss.filt)	<9.4 µg/l	TM152		405 #	1540 #	1180 #	477 #	564 #	52.1 #
Cadmium (diss.filt)	<0.1 µg/l	TM152		0.128 #	0.119 #	<0.1 #	0.63 #	0.189 #	<0.1 #
Chromium (diss.filt)	<0.22 µg/l	TM152		6.52 #	13.6 #	12.9 #	10.1 #	4.12 #	6.54 #
Copper (diss.filt)	<0.85 µg/l	TM152		1.68 #	2.68 #	1.12 #	5.54 #	1.49 #	1.64 #
Lead (diss.filt)	<0.02 µg/l	TM152		0.027 #	0.05 #	<0.02 #	0.37 #	0.288 #	0.136 #
Nickel (diss.filt)	<0.15 µg/l	TM152		11.6 #	17 #	12.4 #	8.6 #	6.37 #	0.949 #
Selenium (diss.filt)	<0.39 µg/l	TM152		0.423 #	1.03 #	1.3 #	1.42 #	0.586 #	1.82 #
Vanadium (diss.filt)	<0.24 µg/l	TM152		2.14 #	4.28 #	4.2 #	3.41 #	1.39 #	1.5 #
Zinc (diss.filt)	<0.41 µg/l	TM152		3.73 #	2.08 #	4.2 #	2.62 #	2.68 #	1.72 #
EPH Range >C10 - C40 (aq)	<46 µg/l	TM172		52.3 #	<46 #	84.4 #	<46 #	382 #	54.9 #
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #
Sulphate	<3 mg/l	TM184		230 #	413 #	51.3 #	178 #	74 #	56.7 #
Cyanide, Total	<0.05 mg/l	TM227		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
pH	<1 pH Units	TM256		7.67 #	7.78 #	7.85 #	7.99 #	8.32 #	8.46 #
Phenols, Total monohydric	<0.015 mg/l	TM259		<0.015 #	<0.015 #	<0.015 #	<0.015 #	<0.015 #	<0.015 #

Validated

ALcontrol Laboratories Analytical Services

SDG:	100719-5	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/619
Location:	THE DOVE WAY UTTOXETER	**Report No:**	92959

PAH Spec MS - Aqueous (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	BH1	BH2	BH3	BH4	BH5	BH6
			Depth (m)						
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010
			Date Received	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010
			SDG Ref	100719-5	100719-5	100719-5	100719-5	100719-5	100719-5
			Lab Sample No.(s)	1836076	1835995	1836005	1836110	1836201	1836009
			AGS Reference						
Naphthalene (aq)	<0.1 µg/l	TM178		<0.1	<0.1	<0.1			
Acenaphthene (aq)	<0.015 µg/l	TM178		0.81	<0.015	0.02			
Naphthalene (aq)	<0.1 µg/l	TM178					<0.1 #	<0.1 #	<0.1 #
Acenaphthene (aq)	<0.015 µg/l	TM178					<0.015 #	<0.015 #	<0.015 #
Acenaphthylene (aq)	<0.011 µg/l	TM178		<0.011	<0.011	<0.011			
Acenaphthylene (aq)	<0.011 µg/l	TM178					<0.011 #	<0.011 #	<0.011 #
Fluoranthene (aq)	<0.014 µg/l	TM178		0.84	0.02	<0.014			
Anthracene (aq)	<0.015 µg/l	TM178		0.5	<0.015	<0.015			
Fluoranthene (aq)	<0.014 µg/l	TM178					0.0272 #	0.037 #	0.022 #
Anthracene (aq)	<0.015 µg/l	TM178					<0.015 #	<0.015 #	<0.015 #
Phenanthrene (aq)	<0.022 µg/l	TM178		3.16	0.04	0.03			
Fluorene (aq)	<0.014 µg/l	TM178		0.7	<0.014	<0.014			
Phenanthrene (aq)	<0.022 µg/l	TM178					<0.022 #	<0.022 #	<0.022 #
Chrysene (aq)	<0.013 µg/l	TM178		0.07	<0.013	<0.013			
Fluorene (aq)	<0.014 µg/l	TM178					<0.014 #	<0.014 #	<0.014 #
Chrysene (aq)	<0.013 µg/l	TM178					0.0228 #	<0.013 #	<0.013 #
Pyrene (aq)	<0.015 µg/l	TM178		0.57	<0.015	<0.015			
Benzo(a)anthracene (aq)	<0.017 µg/l	TM178		0.06	<0.017	<0.017			
Pyrene (aq)	<0.015 µg/l	TM178					0.0271 #	0.0391 #	0.0202 #
Benzo(a)anthracene (aq)	<0.017 µg/l	TM178					<0.017 #	0.0241 #	<0.017 #
Benzo(b)fluoranthene (aq)	<0.023 µg/l	TM178		0.04	<0.023	<0.023			
Benzo(b)fluoranthene (aq)	<0.023 µg/l	TM178					<0.023 #	0.0389 #	<0.023 #
Benzo(k)fluoranthene (aq)	<0.027 µg/l	TM178		<0.027	<0.027	<0.027			
Benzo(a)pyrene (aq)	<0.009 µg/l	TM178		0.03	<0.009	<0.009			
Benzo(k)fluoranthene (aq)	<0.027 µg/l	TM178					<0.027 #	<0.027 #	<0.027 #
Benzo(a)pyrene (aq)	<0.009 µg/l	TM178					0.0231 #	0.0405 #	0.0109 #
Dibenzo(a,h)anthracene (aq)	<0.016 µg/l	TM178		<0.016	<0.016	<0.016			
Benzo(g,h,i)perylene (aq)	<0.016 µg/l	TM178		0.03	<0.016	<0.016			
Dibenzo(a,h)anthracene (aq)	<0.016 µg/l	TM178					<0.016 #	<0.016 #	<0.016 #
Benzo(g,h,i)perylene (aq)	<0.016 µg/l	TM178					0.0256 #	0.033 #	<0.016 #
Indeno(1,2,3-cd)pyrene (aq)	<0.014 µg/l	TM178		0.02	<0.014	<0.014			
Indeno(1,2,3-cd)pyrene (aq)	<0.014 µg/l	TM178					0.0191 #	0.0281 #	<0.014 #
Polyaromatic hydrocarbons, Total USEPA 16 (aq)	<0.1 µg/l	TM178		6.83	<0.1	<0.1			
Polyaromatic hydrocarbons, Total USEPA 16 (aq)	<0.1 µg/l	TM178					0.152 #	0.241 #	<0.1 #
Naphthalene-d8	%	TM178					100	100	100
Acenaphthene-d10	%	TM178					100	100	100
Phenanthrene-d10	%	TM178					100	100	100
Chrysene-d12	%	TM178					100	100	100
Perylene-d12	%	TM178					100	100	100

Validated

ALcontrol Laboratories Analytical Services

SDG:	100719-5	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/619
Location:	THE DOVE WAY UTTOXETER	**Report No:**	92959

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	BH1	BH2	BH3	BH4	BH5	BH6
			Depth (m)						
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010
			Date Received	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010
			SDG Ref	100719-5	100719-5	100719-5	100719-5	100719-5	100719-5
			Lab Sample No.(s)	1836076	1835995	1836005	1836110	1836201	1836009
			AGS Reference						
Total Aliphatics >C5-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	148	<10
Total Aromatics >C6-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	170	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	318	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	39	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	109	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	170	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	148	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	170	<10
Total Aliphatics & Aromatics >C12-C35 (Aqueous)	<10 µg/l	TM174		<10	<10	<10	<10	318	<10
GRO Surrogate % recovery**	%	TM245		94	90	91			
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #			
Benzene	<7 µg/l	TM245		<7 #	<7 #	<7 #			
Ethylbenzene	<5 µg/l	TM245		<5 #	<5 #	<5 #			
Toluene	<4 µg/l	TM245		<4 #	<4 #	<4 #			
m,p-Xylene	<8 µg/l	TM245		<8 #	<8 #	<8 #			
o-Xylene	<3 µg/l	TM245		<3 #	<3 #	<3 #			
m,p,o-Xylene	<10 µg/l	TM245		<10 #	<10 #	<10 #			
BTEX, Total	<10 µg/l	TM245		<10 #	<10 #	<10 #			
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 #	<3 #	<3 #			
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10			
Aromatics >C6-C7	<10 µg/l	TM245		<10	<10	<10			
Aromatics >C7-C8	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10			
Total Aliphatics >C5-C12	<10 µg/l	TM245		<10	<10	<10			
Total Aromatics >C6-C12	<10 µg/l	TM245		<10	<10	<10			
GRO Surrogate % recovery**	%	TM245					94	99	101
Benzene	<7 µg/l	TM245					<7 #	<7 #	<7 #
Toluene	<4 µg/l	TM245					<4 #	<4 #	<4 #
Ethylbenzene	<5 µg/l	TM245					<5 #	<5 #	<5 #
m,p-Xylene	<8 µg/l	TM245					<8 #	<8 #	<8 #
o-Xylene	<3 µg/l	TM245					<3 #	<3 #	<3 #
m,p,o-Xylene	<10 µg/l	TM245					<10 #	<10 #	<10 #

Validated

ALcontrol Laboratories Analytical Services

SDG:	100719-5	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/619
Location:	THE DOVE WAY UTTOXETER	**Report No:**	92959

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	BH1	BH2	BH3	BH4	BH5	BH6
			Depth (m)						
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010
			Date Received	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010
			SDG Ref	100719-5	100719-5	100719-5	100719-5	100719-5	100719-5
			Lab Sample No.(s)	1836076	1835995	1836005	1836110	1836201	1836009
			AGS Reference						
BTEX, Total	<10 µg/l	TM245					<10 #	<10 #	<10 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245					<3 #	<3 #	<3 #
GRO >C5-C12	<50 µg/l	TM245					<50 #	<50 #	<50 #
Aliphatics >C5-C6	<10 µg/l	TM245					<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245					<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245					<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245					<10	<10	<10
Total Aliphatics >C5-C12	<10 µg/l	TM245					<10	<10	<10
Aromatics >C6-C7	<10 µg/l	TM245					<10	<10	<10
Aromatics >C7-C8	<10 µg/l	TM245					<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245					<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245					<10	<10	<10
Total Aromatics >C6-C12	<10 µg/l	TM245					<10	<10	<10

Validated

ALcontrol Laboratories Analytical Services

SDG:	100719-5	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/619
Location:	THE DOVE WAY UTTOXETER	**Report No:**	92959

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			BH7		Water(GW/SW)	15/07/2010	19/07/2010	100719-5	1836214	
			BH8		Water(GW/SW)	15/07/2010	19/07/2010	100719-5	1836172	
			BH9		Water(GW/SW)	15/07/2010	19/07/2010	100719-5	1836164	
			BROOK-DOWN		Water(GW/SW)	15/07/2010	19/07/2010	100719-5	1836045	
			BROOK-MID		Water(GW/SW)	15/07/2010	19/07/2010	100719-5	1836018	
			BROOK-UP		Water(GW/SW)	15/07/2010	19/07/2010	100719-5	1836224	
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	0.803 #		13.9 #		15.6 #		1.87 #		0.769 #		1.03 #	
Conductivity @ 20 deg.C	<0.014 mS/cm	TM120	0.699 #		1.78 #		1.55 #		0.597 #		0.194 #		0.449 #	
Arsenic (diss.filt)	<0.12 µg/l	TM152	1.13 #		1.8 #		1.98 #		1.85 #		1.17 #		1.27 #	
Barium (diss.filt)	<0.03 µg/l	TM152	44.6 #		54.4 #		86.8 #		56.2 #		21.7 #		47.9 #	
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07 #		<0.07 #		<0.07 #		<0.07 #		0.091 #		<0.07 #	
Boron (diss.filt)	<9.4 µg/l	TM152	110 #		217 #		149 #		90.4 #		31.5 #		49.3 #	
Cadmium (diss.filt)	<0.1 µg/l	TM152	0.38 #		0.26 #		0.104 #		<0.1 #		0.122 #		<0.1 #	
Chromium (diss.filt)	<0.22 µg/l	TM152	6.24 #		6.61 #		9.28 #		5.06 #		1.59 #		3.52 #	
Copper (diss.filt)	<0.85 µg/l	TM152	0.875 #		6.22 #		3.61 #		1.62 #		5.83 #		4.55 #	
Lead (diss.filt)	<0.02 µg/l	TM152	<0.02 #		0.051 #		0.108 #		1.98 #		1.28 #		1.97 #	
Nickel (diss.filt)	<0.15 µg/l	TM152	5.14 #		9.35 #		7.43 #		4.3 #		1.18 #		2.58 #	
Selenium (diss.filt)	<0.39 µg/l	TM152	0.961 #		8.05 #		5.81 #		0.766 #		0.674 #		0.727 #	
Vanadium (diss.filt)	<0.24 µg/l	TM152	4.17 #		2.93 #		2.93 #		2.24 #		3.27 #		2.68 #	
Zinc (diss.filt)	<0.41 µg/l	TM152	1.02 #		4.77 #		12.9 #		22.7 #		25.1 #		19.2 #	
EPH Range >C10 - C40 (aq)	<46 µg/l	TM172	<46 #		823 #		1880 #		191 #		405 #		235 #	
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 #		<0.01 #		<0.01 #		<0.01 #		<0.01 #		<0.01 #	
Sulphate	<3 mg/l	TM184	85.4 #		412 #		366 #		42.1 #		15.3 #		34.3 #	
Cyanide, Total	<0.05 mg/l	TM227	<0.05 #		1.63 #		0.957 #		<0.05 #		<0.05 #		<0.05 #	
pH	<1 pH Units	TM256	8.09 #		7.97 #		7.65 #		8.5 #		7.95 #		8.26 #	
Phenols, Total monohydric	<0.015 mg/l	TM259	<0.015 #		<0.015 #		<0.015 #		<0.015 #		<0.015 #		<0.015 #	

Validated

ALcontrol Laboratories Analytical Services

SDG:	100719-5	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/619
Location:	THE DOVE WAY UTTOXETER	**Report No:**	92959

PAH Spec MS - Aqueous (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	BH7	BH8	BH9	BROOK-DOWN	BROOK-MID	BROOK-UP
			Depth (m)						
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010
			Date Received	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010
			SDG Ref	100719-5	100719-5	100719-5	100719-5	100719-5	100719-5
			Lab Sample No.(s)	1836214	1836172	1836164	1836045	1836018	1836224
			AGS Reference						
Naphthalene (aq)	<0.1 µg/l	TM178		<0.1	0.48	<0.5	<0.1	<0.1	<0.1
Acenaphthene (aq)	<0.015 µg/l	TM178		0.02	1.72	0.38	0.03	0.03	0.02
Acenaphthylene (aq)	<0.011 µg/l	TM178		<0.011	6.2	0.18	<0.011	<0.011	<0.011
Fluoranthene (aq)	<0.014 µg/l	TM178		0.12	14.2	11.2	0.08	0.13	0.04
Anthracene (aq)	<0.015 µg/l	TM178		0.02	4.61	0.99	<0.015	<0.015	<0.015
Phenanthrene (aq)	<0.022 µg/l	TM178		0.07	5.24	3.49	0.06	0.05	0.05
Fluorene (aq)	<0.014 µg/l	TM178		<0.014	3.48	0.29	0.03	0.02	0.02
Chrysene (aq)	<0.013 µg/l	TM178		0.04	4.81	4.02	<0.013	0.03	<0.013
Pyrene (aq)	<0.015 µg/l	TM178		0.12	13.4	10	0.06	0.1	0.03
Benzo(a)anthracene (aq)	<0.017 µg/l	TM178		0.05	6.1	4.88	<0.017	0.02	<0.017
Benzo(b)fluoranthene (aq)	<0.023 µg/l	TM178		0.07	6.58	8.21	<0.023	0.05	<0.023
Benzo(k)fluoranthene (aq)	<0.027 µg/l	TM178		0.03	2.72	3.01	<0.027	<0.027	<0.027
Benzo(a)pyrene (aq)	<0.009 µg/l	TM178		0.04	5.65	6.63	<0.009	0.03	<0.009
Dibenzo(a,h)anthracene (aq)	<0.016 µg/l	TM178		<0.016	0.92	1.07	<0.016	<0.016	<0.016
Benzo(g,h,i)perylene (aq)	<0.016 µg/l	TM178		0.03	3.44	4.8	<0.016	0.03	<0.016
Indeno(1,2,3-cd)pyrene (aq)	<0.014 µg/l	TM178		0.02	3.22	4.23	<0.014	0.02	<0.014
Polyaromatic hydrocarbons, Total USEPA 16 (aq)	<0.1 µg/l	TM178		0.63	82.8	63.5	0.26	0.51	0.16

Validated

ALcontrol Laboratories Analytical Services

SDG:	100719-5	**Customer:**	BWB Consulting
Job:	H_BWB_NTT-81	**Attention:**	Richard Robinson
Client Reference:	NTE 285	**Order No.:**	NE09/619
Location:	THE DOVE WAY UTTOXETER	**Report No:**	92959

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.

Component	LOD/Units	Method	Customer Sample Ref.	BH7	BH8	BH9	BROOK-DOWN	BROOK-MID	BROOK-UP
			Depth (m)						
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010
			Date Received	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010
			SDG Ref	100719-5	100719-5	100719-5	100719-5	100719-5	100719-5
			Lab Sample No.(s)	1836214	1836172	1836164	1836045	1836018	1836224
			AGS Reference						
Total Aliphatics >C5-C35 (aq)	<10 µg/l	TM174		<10	<10	329	<10	<10	<10
Total Aromatics >C6-C35 (aq)	<10 µg/l	TM174		<10	317	635	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	317	964	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	28	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	22	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	75	31	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	307	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	214	604	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	329	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	317	635	<10	<10	<10
Total Aliphatics & Aromatics >C12-C35 (Aqueous)	<10 µg/l	TM174		<10	317	964	<10	<10	<10
GRO Surrogate % recovery**	%	TM245		96	101	89	87	96	103
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #	<50 #	<50 #	<50 #
Benzene	<7 µg/l	TM245		<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Ethylbenzene	<5 µg/l	TM245		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
Toluene	<4 µg/l	TM245		<4 #	<4 #	<4 #	<4 #	<4 #	<4 #
m,p-Xylene	<8 µg/l	TM245		<8 #	<8 #	<8 #	<8 #	<8 #	<8 #
o-Xylene	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
m,p,o-Xylene	<10 µg/l	TM245		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
BTEX, Total	<10 µg/l	TM245		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >C6-C7	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >C7-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Total Aliphatics >C5-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Total Aromatics >C6-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10

Table of Results - Appendix

SDG Number : 100719-5 **Client :** BWB Consulting **Client Ref :** NTE 285

REPORT KEY

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10-7

NDP	No Determination Possible	#	ISO 17025 Accredited	*	Subcontracted Test	M	MCERTS Accredited
NFD	No Fibres Detected	PFD	Possible Fibres Detected	»	Result previously reported (Incremental reports only)	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control

Method No	Reference	Description	Wet/Dry Sample [1]
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser	
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters	
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID	
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters	
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry	
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate	
TM245	By GC-FID	Determination of GRO by Headspace in waters	
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter	
TM259			

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.
9. NDP – No determination possible due to insufficient/unsuitable sample.
10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
12. Results relate only to the items tested
13. **Surrogate recoveries** – Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 – 130 %.
14. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).
16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).
17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 – C10 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Last updated 1 April 2010

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GS MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GC MS
TPH by INFRA RED (IR)	TCE	LIQUID/LIQUID EXTRACTION	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID EXTRACTION	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GC FID

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
Solvent Extractable Matter	D&C	DCM	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Min oil)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Cleaned up)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG by GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB tot / PCB con	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (MS)	WET	HEXANE:ACETONE	Microwave TM218.	GC-MS
C8-C40 (C6-C40)EZ Flash	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Polyaromatic Hydrocarbons Rapid GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Semi Volatile Organic Compounds	WET	DCM:ACETONE	SONICATE	GC-MS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Visual Estimation Of Fibre Content.

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -

Trace – Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Richard Sutton
Ivy House Environmental Ltd
Scotland Farm
Ockbrook
Derby
DE72 3RX

QTS Environmental Ltd
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Lenham Heath
Kent
ME17 2JN
t: 01622 850410
russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 13-17439

Site Reference:	Pennycroft, Uttoxeter
Project / Job Ref:	IV.58.13
Order No:	None Supplied
Sample Receipt Date:	28/10/2013
Sample Scheduled Date:	28/10/2013
Report Issue Number:	1
Reporting Date:	05/11/2013

Authorised by:

Russell Jarvis
Director
On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old
Director
On behalf of QTS Environmental Ltd

QTS Environmental Ltd
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Maidstone
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Tel : 01622 850410

UKAS TESTING 4480

Water Analysis Certificate						
QTS Environmental Report No: 13-17439	**Date Sampled**	25/10/13	25/10/13	25/10/13	25/10/13	25/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA2	BWBBH7	WSB	WSL	WSE
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 05/11/2013	**QTSE Sample No**	83843	83844	83845	83846	83847

Determinand	Unit	MDL	Accreditation					
pH	pH Units	N / a	ISO17025	7.8	7.1	7.9	6.9	7.2
Total Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Complex Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Free Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Thiocyanate as SCN	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Sulphate as SO_4	mg/l	< 1	NONE	985	99	1250	541	163
Total Organic Carbon (TOC)	mg/l	< 0.1	NONE	6.2	1.8	29	9.9	10.1
Arsenic (dissolved)	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Cadmium (dissolved)	ug/l	< 0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium (dissolved)	ug/l	< 5	NONE	< 5	5	< 5	< 5	< 5
Chromium (hexavalent)	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Copper (dissolved)	ug/l	< 10	NONE	< 10	< 10	< 10	13	< 10
Lead (dissolved)	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Mercury (dissolved)	ug/l	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	ug/l	< 7	NONE	< 7	< 7	< 7	< 7	< 7
Selenium (dissolved)	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Zinc (dissolved)	ug/l	< 5	NONE	8	< 5	< 5	5	23
Total Phenols	ug/l	< 0.5	NONE	0.5	< 0.5	37.8	< 0.5	< 0.5

Subcontracted analysis [S]

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UKAS TESTING
4480

Water Analysis Certificate						
QTS Environmental Report No: 13-17439	**Date Sampled**	25/10/13				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSI				
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied				
Order No: None Supplied	**Depth (m)**	None Supplied				
Reporting Date: 05/11/2013	**QTSE Sample No**	83848				

Determinand	**Unit**	**MDL**	**Accreditation**					
pH	pH Units	N / a	**ISO17025**	7.2				
Total Cyanide	ug/l	< 5	NONE	< 5				
Complex Cyanide	ug/l	< 5	NONE	< 5				
Free Cyanide	ug/l	< 5	NONE	< 5				
Thiocyanate as SCN	ug/l	< 10	NONE	< 10				
Sulphate as SO_4	mg/l	< 1	NONE	36				
Total Organic Carbon (TOC)	mg/l	< 0.1	NONE	8.5				
Arsenic (dissolved)	ug/l	< 10	NONE	< 10				
Cadmium (dissolved)	ug/l	< 0.5	NONE	< 0.5				
Chromium (dissolved)	ug/l	< 5	NONE	< 5				
Chromium (hexavalent)	ug/l	< 5	NONE	< 5				
Copper (dissolved)	ug/l	< 10	NONE	< 10				
Lead (dissolved)	ug/l	< 5	NONE	< 5				
Mercury (dissolved)	ug/l	< 0.05	NONE	< 0.05				
Nickel (dissolved)	ug/l	< 7	NONE	< 7				
Selenium (dissolved)	ug/l	< 5	NONE	< 5				
Zinc (dissolved)	ug/l	< 5	NONE	< 5				
Total Phenols	ug/l	< 0.5	NONE	< 0.5				

Subcontracted analysis [S]

QTS Environmental Ltd
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Water Analysis Certificate - Speciated PAH							
QTS Environmental Report No: 13-1	**Date Sampled**	25/10/13	25/10/13	25/10/13	25/10/13	25/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA2	BWBBH7	WSB	WSL	WSE
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 05/11/2013	**QTSE Sample No**	83843	83844	83845	83846	83847

Determinand	Unit	MDL	Accreditation					
Naphthalene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	< 0.01	NONE	11.61	< 0.01	8.38	< 0.01	< 0.01
Acenaphthene	ug/l	< 0.01	NONE	8.77	< 0.01	5.82	< 0.01	< 0.01
Fluorene	ug/l	< 0.01	NONE	3.61	< 0.01	4.95	< 0.01	< 0.01
Phenanthrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	3.86	< 0.01	< 0.01
Anthracene	ug/l	< 0.01	NONE	1.19	< 0.01	1.09	< 0.01	< 0.01
Fluoranthene	ug/l	< 0.01	NONE	4.84	< 0.01	1.63	< 0.01	< 0.01
Pyrene	ug/l	< 0.01	NONE	3.12	< 0.01	1.02	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	< 0.01	NONE	0.39	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	< 0.01	NONE	0.23	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	0.28	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total EPA-16 PAHs	ug/l	< 0.01	NONE	34.04	< 0.01	26.75	< 0.01	< 0.01

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Water Analysis Certificate - Speciated PAH							
QTS Environmental Report No: 13-1	**Date Sampled**	25/10/13					
Ivy House Environmental Ltd	**Time Sampled**	None Supplied					
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSI					
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied					
Order No: None Supplied	**Depth (m)**	None Supplied					
Reporting Date: 05/11/2013	**QTSE Sample No**	83848					

Determinand	Unit	MDL	Accreditation					
Naphthalene	ug/l	< 0.01	NONE	< 0.01				
Acenaphthylene	ug/l	< 0.01	NONE	0.39				
Acenaphthene	ug/l	< 0.01	NONE	0.90				
Fluorene	ug/l	< 0.01	NONE	1.91				
Phenanthrene	ug/l	< 0.01	NONE	2.07				
Anthracene	ug/l	< 0.01	NONE	0.55				
Fluoranthene	ug/l	< 0.01	NONE	1.24				
Pyrene	ug/l	< 0.01	NONE	0.82				
Benzo(a)anthracene	ug/l	< 0.01	NONE	0.20				
Chrysene	ug/l	< 0.01	NONE	0.14				
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	0.22				
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01				
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01				
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01				
Benzo(ghi)perylene	ug/l	< 0.01	NONE	< 0.01				
Total EPA-16 PAHs	ug/l	< 0.01	NONE	8.44				

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Tel : 01622 850410

Water Analysis Certificate - TPH CWG Banded						
QTS Environmental Report No: 13-17439	**Date Sampled**	25/10/13	25/10/13	25/10/13	25/10/13	25/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA2	BWBBH7	WSB	WSL	WSE
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 05/11/2013	**QTSE Sample No**	83843	83844	83845	83846	83847

Determinand	Unit	MDL	Accreditation					
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C12 - C16	ug/l	< 10	NONE	11	< 10	< 10	< 10	< 10
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70	< 70	< 70	< 70	< 70
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10	< 10	384	< 10	< 10
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	18	< 10	< 10
Aromatic >C12 - C16	ug/l	< 10	NONE	80	< 10	58	< 10	< 10
Aromatic >C16 - C21	ug/l	< 10	NONE	37	< 10	35	< 10	< 10
Aromatic >C21 - C35	ug/l	< 10	NONE	20	< 10	< 10	< 10	< 10
Aromatic (C5 - C35)	ug/l	< 70	NONE	138	< 70	496	< 70	< 70
Total >C5 - C35	ug/l	< 140	NONE	149	< 140	496	< 140	< 140

QTS Environmental Ltd
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Maidstone
Kent ME17 2JN
Tel : 01622 850410

Water Analysis Certificate - TPH CWG Banded						
QTS Environmental Report No: 13-17439	**Date Sampled**	25/10/13				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSI				
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied				
Order No: None Supplied	**Depth (m)**	None Supplied				
Reporting Date: 05/11/2013	**QTSE Sample No**	83848				

Determinand	Unit	MDL	Accreditation					
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10				
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10				
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10				
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10				
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10				
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10				
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10				
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70				
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10				
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10				
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10				
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10				
Aromatic >C12 - C16	ug/l	< 10	NONE	24				
Aromatic >C16 - C21	ug/l	< 10	NONE	16				
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10				
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70				
Total >C5 - C35	ug/l	< 140	NONE	< 140				

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Water Analysis Certificate - BTEX / MTBE						
QTS Environmental Report No: 13-17439	**Date Sampled**	25/10/13	25/10/13	25/10/13	25/10/13	25/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA2	BWBBH7	WSB	WSL	WSE
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 05/11/2013	**QTSE Sample No**	83843	83844	83845	83846	83847

Determinand	Unit	MDL	Accreditation					
Benzene	ug/l	< 1	ISO17025	< 1	< 1	384	< 1	< 1
Toluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
p & m-xylene	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
o-xylene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5

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Water Analysis Certificate - BTEX / MTBE						
QTS Environmental Report No: 13-17439	**Date Sampled**	25/10/13				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSI				
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied				
Order No: None Supplied	**Depth (m)**	None Supplied				
Reporting Date: 05/11/2013	**QTSE Sample No**	83848				

Determinand	Unit	MDL	Accreditation					
Benzene	ug/l	< 1	ISO17025	< 1				
Toluene	ug/l	< 5	ISO17025	< 5				
Ethylbenzene	ug/l	< 5	ISO17025	< 5				
p & m-xylene	ug/l	< 10	ISO17025	< 10				
o-xylene	ug/l	< 5	ISO17025	< 5				

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Water Analysis Certificate - Volatile Organic Compounds (VOC)						
QTS Environmental Report No: 13-17439	**Date Sampled**	25/10/13	25/10/13	25/10/13	25/10/13	25/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA2	BWBBH7	WSB	WSL	WSE
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 05/11/2013	**QTSE Sample No**	83843	83844	83845	83846	83847

Determinand	Unit	MDL	Accreditation					
Dichlorodifluoromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromomethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
MTBE	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
trans-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
2,2-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroform	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,1,1-Trichloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Benzene	ug/l	< 1	ISO17025	< 1	< 1	384	< 1	< 1
1,2-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromomethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
TAME	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Toluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
o-Xylene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Styrene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromoform	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,2,3-Trichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
4-Chlorotoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
sec-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
p-Isopropyltoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5

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Water Analysis Certificate - Volatile Organic Compounds (VOC)						
QTS Environmental Report No: 13-17439	**Date Sampled**	25/10/13				
Ivy House Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSI				
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied				
Order No: None Supplied	**Depth (m)**	None Supplied				
Reporting Date: 05/11/2013	**QTSE Sample No**	83848				

Determinand	Unit	MDL	Accreditation					
Dichlorodifluoromethane	ug/l	< 5	ISO17025	< 5				
Vinyl Chloride	ug/l	< 5	ISO17025	< 5				
Chloromethane	ug/l	< 5	ISO17025	< 5				
Chloroethane	ug/l	< 5	ISO17025	< 5				
Bromomethane	ug/l	< 5	ISO17025	< 5				
Trichlorofluoromethane	ug/l	< 5	ISO17025	< 5				
1,1-Dichloroethene	ug/l	< 5	ISO17025	< 5				
MTBE	ug/l	< 10	ISO17025	< 10				
trans-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5				
1,1-Dichloroethane	ug/l	< 5	ISO17025	< 5				
cis-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5				
2,2-Dichloropropane	ug/l	< 5	ISO17025	< 5				
Chloroform	ug/l	< 5	ISO17025	< 5				
Bromochloromethane	ug/l	< 10	ISO17025	< 10				
1,1,1-Trichloroethane	ug/l	< 5	ISO17025	< 5				
1,1-Dichloropropene	ug/l	< 5	ISO17025	< 5				
Carbon Tetrachloride	ug/l	< 5	ISO17025	< 5				
1,2-Dichloroethane	ug/l	< 10	ISO17025	< 10				
Benzene	ug/l	< 1	ISO17025	< 1				
1,2-Dichloropropane	ug/l	< 5	ISO17025	< 5				
Trichloroethene	ug/l	< 5	ISO17025	< 5				
Bromodichloromethane	ug/l	< 5	ISO17025	< 5				
Dibromomethane	ug/l	< 5	ISO17025	< 5				
TAME	ug/l	< 5	ISO17025	< 5				
cis-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5				
Toluene	ug/l	< 5	ISO17025	< 5				
trans-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5				
1,1,2-Trichloroethane	ug/l	< 10	ISO17025	< 10				
1,3-Dichloropropane	ug/l	< 5	ISO17025	< 5				
Tetrachloroethene	ug/l	< 5	ISO17025	< 5				
Dibromochloromethane	ug/l	< 5	ISO17025	< 5				
1,2-Dibromoethane	ug/l	< 5	ISO17025	< 5				
Chlorobenzene	ug/l	< 5	ISO17025	< 5				
1,1,1,2-Tetrachloroethane	ug/l	< 5	ISO17025	< 5				
Ethyl Benzene	ug/l	< 5	ISO17025	< 5				
m,p-Xylene	ug/l	< 10	ISO17025	< 10				
o-Xylene	ug/l	< 5	ISO17025	< 5				
Styrene	ug/l	< 5	ISO17025	< 5				
Bromoform	ug/l	< 10	ISO17025	< 10				
Isopropylbenzene	ug/l	< 5	ISO17025	< 5				
1,1,2,2-Tetrachloroethane	ug/l	< 10	ISO17025	< 10				
1,2,3-Trichloropropane	ug/l	< 5	ISO17025	< 5				
n-Propylbenzene	ug/l	< 5	ISO17025	< 5				
Bromobenzene	ug/l	< 5	ISO17025	< 5				
2-Chlorotoluene	ug/l	< 5	ISO17025	< 5				
1,3,5-Trimethylbenzene	ug/l	< 5	ISO17025	< 5				
4-Chlorotoluene	ug/l	< 5	ISO17025	< 5				
tert-Butylbenzene	ug/l	< 5	ISO17025	< 5				
1,2,4-Trimethylbenzene	ug/l	< 5	ISO17025	< 5				
sec-Butylbenzene	ug/l	< 5	ISO17025	< 5				
p-Isopropyltoluene	ug/l	< 5	ISO17025	< 5				
1,3-Dichlorobenzene	ug/l	< 5	ISO17025	< 5				
1,4-Dichlorobenzene	ug/l	< 5	ISO17025	< 5				
n-Butylbenzene	ug/l	< 5	ISO17025	< 5				
1,2-Dichlorobenzene	ug/l	< 5	ISO17025	< 5				
1,2-Dibromo-3-chloropropane	ug/l	< 10	ISO17025	< 10				
Hexachlorobutadiene	ug/l	< 5	ISO17025	< 5				

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Water Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
QTS Environmental Report No: 13-17439	**Date Sampled**	25/10/13	25/10/13	25/10/13	25/10/13	25/10/13
Ivy House Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSA2	BWBBH7	WSB	WSL	WSE
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 05/11/2013	**QTSE Sample No**	83843	83844	83845	83846	83847

Determinand	Unit	MDL	Accreditation					
Phenol	ug/l	< 0.1	NONE	0.5	< 0.1	< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Nitrophenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrobenzene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
0-Cresol	ug/l	< 0.1	NONE	< 0.1	< 0.1	1.2	< 0.1	< 0.1
bis(2-chloroethoxy)methane	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethyl)ether	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chlorophenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dimethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	36.6	< 0.1	< 0.1
Isophorone	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachloroethane	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
p-Cresol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Nitroaniline	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorocyclopentadiene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethyl phthalate	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloroanaline	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Nitrophenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chlorophenyl phenyl ether	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-Nitroaniline	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Nitroaniline	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Bromophenyl phenyl ether	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobenzene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Diethyl phthalate	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzofuran	ug/l	< 0.1	NONE	5.2	< 0.1	3.3	< 0.1	< 0.1
Azobenzene	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibutyl phthalate	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Carbazole	ug/l	< 0.1	NONE	< 0.1	< 0.1	5.1	< 0.1	< 0.1
bis(2-ethylhexyl)phthalate	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzyl butyl phthalate	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Di-n-octyl phthalate	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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Water Analysis Certificate - Semi Volatile Organic Compounds (SVOC)							
QTS Environmental Report No: 13-17439	**Date Sampled**	25/10/13					
Ivy House Environmental Ltd	**Time Sampled**	None Supplied					
Site Reference: Pennycroft, Uttoxeter	**TP / BH No**	WSI					
Project / Job Ref: IV.58.13	**Additional Refs**	None Supplied					
Order No: None Supplied	**Depth (m)**	None Supplied					
Reporting Date: 05/11/2013	**QTSE Sample No**	83848					

Determinand	Unit	MDL	Accreditation					
Phenol	ug/l	< 0.1	NONE	< 0.1				
1,2,4-Trichlorobenzene	ug/l	< 0.1	NONE	< 0.1				
2-Nitrophenol	ug/l	< 0.1	NONE	< 0.1				
Nitrobenzene	ug/l	< 0.1	NONE	< 0.1				
0-Cresol	ug/l	< 0.1	NONE	< 0.1				
bis(2-chloroethoxy)methane	ug/l	< 0.1	NONE	< 0.1				
bis(2-chloroethyl)ether	ug/l	< 0.1	NONE	< 0.1				
2,4-Dichlorophenol	ug/l	< 0.1	NONE	< 0.1				
2-Chlorophenol	ug/l	< 0.1	NONE	< 0.1				
1,3-Dichlorobenzene	ug/l	< 0.1	NONE	< 0.1				
1,4-Dichlorobenzene	ug/l	< 0.1	NONE	< 0.1				
1,2-Dichlorobenzene	ug/l	< 0.1	NONE	< 0.1				
2,4-Dimethylphenol	ug/l	< 0.1	NONE	< 0.1				
Isophorone	ug/l	< 0.1	NONE	< 0.1				
Hexachloroethane	ug/l	< 0.1	NONE	< 0.1				
p-Cresol	ug/l	< 0.1	NONE	< 0.1				
2,4,6-Trichlorophenol	ug/l	< 0.1	NONE	< 0.1				
2,4,5-Trichlorophenol	ug/l	< 0.1	NONE	< 0.1				
2-Nitroaniline	ug/l	< 0.1	NONE	< 0.1				
4-Chloro-3-methylphenol	ug/l	< 0.1	NONE	< 0.1				
2-Methylnaphthalene	ug/l	< 0.1	NONE	< 0.1				
Hexachlorocyclopentadiene	ug/l	< 0.1	NONE	< 0.1				
Hexachlorobutadiene	ug/l	< 0.1	NONE	< 0.1				
2,6-Dinitrotoluene	ug/l	< 0.1	NONE	< 0.1				
Dimethyl phthalate	ug/l	< 0.1	NONE	< 0.1				
2-Chloronaphthalene	ug/l	< 0.1	NONE	< 0.1				
4-Chloroanaline	ug/l	< 0.1	NONE	< 0.1				
4-Nitrophenol	ug/l	< 0.1	NONE	< 0.1				
4-Chlorophenyl phenyl ether	ug/l	< 0.1	NONE	< 0.1				
3-Nitroaniline	ug/l	< 0.1	NONE	< 0.1				
4-Nitroaniline	ug/l	< 0.1	NONE	< 0.1				
4-Bromophenyl phenyl ether	ug/l	< 0.1	NONE	< 0.1				
Hexachlorobenzene	ug/l	< 0.1	NONE	< 0.1				
2,4-Dinitrotoluene	ug/l	< 0.1	NONE	< 0.1				
Diethyl phthalate	ug/l	< 0.1	NONE	< 0.1				
Dibenzofuran	ug/l	< 0.1	NONE	2.3				
Azobenzene	ug/l	< 0.1	NONE	< 0.1				
Dibutyl phthalate	ug/l	< 0.1	NONE	< 0.1				
Carbazole	ug/l	< 0.1	NONE	1.5				
bis(2-ethylhexyl)phthalate	ug/l	< 0.1	NONE	< 0.1				
Benzyl butyl phthalate	ug/l	< 0.1	NONE	< 0.1				
Di-n-octyl phthalate	ug/l	< 0.1	NONE	< 0.1				

APPENDIX H

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Environment Agency

Input Parameters (using pull down menu)

	Variable	Value	Unit	Source
Contaminant		Cyanide		from Level 1
Target Concentration	C_T	5.00E-02	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Approach for simulating vertical dispersion: **Simulate vertical dispersion in 1 direction**

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: **Apply degradation rate to dissolved pollutants only**

				Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	1.63E+00	mg/l	*Site Data*
Half life for degradation of contaminant in water	$t_{1/2}$	9.00E+99	days	*assumed*
Calculated decay rate	λ	7.70E-101	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.30E+01	m	*Site Data*
Plume thickness at source	Sy	1.46E+00	m	*Site Data*
Saturated aquifer thickness	da	1.57E+00	m	*Site Data*
Bulk density of aquifer materials	ρ	9.40E-01	g/cm^3	*CLEA*
Effective porosity of aquifer	n	2.00E-01	fraction	*CLEA*
Hydraulic gradient	i	9.60E-02	fraction	*Site Data*
Hydraulic conductivity of aquifer	K	1.35E+00	m/d	*Site Data*
Distance to compliance point	x	5.00E+01	m	*Site Data*
Distance (lateral) to compliance point perpendicular to flow direction	z	2.00E+01	m	*Site Data*
Distance (depth) to compliance point perpendicular to flow direction	y	5.00E-01	m	*Site Data*
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	9.90E+00	l/kg	*see options*
Longitudinal dispersivity	ax	5.00E+00	m	*see options*
Transverse dispersivity	az	5.00E-01	m	*see options*
Vertical dispersivity	ay	5.00E-02	m	*see options*

Calculated Parameters

	Variable		
Groundwater flow velocity	v	6.48E-01	m/d
Retardation factor	Rf	4.75E+01	fraction
Decay rate used	λ	1.62E-102	d^{-1}
Rate of contaminant flow due to retardation	u	1.36E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	6.37E-01	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**2.56E+00**	

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd	9.90E+00	l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{OC,n}$		l/kg
Sorption coefficient for ionised species	$K_{OC,i}$		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	9.90E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

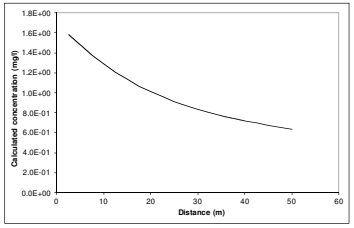
Dispersivities 10%, 1%, 0.1% of pathway length

		Enter value	Calc value Xu & Eckstein		
Longitudinal dispersivity	**ax**	0.00E+00	5.00E+00	4.83E+00	m
Transverse dispersivity	**az**	0.00E+00	5.00E-01	2.98E-01	m
Vertical dispersivity	**ay**	0.00E+00	5.00E-02	2.98E-02	m

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Calculated concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Concentration
	mg/l
0	1.6E+00
2.5	1.59E+00
5.0	1.48E+00
7.5	1.38E+00
10.0	1.29E+00
12.5	1.21E+00
15.0	1.13E+00
17.5	1.07E+00
20.0	1.01E+00
22.5	9.59E-01
25.0	9.14E-01
27.5	8.73E-01
30.0	8.36E-01
32.5	8.03E-01
35.0	7.73E-01
37.5	7.45E-01
40.0	7.20E-01
42.5	6.97E-01
45.0	6.75E-01
47.5	6.55E-01
50.0	6.37E-01

Remedial Targets

Remedial Target		**1.28E-01**	**mg/l**	For comparison with measured groundwater concentration.
Ogata Banks		Warning plume offset		
Distance to compliance point		**50**	**m**	
Concentration of contaminant at compliance point	C_{ED}/C_0	**6.37E-01**	**mg/l**	Ogata Banks
after		**1.0E+100**	**days**	

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment				
Site Name:	Pennycroft			
Site Address:	Uttoxeter			
Completed by:	R Sutton			
Date:	10.12.13		Version:	1
Contaminant	Benzo(a)pyrene			
Target Concentration (C_T)	0.0001	mg/l	Origin of C_T:	UKDWS

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Environment Agency

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

Calculate for non-polar organic chemicals

Contaminant		**Benzo(a)pyrene**		
Target concentration	**C_T**	**0.0001**	**mg/l**	

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_w	5.10E-01	fraction	CLEA - DEFAULT
Air filled soil porosity	θa	1.20E-01	fraction	CLEA - DEFAULT
Bulk density of soil zone material	ρ	9.40E-01	g/cm^3	CLEA - DEFAULT
Henry's Law constant	H	4.54E-07	dimensionless	*LQM*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd		l/kg	*RAIS*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc	2.09E-01	fraction	
Organic carbon partition coefficient	Koc	6.01E+00	l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	
Soil water partition coefficient used in Level Assessment	**Kd**	**1.26E+00**	**l/kg**	*Calculated value*

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient.

The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Level 1 Remedial Target

Level 1 Remedial Target	**1.80E-04**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.0001	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Benzo(a)pyrene**	from Level 1	This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).
Target concentration	**C_T**	**0.0001** **mg/l**	from Level 1	

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**	
Standard entry					
Infiltration	Inf	2.04E-04	m/d	**60% hardstanding, 0.3mm/day**	
Area of contaminant source	A	7.47E+03	m^2	**Site Area**	Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	1.41E+02	m	**Site Data**	
Saturated aquifer thickness	da	1.57E+00	m	**Site Data**	
Hydraulic Conductivity of aquifer in which dilution occurs	K	1.35E+00	m/d	**Site Data**	
Hydraulic gradient of water table	i	9.60E-02	fraction	**Site Data**	
Width of contaminant source perpendicular to groundwater flow	w	5.30E+01	m	**Site Data**	Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l	**Site Data**	
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Calculate**			
Enter mixing zone thickness	Mz		m		
Calculated mixing zone thickness	Mz	1.57E+00	m		

Calculated Parameters

Dilution Factor	**DF**	**8.08E+00**		
Level 2 Remedial Target		**8.08E-04**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentrat**
		or		
		1.45E-03	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		0.00E+00	mg/l	0

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Environment Agency

Input Parameters

	Variable	Value	Unit	Source
Contaminant		Benzo(a)pyrene		from Level 1
Target Concentration	C_T	0.0001	mg/l	from Level 1
Dilution Factor	DF	8.08E+00		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: **Apply degradation rate to dissolved pollutants only**

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		9.86	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	9.00E+99	days	
Calculated decay rate	λ	7.70E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	5.30E+01	m	from Level 2
Plume thickness in aquifer at source	Sy	1.57E+00	m	from Level 2
Bulk density of aquifer materials	ρ	9.40E-01	g/cm^3	*CLEA*
Effective porosity of aquifer	n	2.00E-01	fraction	*Assumed*
Hydraulic gradient	i	1.10E-01	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	1.35E+00	m/d	from Level 2
Distance to compliance point	x	5.00E+01	m	*Default*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	5.000	m	*see options*
Transverse dispersivity	az	0.500	m	*see options*
Vertical dispersivity	ay	0.050	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters

	Variable		
Groundwater flow velocity	v	7.40E-01	m/d
Retardation factor	Rf	1.00E+00	fraction
Decay rate used	λ	7.70E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	1.10E-01	fraction
Rate of contaminant flow due to retardation	u	7.40E-01	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	5.18E-01	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**1.93E+00**	**fraction**
Calculated soil leachate concentration	Co	5.48E+00	mg/l

Remedial Targets

Level 3 Remedial Target	**1.56E-03**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks	**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
	2.81E-03	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point	**50**	**m**	assumes Level 1 Remedial Target calculated from soil-water partitioning equation.
Ratio of Compliance Point to Source Concentration C_{ED}/C_0	**5.18E-01**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

User specified value for partition coefficient

Entry if specify partition coefficient (option)

Soil water partition coefficient — Kd — 0.00E+00 — l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species	$K_{oc,n}$		l/kg
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg
pH value	pH		
Acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

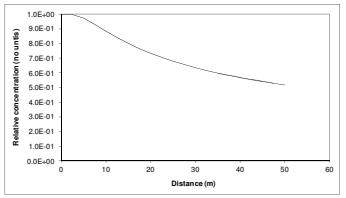
Dispersivities 10%, 1%, 0.1% of pathway length

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	5.00E+00	2.98E+00	m
Transverse dispersivity	**az**	0.00E+00	5.00E-01	2.98E-01	m
Vertical dispersivity	**ay**	0.00E+00	5.00E-02	2.98E-02	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	1.0E+00	6.79E-01
2.5	9.98E-01	6.77E-01
5.0	9.74E-01	6.61E-01
7.5	9.30E-01	6.31E-01
10.0	8.84E-01	6.00E-01
12.5	8.40E-01	5.70E-01
15.0	8.00E-01	5.43E-01
17.5	7.65E-01	5.19E-01
20.0	7.33E-01	4.98E-01
22.5	7.05E-01	4.78E-01
25.0	6.80E-01	4.61E-01
27.5	6.57E-01	4.46E-01
30.0	6.36E-01	4.31E-01
32.5	6.16E-01	4.18E-01
35.0	5.99E-01	4.06E-01
37.5	5.83E-01	3.95E-01
40.0	5.68E-01	3.85E-01
42.5	5.54E-01	3.76E-01
45.0	5.41E-01	3.67E-01
47.5	5.29E-01	3.59E-01
50.0	5.18E-01	3.51E-01

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Environment Agency

Input Parameters (using pull down menu)

	Variable	Value	Unit	Source
Contaminant		Benzo(a)pyrene		from Level 1
Target Concentration	C_T	1.00E-04	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Approach for simulating vertical dispersion: **Simulate vertical dispersion in 1 direction**

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: **Apply degradation rate to dissolved pollutants only**

				Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	6.30E-03	mg/l	*Site Data*
Half life for degradation of contaminant in water	$t_{1/2}$	9.00E+99	days	*assumed*
Calculated decay rate	λ	7.70E-101	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.30E+01	m	*Site Data*
Plume thickness at source	Sy	1.46E+00	m	*Site Data*
Saturated aquifer thickness	da	1.57E+00	m	*Site Data*
Bulk density of aquifer materials	ρ	9.40E-01	g/cm^3	*CLEA*
Effective porosity of aquifer	n	2.00E-01	fraction	*CLEA*
Hydraulic gradient	i	9.60E-02	fraction	*Site Data*
Hydraulic conductivity of aquifer	K	1.35E+00	m/d	*Site Data*
Distance to compliance point	x	5.00E+01	m	*Site Data*
Distance (lateral) to compliance point perpendicular to flow direction	z	2.00E+01	m	*Site Data*
Distance (depth) to compliance point perpendicular to flow direction	y	5.00E-01	m	*Site Data*
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	1.26E+00	l/kg	*see options*
Longitudinal dispersivity	ax	5.00E+00	m	*see options*
Transverse dispersivity	az	5.00E-01	m	*see options*
Vertical dispersivity	ay	5.00E-02	m	*see options*

Calculated Parameters

	Variable		
Groundwater flow velocity	v	6.48E-01	m/d
Retardation factor	Rf	6.90E+00	fraction
Decay rate used	λ	1.12E-101	d^{-1}
Rate of contaminant flow due to retardation	u	9.39E-02	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	2.46E-03	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**2.56E+00**	

Remedial Targets

Remedial Target		**2.56E-04**	**mg/l**	For comparison with measured groundwater concentration.
Ogata Banks		Warning plume offset		
Distance to compliance point		**50**	**m**	
Concentration of contaminant at compliance point	C_{ED}/C_0	**2.46E-03**	**mg/l**	Ogata Banks
after		**1.0E+100**	**days**	

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc	2.09E-01	fraction
Organic carbon partition coefficient	Koc	6.01E+00	l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{OC,n}$		l/kg
Sorption coefficient for ionised species	$K_{OC,i}$		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	1.26E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

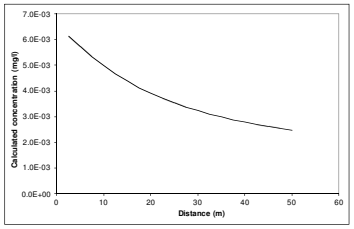
Dispersivities 10%, 1%, 0.1% of pathway length

		Enter value	Calc value Xu & Eckstein		
Longitudinal dispersivity	**ax**	5.00E+00	5.00E+00	2.98E-02	m
Transverse dispersivity	**az**	0.00E+00	5.00E-01	2.98E-01	m
Vertical dispersivity	**ay**	0.00E+00	5.00E-02	2.98E-02	m

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Calculated concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Concentration
	mg/l
0	6.3E-03
2.5	6.13E-03
5.0	5.72E-03
7.5	5.34E-03
10.0	4.98E-03
12.5	4.66E-03
15.0	4.38E-03
17.5	4.13E-03
20.0	3.90E-03
22.5	3.71E-03
25.0	3.53E-03
27.5	3.37E-03
30.0	3.23E-03
32.5	3.10E-03
35.0	2.99E-03
37.5	2.88E-03
40.0	2.78E-03
42.5	2.69E-03
45.0	2.61E-03
47.5	2.53E-03
50.0	2.46E-03

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment				
Site Name:	Pennycroft			
Site Address:	Uttoxeter			
Completed by:	R Sutton			
Date:	10.12.13		Version:	1
Contaminant	Benzene			
Target Concentration (C_T)	0.001	mg/l	Origin of C_T:	UKDWS

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Environment Agency

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

Calculate for non-polar organic chemicals

Contaminant		**Benzene**		
Target concentration	**C_T**	**0.001**	**mg/l**	

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_w	5.10E-01	fraction	CLEA - DEFAULT
Air filled soil porosity	θa	1.20E-01	fraction	CLEA - DEFAULT
Bulk density of soil zone material	ρ	9.40E-01	g/cm^3	CLEA - DEFAULT
Henry's Law constant	H	1.16E-01	dimensionless	*LQM*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd		l/kg	
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc	2.09E-01	fraction	Site data
Organic carbon partition coefficient	Koc	1.83E+00	l/kg	*LQM*
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	
Soil water partition coefficient used in Level Assessment	**Kd**	**3.82E-01**	**l/kg**	*Calculated value*

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient.

The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Level 1 Remedial Target

Level 1 Remedial Target	**9.40E-04**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.001	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Benzene**	from Level 1	This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).
Target concentration	C_T	**0.001** **mg/l**	from Level 1	

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**	
Standard entry					
Infiltration	Inf	2.04E-04	m/d	**60% hardstanding, 0.3mm/day**	
Area of contaminant source	A	7.47E+03	m^2	**Site Area**	Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	1.41E+02	m	**Site Data**	
Saturated aquifer thickness	da	1.57E+00	m	**Site Data**	
Hydraulic Conductivity of aquifer in which dilution occurs	K	1.35E+00	m/d	**Site Data**	
Hydraulic gradient of water table	i	9.60E-02	fraction	**Site Data**	
Width of contaminant source perpendicular to groundwater flow	w	5.30E+01	m	**Site Data**	Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l	**Site Data**	
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Calculate**			
Enter mixing zone thickness	Mz		m		
Calculated mixing zone thickness	Mz	1.57E+00	m		

Calculated Parameters

Dilution Factor	**DF**	**8.08E+00**		
Level 2 Remedial Target		**8.08E-03**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentrat**
		or		
		7.59E-03	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		0.00E+00	mg/l	0

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Environment Agency

Input Parameters

	Variable	Value	Unit	Source
Contaminant		Benzene		from Level 1
Target Concentration	C_T	0.001	mg/l	from Level 1
Dilution Factor	DF	8.08E+00		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: **Apply degradation rate to dissolved pollutants only**

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		11.887	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	9.00E+99	days	
Calculated decay rate	λ	7.70E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	5.30E+01	m	from Level 2
Plume thickness in aquifer at source	Sy	1.57E+00	m	from Level 2
Bulk density of aquifer materials	ρ	9.40E-01	g/cm^3	*CLEA*
Effective porosity of aquifer	n	2.00E-01	fraction	*Assumed*
Hydraulic gradient	i	1.10E-01	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	1.35E+00	m/d	from Level 2
Distance to compliance point	x	5.00E+01	m	*Default*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	5.000	m	*see options*
Transverse dispersivity	az	0.500	m	*see options*
Vertical dispersivity	ay	0.050	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters

	Variable		
Groundwater flow velocity	v	7.40E-01	m/d
Retardation factor	Rf	1.00E+00	fraction
Decay rate used	λ	7.70E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	1.10E-01	fraction
Rate of contaminant flow due to retardation	u	7.40E-01	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	5.18E-01	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**1.93E+00**	**fraction**
Calculated soil leachate concentration	Co	1.26E+01	mg/l

Remedial Targets

Level 3 Remedial Target	**1.56E-02**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks	**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
	1.47E-02	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point	**50**	**m**	assumes Level 1 Remedial Target calculated from soil-water partitioning equation.
Ratio of Compliance Point to Source Concentration C_{ED}/C_0	**5.18E-01**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

User specified value for partition coefficient

Entry if specify partition coefficient (option)

Soil water partition coefficient	Kd	0.00E+00	l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species	$K_{oc,n}$		l/kg
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg
pH value	pH		
Acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

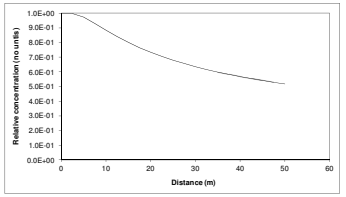
Dispersivities 10%, 1%, 0.1% of pathway length

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	5.00E+00	2.98E+00	m
Transverse dispersivity	**az**	0.00E+00	5.00E-01	2.98E-01	m
Vertical dispersivity	**ay**	0.00E+00	5.00E-02	2.98E-02	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	1.0E+00	1.57E+00
2.5	9.98E-01	1.56E+00
5.0	9.74E-01	1.52E+00
7.5	9.30E-01	1.46E+00
10.0	8.84E-01	1.38E+00
12.5	8.40E-01	1.32E+00
15.0	8.00E-01	1.25E+00
17.5	7.65E-01	1.20E+00
20.0	7.33E-01	1.15E+00
22.5	7.05E-01	1.10E+00
25.0	6.80E-01	1.06E+00
27.5	6.57E-01	1.03E+00
30.0	6.36E-01	9.95E-01
32.5	6.16E-01	9.65E-01
35.0	5.99E-01	9.38E-01
37.5	5.83E-01	9.12E-01
40.0	5.68E-01	8.89E-01
42.5	5.54E-01	8.67E-01
45.0	5.41E-01	8.47E-01
47.5	5.29E-01	8.28E-01
50.0	5.18E-01	8.10E-01

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Environment Agency

Input Parameters (using pull down menu)

	Variable	Value	Unit	Source
Contaminant		Benzene		from Level 1
Target Concentration	C_T	1.00E-03	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Approach for simulating vertical dispersion: **Simulate vertical dispersion in 1 direction**

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: **Apply degradation rate to dissolved pollutants only**

				Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	3.84E-01	mg/l	*Site Data*
Half life for degradation of contaminant in water	$t_{1/2}$	9.00E+99	days	*assumed*
Calculated decay rate	λ	7.70E-101	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.30E+01	m	*Site Data*
Plume thickness at source	Sy	1.46E+00	m	*Site Data*
Saturated aquifer thickness	da	1.57E+00	m	*Site Data*
Bulk density of aquifer materials	ρ	9.40E-01	g/cm^3	*CLEA*
Effective porosity of aquifer	n	2.00E-01	fraction	*CLEA*
Hydraulic gradient	i	9.60E-02	fraction	*Site Data*
Hydraulic conductivity of aquifer	K	1.35E+00	m/d	*Site Data*
Distance to compliance point	x	5.00E+01	m	*Site Data*
Distance (lateral) to compliance point perpendicular to flow direction	z	2.00E+01	m	*Site Data*
Distance (depth) to compliance point perpendicular to flow direction	y	5.00E-01	m	*Site Data*
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	3.82E-01	l/kg	*see options*
Longitudinal dispersivity	ax	5.00E+00	m	*see options*
Transverse dispersivity	az	5.00E-01	m	*see options*
Vertical dispersivity	ay	5.00E-02	m	*see options*

Calculated Parameters

	Variable		
Groundwater flow velocity	v	6.48E-01	m/d
Retardation factor	Rf	2.80E+00	fraction
Decay rate used	λ	2.75E-101	d^{-1}
Rate of contaminant flow due to retardation	u	2.32E-01	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	1.50E-01	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**2.56E+00**	

Remedial Targets

Remedial Target		**2.56E-03**	**mg/l**	For comparison with measured groundwater concentration.
Ogata Banks		Warning plume offset		
Distance to compliance point		**50**	**m**	
Concentration of contaminant at compliance point	C_{ED}/C_0	**1.50E-01**	**mg/l**	Ogata Banks
after		**1.0E+100**	**days**	

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

Calculate for non-polar organic chemicals

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc	2.09E-01	fraction
Organic carbon partition coefficient	Koc	1.83E+00	l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{OC,n}$		l/kg
Sorption coefficient for ionised species	$K_{OC,i}$		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	3.82E-01	l/kg

Define dispersivity (click brown cell and use pull down list)

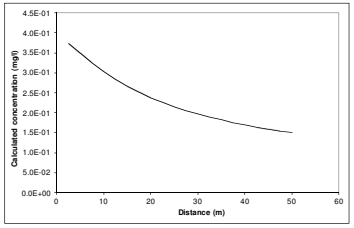
Dispersivities 10%, 1%, 0.1% of pathway length

		Enter value	Calc value Xu & Eckstein		
Longitudinal dispersivity	**ax**	0.00E+00	5.00E+00	2.98E-02	m
Transverse dispersivity	**az**	0.00E+00	5.00E-01	2.98E-01	m
Vertical dispersivity	**ay**	0.00E+00	5.00E-02	2.98E-02	m

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Calculated concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Concentration
	mg/l
0	3.8E-01
2.5	3.73E-01
5.0	3.49E-01
7.5	3.25E-01
10.0	3.04E-01
12.5	2.84E-01
15.0	2.67E-01
17.5	2.51E-01
20.0	2.38E-01
22.5	2.26E-01
25.0	2.15E-01
27.5	2.06E-01
30.0	1.97E-01
32.5	1.89E-01
35.0	1.82E-01
37.5	1.76E-01
40.0	1.70E-01
42.5	1.64E-01
45.0	1.59E-01
47.5	1.54E-01
50.0	1.50E-01

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment				
Site Name:	Pennycroft			
Site Address:	Uttoxeter			
Completed by:	R Sutton			
Date:	10.12.13		Version:	1
Contaminant	Cyanide			
Target Concentration (C_T)	0.05	mg/l	Origin of C_T:	UKDWS

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Environment Agency

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

User specified value for partition coefficient

Contaminant		**Cyanide**		
Target concentration	**C_T**	**0.05**	**mg/l**	

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_w	5.10E-01	fraction	CLEA - DEFAULT
Air filled soil porosity	θa	1.20E-01	fraction	CLEA - DEFAULT
Bulk density of soil zone material	ρ	9.40E-01	g/cm^3	CLEA - DEFAULT
Henry's Law constant	H	0.00E+00	dimensionless	*LQM*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd	9.90E+00	l/kg	*RAIS*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc		fraction	
Organic carbon partition coefficient	Koc		l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	

Soil water partition coefficient used in Level Assessment	**Kd**	**9.90E+00**	**l/kg**	*Specified value*

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient.

The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Level 1 Remedial Target

Level 1 Remedial Target	**5.22E-01**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.05	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Cyanide**	from Level 1	This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).
Target concentration	C_T	**0.05** **mg/l**	from Level 1	

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**	
Standard entry					
Infiltration	Inf	2.04E-04	m/d	**60% hardstanding, 0.3mm/day**	
Area of contaminant source	A	7.47E+03	m^2	**Site Area**	Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	1.41E+02	m	**Site Data**	
Saturated aquifer thickness	da	1.57E+00	m	**Site Data**	
Hydraulic Conductivity of aquifer in which dilution occurs	K	1.35E+00	m/d	**Site Data**	
Hydraulic gradient of water table	i	9.60E-02	fraction	**Site Data**	
Width of contaminant source perpendicular to groundwater flow	w	5.30E+01	m	**Site Data**	Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l	**Site Data**	
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Calculate**			
Enter mixing zone thickness	Mz		m		
Calculated mixing zone thickness	Mz	1.57E+00	m		

Calculated Parameters

Dilution Factor	**DF**	**8.08E+00**		
Level 2 Remedial Target		**4.04E-01**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentrat**
		or		
		4.22E+00	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		0.00E+00	mg/l	0

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Environment Agency

Input Parameters	Variable	Value	Unit	Source
Contaminant		Cyanide		from Level 1
Target Concentration	C_T	0.05	mg/l	from Level 1
Dilution Factor	DF	8.08E+00		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: **Apply degradation rate to dissolved pollutants only**

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		22100	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	9.00E+99	days	
Calculated decay rate	λ	7.70E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	5.30E+01	m	from Level 2
Plume thickness in aquifer at source	Sy	1.57E+00	m	from Level 2
Bulk density of aquifer materials	ρ	9.40E-01	g/cm^3	*CLEA*
Effective porosity of aquifer	n	2.00E-01	fraction	*Assumed*
Hydraulic gradient	i	1.10E-01	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	1.35E+00	m/d	from Level 2
Distance to compliance point	x	5.00E+01	m	*Default*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	5.000	m	*see options*
Transverse dispersivity	az	0.500	m	*see options*
Vertical dispersivity	ay	0.050	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters	Variable		
Groundwater flow velocity	v	7.40E-01	m/d
Retardation factor	Rf	1.00E+00	fraction
Decay rate used	λ	7.70E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	1.10E-01	fraction
Rate of contaminant flow due to retardation	u	7.40E-01	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	5.18E-01	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**1.93E+00**	**fraction**
Calculated soil leachate concentration	Co	2.12E+03	mg/l

Remedial Targets

Level 3 Remedial Target	**7.80E-01**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks	**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
	8.15E+00	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point	**50**	**m**	assumes Level 1 Remedial Target calculated from soil-water partitioning equation.
Ratio of Compliance Point to Source Concentration C_{ED}/C_0	**5.18E-01**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

User specified value for partition coefficient

Entry if specify partition coefficient (option)

Soil water partition coefficient	Kd	0.00E+00	l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species	$K_{oc,n}$		l/kg
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg
pH value	pH		
Acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

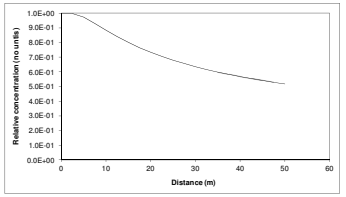
Dispersivities 10%, 1%, 0.1% of pathway length

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	5.00E+00	2.98E+00	m
Transverse dispersivity	**az**	0.00E+00	5.00E-01	2.98E-01	m
Vertical dispersivity	**ay**	0.00E+00	5.00E-02	2.98E-02	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Pennycroft
Completed by:	R Sutton
Date:	10.12.13
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	1.0E+00	2.62E+02
2.5	9.98E-01	2.62E+02
5.0	9.74E-01	2.55E+02
7.5	9.30E-01	2.44E+02
10.0	8.84E-01	2.32E+02
12.5	8.40E-01	2.20E+02
15.0	8.00E-01	2.10E+02
17.5	7.65E-01	2.00E+02
20.0	7.33E-01	1.92E+02
22.5	7.05E-01	1.85E+02
25.0	6.80E-01	1.78E+02
27.5	6.57E-01	1.72E+02
30.0	6.36E-01	1.67E+02
32.5	6.16E-01	1.62E+02
35.0	5.99E-01	1.57E+02
37.5	5.83E-01	1.53E+02
40.0	5.68E-01	1.49E+02
42.5	5.54E-01	1.45E+02
45.0	5.41E-01	1.42E+02
47.5	5.29E-01	1.39E+02
50.0	5.18E-01	1.36E+02

CLEA Software Version 1.06

Report generated 17/12/2013

Report title 6% SOM Resi With Plants TAC

Created by R SUTTON at IVY HOUSE ENVIRONMENTAL LTD

BASIC SETTINGS

Land Use Residential with homegrown produce

Building Small terraced house
Receptor Female (res) Start age class 1 End age class 6 Exposure Duration 6 years
Soil Sandy loam

Exposure Pathways

Direct soil and dust ingestion	✓	Dermal contact with indoor dust	✓	Inhalation of indoor dust	✓
Consumption of homegrown produce	✓	Dermal contact with soil	✓	Inhalation of soil dust	✓
Soil attached to homegrown produce	✓			Inhalation of indoor vapour	✓
				Inhalation of outdoor vapour	✓

Land Use Residential with homegrown produce

Age Class	Exposure Frequencies (days yr^{-1})						Occupation Periods (hr day^{-1})		Soil to skin adherence factors (mg cm^{2})		Direct soil ingestion rate (g day^{-1})
	Direct soil ingestion	Consumption of homegrown produce	Dermal contact with indoor dust	Dermal contact with soil	Inhalation of dust and vapour, indoor	Inhalation of dust and vapour, outdoor	Indoors	Outdoors	Indoor	Outdoor	
1	180	180	180	180	365	365	23.0	1.0	0.06	1.00	0.10
2	365	365	365	365	365	365	23.0	1.0	0.06	1.00	0.10
3	365	365	365	365	365	365	23.0	1.0	0.06	1.00	0.10
4	365	365	365	365	365	365	23.0	1.0	0.06	1.00	0.10
5	365	365	365	365	365	365	19.0	1.0	0.06	1.00	0.10
6	365	365	365	365	365	365	19.0	1.0	0.06	1.00	0.10
7	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
8	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
9	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
10	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
11	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
12	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
13	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
14	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
15	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
16	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
17	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00
18	0	0	0	0	0	0	0.0	0.0	0.00	0.00	0.00

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Receptor Female (res)

Age Class	Body weight (kg)	Body height (m)	Inhalation rate (m^3 day^{-1})	Max exposed skin factor: Indoor (m^2 m^{-2})	Max exposed skin factor: Outdoor (m^2 m^{-2})	Total skin area (m^2)	Consumption rates (g FW kg^{-1} BW day^{-1}): Green vegetables	Root vegetables	Tuber vegetables	Herbaceous fruit	Shrub fruit	Tree fruit
1	5.60	0.7	8.5	0.32	0.26	3.43E-01	7.12	10.69	16.03	1.83	2.23	3.82
2	9.80	0.8	13.3	0.33	0.26	4.84E-01	6.85	3.30	5.46	3.96	0.54	11.96
3	12.70	0.9	12.7	0.32	0.25	5.82E-01	6.85	3.30	5.46	3.96	0.54	11.96
4	15.10	0.9	12.2	0.35	0.28	6.36E-01	6.85	3.30	5.46	3.96	0.54	11.96
5	16.90	1.0	12.2	0.35	0.28	7.04E-01	3.74	1.77	3.38	1.85	0.16	4.26
6	19.70	1.1	12.2	0.33	0.26	7.94E-01	3.74	1.77	3.38	1.85	0.16	4.26
7	22.10	1.2	12.4	0.22	0.15	8.73E-01	3.74	1.77	3.38	1.85	0.16	4.26
8	25.30	1.2	12.4	0.22	0.15	9.36E-01	3.74	1.77	3.38	1.85	0.16	4.26
9	27.50	1.3	12.4	0.22	0.15	1.01E+00	3.74	1.77	3.38	1.85	0.16	4.26
10	31.40	1.3	12.4	0.22	0.15	1.08E+00	3.74	1.77	3.38	1.85	0.16	4.26
11	35.70	1.4	12.4	0.22	0.14	1.19E+00	3.74	1.77	3.38	1.85	0.16	4.26
12	41.30	1.4	13.4	0.22	0.14	1.29E+00	3.74	1.77	3.38	1.85	0.16	4.26
13	47.20	1.5	13.4	0.22	0.14	1.42E+00	3.74	1.77	3.38	1.85	0.16	4.26
14	51.20	1.6	13.4	0.22	0.14	1.52E+00	3.74	1.77	3.38	1.85	0.16	4.26
15	56.70	1.6	13.4	0.21	0.14	1.60E+00	3.74	1.77	3.38	1.85	0.16	4.26
16	59.00	1.6	13.4	0.21	0.14	1.63E+00	3.74	1.77	3.38	1.85	0.16	4.26
17	70.00	1.6	14.8	0.33	0.27	1.78E+00	2.94	1.40	1.79	1.61	0.22	2.97
18	70.90	1.6	12.0	0.33	0.27	1.80E+00	2.94	1.40	1.79	1.61	0.22	2.97

Building Small terraced house

Soil Sandy loam

Building footprint (m^2)	2.80E+01
Living space air exchange rate (hr^{-1})	5.00E-01
Living space height (above ground, m)	4.80E+00
Living space height (below ground, m)	0.00E+00
Pressure difference (soil to enclosed space, Pa)	3.10E+00
Foundation thickness (m)	1.50E-01
Floor crack area (cm^2)	4.23E+02
Dust loading factor ($\varepsilon g\ m^{-3}$)	5.00E+01

Porosity, Total ($cm^3\ cm^{-3}$)	5.30E-01
Porosity, Air-Filled ($cm^3\ cm^{-3}$)	2.00E-01
Porosity, Water-Filled ($cm^3\ cm^{-3}$)	3.30E-01
Residual soil water content ($cm^3\ cm^{-3}$)	1.20E-01
Saturated hydraulic conductivity ($cm\ s^{-1}$)	3.56E-03
van Genuchten shape parameter *m* (dimensionless)	3.20E-01
Bulk density ($g\ cm^{-3}$)	1.21E+00
Threshold value of wind speed at 10m ($m\ s^{-1}$)	7.20E+00
Empirical function (F_x) for dust model (dimensionless)	1.22E+00
Ambient soil temperature (K)	2.83E+02
Soil pH	7.00E+00
Soil Organic Matter content (%)	6.00E+00
Fraction of organic carbon ($g\ g^{-1}$)	3.48E-02
Effective total fluid saturation (unitless)	5.12E-01
Intrinsic soil permeability (cm^2)	4.75E-08
Relative soil air permeability (unitless)	6.42E-01
Effective air permeability (cm^2)	3.05E-08

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Soil - Vapour Model

Depth to top of source (no building) (cm)	750
Depth to top of source (beneath building) (cm)	750
Default soil gas ingress rate?	Yes
Soil gas ingress rate ($cm^3\ s^{-1}$)	2.50E+01
Building ventilation rate ($cm^3\ s^{-1}$)	1.87E+04
Averaging time surface emissions (yr)	6
Finite vapour source model?	No
Thickness of contaminated layer (cm)	150

Air Dispersion Model

Mean annual windspeed at 10m ($m\ s^{-1}$)		5.00
Air dispersion factor at height of 0.8m *		2400.00
Air dispersion factor at height of 1.6m *		0.00
Fraction of site cover ($m^2\ m^{-2}$)		0.75

* Air dispersion factor in $g\ m^{-2}\ s^{-1}$ per $kg\ m^{-3}$

Soil - Plant Model

	Dry weight conversion factor	Homegrown fraction		Soil loading factor	Preparation correction factor
		Average	High		
	$g\ DW\ g^{-1}\ FW$	dimensionless		$g\ g^{-1}\ DW$	dimensionless
Green vegetables	0.096	0.05	0.33	1.00E-03	2.00E-01
Root vegetables	0.103	0.06	0.40	1.00E-03	1.00E+00
Tuber vegetables	0.210	0.02	0.13	1.00E-03	1.00E+00
Herbaceous fruit	0.058	0.06	0.40	1.00E-03	6.00E-01
Shrub fruit	0.166	0.09	0.60	1.00E-03	6.00E-01
Tree fruit	0.157	0.04	0.27	1.00E-03	6.00E-01

Gardener type Average

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RESULTS

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		Assessment Criterion (mg kg^{-1})			Ratio of ADE to HCV			Saturation Limit (mg kg^{-1})	50% rule?	
		oral	inhalation	combined	oral	inhalation	combined		Oral	Inhal
1	Arsenic	3.24E+01	8.50E+01	NR	1.00	0.38	NR	NR	No	No
2	Benzo(a)pyrene	1.50E+00	2.93E+00	9.91E-01	0.66	0.34	1.00	5.46E+00 (vap)	No	No
3	Dibenzo(a,h)anthracene	1.39E+00	2.62E+00	9.07E-01	0.65	0.35	1.00	2.36E-02 (vap)	No	No
4	Napthalene	1.43E+02	1.10E+02	6.21E+01	0.43	0.57	1.00	4.32E+02 (sol)	No	No
5										
6	Benzo(a)anthracene	1.00E+01	1.87E+01	6.52E+00	0.65	0.35	1.00	1.03E+01 (sol)	No	No
7	Benzo(k)fluoranthene	1.50E+01	2.94E+01	9.95E+00	0.66	0.34	1.00	4.12E+00 (sol)	No	No
8	Indeno(1,2,3-c,d)pyrene	6.40E+00	1.24E+01	4.23E+00	0.66	0.34	1.00	3.68E-01 (vap)	No	No
9	Aliphatic C10 - C12	4.24E+03	6.10E+03	3.28E+03	0.63	0.37	1.00	2.83E+02 (vap)	Yes	Yes
10	Aromatic C12 - C16	6.01E+02	1.18E+05	6.00E+02	1.00	0.00	1.00	1.00E+03 (sol)	Yes	Yes
11	Aliphatic C16 -C35	8.84E+04	NR	NR	1.00	NR	NR	5.09E+01 (sol)	Yes	No
12	Aromatic C5 - C7 (benzene)	3.76E+02	1.16E+04	3.64E+02	0.97	0.03	1.00	4.71E+03 (sol)	No	No
13	Aromatic C12 - C16	6.01E+02	1.18E+05	6.00E+02	1.00	0.00	1.00	1.00E+03 (sol)	Yes	Yes
14	Aromatic C16 - C21	7.70E+02	NR	NR	1.00	NR	NR	3.21E+02 (vap)	Yes	No
15	Aromatic C21 - C35	1.23E+03	NR	NR	1.00	NR	NR	2.90E+01 (sol)	Yes	No
16										
17										
18										
19										
20										

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	Assessment Criterion (mg kg^{-1})			Ratio of ADE to HCV			Saturation Limit (mg kg^{-1})	50% rule?	
	oral	inhalation	combined	oral	inhalation	combined		Oral	Inhal
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

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		Soil Distribution				Media Concentrations													
		Sorbed	Dissolved	Vapour	Total	Soil	Soil gas	Indoor Dust	Outdoor dust at 0.8m	Outdoor dust at 1.6m	Indoor Vapour	Outdoor vapour at 0.8m	Outdoor vapour at 1.6m	Green vegetables	Root vegetables	Tuber vegetables	Herbaceous fruit	Shrub fruit	Tree fruit
		%	%	%	%	mg kg^{-1}	mg m^{-3}	mg kg^{-1}	mg m^{-3}	mg m^{-3}	mg m^{-3}	mg m^{-3}	mg m^{-3}	mg kg^{-1} FW	mg kg^{-1} FW	mg kg^{-1} FW	mg kg^{-1} FW	mg kg^{-1} FW	mg kg^{-1} FW
1	Arsenic	99.9	0.1	0.0	100.0	3.24E+01	NR	1.62E+01	1.38E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-02	1.30E-02	7.45E-03	1.07E-02	6.48E-03	3.56E-02
2	Benzo(a)pyrene	100.0	0.0	0.0	100.0	9.91E-01	3.89E-07	4.96E-01	4.22E-10	0.00E+00	3.88E-10	4.02E-13	0.00E+00	1.19E-03	2.20E-03	1.56E-03	0.00E+00	0.00E+00	2.59E-06
3	Dibenzo(a,h)anthracene	100.0	0.0	0.0	100.0	9.07E-01	7.56E-07	4.54E-01	3.86E-10	0.00E+00	4.69E-10	2.38E-13	0.00E+00	4.23E-04	1.39E-03	9.48E-04	0.00E+00	0.00E+00	8.88E-07
4	Napthalene	98.8	1.2	0.0	100.0	6.21E+01	1.81E+01	3.11E+01	2.64E-08	0.00E+00	4.21E-04	1.17E-07	0.00E+00	1.11E+01	1.52E+01	3.95E+00	0.00E+00	0.00E+00	5.02E+00
5																			
6	Benzo(a)anthracene	100.0	0.0	0.0	100.0	6.52E+00	7.63E-05	3.26E+00	2.77E-09	0.00E+00	1.52E-08	4.85E-12	0.00E+00	9.33E-03	2.39E-02	1.66E-02	0.00E+00	0.00E+00	6.08E-05
7	Benzo(k)fluoranthene	100.0	0.0	0.0	100.0	9.95E+00	3.36E-06	4.97E+00	4.23E-09	0.00E+00	3.35E-09	3.46E-12	0.00E+00	1.26E-02	1.92E-02	1.36E-02	0.00E+00	0.00E+00	1.78E-05
8	Indeno(1,2,3-c,d)pyrene	100.0	0.0	0.0	100.0	4.23E+00	2.86E-06	2.11E+00	1.80E-09	0.00E+00	2.68E-09	2.42E-12	0.00E+00	2.25E-03	1.38E-02	9.07E-03	0.00E+00	0.00E+00	2.98E-05
9	Aliphatic C10 - C12	99.9	0.0	0.1	100.0	3.28E+03	2.53E+04	1.64E+03	1.40E-06	0.00E+00	8.43E-02	2.35E-04	0.00E+00	6.17E-01	3.91E+00	6.74E+00	0.00E+00	0.00E+00	3.19E-03
10	Aromatic C12 - C16	99.8	0.2	0.0	100.0	6.00E+02	4.33E+01	3.00E+02	2.56E-07	0.00E+00	1.50E-04	4.20E-07	0.00E+00	2.18E+01	2.97E+01	1.13E+01	0.00E+00	0.00E+00	2.39E+00
11	Aliphatic C16 -C35	100.0	0.0	0.0	100.0	8.84E+04	4.72E+03	4.42E+04	3.76E-05	0.00E+00	1.57E-02	4.39E-05	0.00E+00	1.49E-08	4.41E-02	9.41E-02	0.00E+00	0.00E+00	8.73E-15
12	Aromatic C5 - C7 (benzene)	89.0	10.3	0.7	100.0	3.64E+02	1.60E+04	1.82E+02	1.55E-07	0.00E+00	4.69E-02	1.31E-04	0.00E+00	1.82E+02	2.81E+02	1.35E+02	0.00E+00	0.00E+00	3.16E+02
13	Aromatic C12 - C16	99.8	0.2	0.0	100.0	6.00E+02	4.33E+01	3.00E+02	2.56E-07	0.00E+00	1.50E-04	4.20E-07	0.00E+00	2.18E+01	2.97E+01	1.13E+01	0.00E+00	0.00E+00	2.39E+00
14	Aromatic C16 - C21	99.9	0.1	0.0	100.0	7.70E+02	1.09E+00	3.85E+02	3.28E-07	0.00E+00	6.27E-06	1.78E-08	0.00E+00	9.44E+00	1.47E+01	8.85E+00	0.00E+00	0.00E+00	4.64E-01
15	Aromatic C21 - C35	100.0	0.0	0.0	100.0	1.23E+03	6.94E-03	6.13E+02	5.22E-07	0.00E+00	3.38E-07	1.44E-09	0.00E+00	7.09E-01	2.77E+00	4.13E+00	0.00E+00	0.00E+00	6.32E-03
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	Soil Distribution				Media Concentrations												
	Sorbed	Dissolved	Vapour	Total	Soil	Soil gas	Indoor Dust	Outdoor dust at 0.8m	Outdoor dust at 1.6m	Indoor Vapour	Outdoor vapour at 0.8m	Outdoor vapour at 1.6m	Green vegetables	Root vegetables	Tuber vegetables	Herbaceous fruit	Shrub fruit	Tree fruit
	%	%	%	%	mg kg^{-1}	mg m^{-3}	mg kg^{-1}	mg m^{-3}	mg m^{-3}	mg m^{-3}	mg m^{-3}	mg m^{-3}	mg kg^{-1} FW	mg kg^{-1} FW	mg kg^{-1} FW	mg kg^{-1} FW	mg kg^{-1} FW	mg kg^{-1} FW
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		Average Daily Exposure (mg kg^{-1} bw day^{-1})							Distribution by Pathway (%)							
		Direct soil ingestion	Consumption of homegrown produce and attached soil	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour	Background (oral)	Background (inhalation)	Direct soil ingestion	Consumption of homegrown produce and attached soil	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour (indoor)	Inhalation of vapour (outdoor)	Background (oral)	Background (inhalation)
1	Arsenic	2.40E-04	2.27E-05	3.70E-05	7.62E-07	0.00E+00	0.00E+00	0.00E+00	79.89	7.54	12.31	0.25	0.00	0.00	0.00	0.00
2	Benzo(a)pyrene	7.35E-06	9.71E-07	4.91E-06	2.33E-08	3.58E-10	0.00E+00	0.00E+00	55.46	7.32	37.04	0.18	0.00	0.00	0.00	0.00
3	Dibenzo(a,h)anthracene	6.73E-06	5.48E-07	4.50E-06	2.14E-08	4.34E-10	0.00E+00	0.00E+00	57.06	4.65	38.11	0.18	0.00	0.00	0.00	0.00
4	Napthalene	4.61E-04	7.74E-03	3.08E-04	1.46E-06	3.89E-04	3.94E-04	1.70E-04	4.87	81.79	3.25	0.02	4.11	0.00	4.16	1.79
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6	Benzo(a)anthracene	4.84E-05	9.21E-06	3.23E-05	1.53E-07	1.40E-08	0.00E+00	0.00E+00	53.71	10.24	35.87	0.17	0.02	0.00	0.00	0.00
7	Benzo(k)fluoranthene	7.38E-05	9.18E-06	4.93E-05	2.34E-07	3.10E-09	0.00E+00	0.00E+00	55.70	6.93	37.20	0.18	0.00	0.00	0.00	0.00
8	Indeno(1,2,3-c,d)pyrene	3.13E-05	4.49E-06	2.09E-05	9.95E-08	2.48E-09	0.00E+00	0.00E+00	55.12	7.89	36.81	0.17	0.00	0.00	0.00	0.00
9	Aliphatic C10 - C12	2.43E-02	1.87E-03	1.25E-02	7.72E-05	7.80E-02	5.62E+95	6.06E+95	10.43	0.80	5.36	0.03	33.38	0.00	16.58	33.42
10	Aromatic C12 - C16	4.45E-03	1.32E-02	2.29E-03	1.41E-05	1.39E-04	5.62E+95	6.06E+95	11.06	32.88	5.68	0.04	0.35	0.00	49.62	0.38
11	Aliphatic C16 -C35	6.56E-01	7.57E-03	3.37E-01	2.08E-03	1.46E-02	5.62E+95	0.00E+00	32.78	0.38	16.84	0.00	0.00	0.00	50.00	0.00
12	Aromatic C5 - C7 (benzene)	2.70E-03	2.12E-01	1.39E-03	8.56E-06	4.34E-02	1.69E-04	1.21E-02	0.99	77.98	0.51	0.00	15.99	0.00	0.06	4.46
13	Aromatic C12 - C16	4.45E-03	1.32E-02	2.29E-03	1.41E-05	1.39E-04	5.62E+95	6.06E+95	11.06	32.88	5.68	0.04	0.35	0.00	49.62	0.38
14	Aromatic C16 - C21	5.71E-03	6.36E-03	2.93E-03	1.81E-05	5.80E-06	5.62E+95	0.00E+00	19.02	21.20	9.77	0.00	0.00	0.00	50.00	0.00
15	Aromatic C21 - C35	9.09E-03	1.24E-03	4.67E-03	2.89E-05	3.12E-07	5.62E+95	0.00E+00	30.30	4.13	15.57	0.00	0.00	0.00	50.00	0.00
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	Average Daily Exposure (mg kg^{-1} bw day^{-1})							Distribution by Pathway (%)							
	Direct soil ingestion	Consumption of homegrown produce and attached soil	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour	Background (oral)	Background (inhalation)	Direct soil ingestion	Consumption of homegrown produce	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour (indoor)	Inhalation of vapour (outdoor)	Background (oral)	Background (inhalation)
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		Oral Health Criteria Value (ε g kg^{-1} BW day^{-1})		Inhalation Health Criteria Value (ε g kg^{-1} BW day^{-1})		Oral Mean Daily Intake (ε g day^{-1})	Inhalation Mean Daily Intake (ε g day^{-1})	Air-water partition coefficient (K_{aw}) (cm^3 cm^{-3})	Coefficient of Diffusion in Air (m^2 s^{-1})	Coefficient of Diffusion in Water (m^2 s^{-1})	log K_{oc} (cm^3 g^{-1})	log K_{ow} (dimensionless)	Dermal Absorption Fraction (dimensionless)	Soil-to-dust transport factor (g g^{-1} DW)	Sub-surface soil to indoor air correction factor (dimensionless)	Relative bioavailability via soil ingestion (unitless)	Relative bioavailability via dust inhalation (unitless)
1	Arsenic	ID	0.3	ID	0.002	NR	NR	NR	NR	NR	NR	NR	0.03	0.5	1	1	1
2	Benzo(a)pyrene	ID	0.02	ID	0.00007	NR	NR	1.76E-06	4.38E-06	3.67E-10	5.11	6.18	0.13	0.5	1	1	1
3	Dibenzo(a,h)anthracene	ID	0.018	ID	0.000063	NR	NR	5.40E-06	4.08E-06	3.40E-10	5.27	6.38	0.13	0.5	1	1	1
4	Napthalene	TDI	20	TDI	0.86	7	2.8	6.62E-03	6.52E-06	5.16E-10	2.81	3.34	0.13	0.5	1	1	1
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6	Benzo(a)anthracene	ID	0.138	ID	0.00048	NR	NR	3.16E-05	4.60E-06	3.80E-10	4.89	5.91	0.13	0.5	1	1	1
7	Benzo(k)fluoranthene	ID	0.2	ID	0.0007	NR	NR	1.74E-06	4.36E-06	3.62E-10	5.17	6.26	0.13	0.5	1	1	1
8	Indeno(1,2,3-c,d)pyrene	ID	0.086	ID	0.0003	NR	NR	2.05E-06	4.17E-06	3.51E-10	4.94	5.97	0.13	0.5	1	1	1
9	Aliphatic C10 - C12	TDI	100	TDI	290	1E+100	1E+100	6.44E+01	1.00E-05	1.00E-09	5.38	6.3	0.1	0.5	10	1	1
10	Aromatic C12 - C16	TDI	40	TDI	60	1E+100	1E+100	1.26E-02	1.00E-05	1.00E-09	3.7	4.29	0.1	0.5	10	1	1
11	Aliphatic C16 -C35	TDI	2000	NR	NR	1E+100	NR	1.07E+03	1.00E-05	1.00E-09	8.76	10.39	0.1	0.5	10	1	1
12	Aromatic C5 - C7 (benzene)	TDI	223	TDI	1400	3	200	1.16E-01	8.77E-06	6.64E-10	1.83	2.13	0.1	0.5	10	1	1
13	Aromatic C12 - C16	TDI	40	TDI	60	1E+100	1E+100	1.26E-02	1.00E-05	1.00E-09	3.7	4.29	0.1	0.5	10	1	1
14	Aromatic C16 - C21	TDI	30	NR	NR	1E+100	NR	6.95E-04	1.00E-05	1.00E-09	4.15	4.82	0.1	0.5	10	1	1
15	Aromatic C21 - C35	TDI	30	NR	NR	1E+100	NR	2.48E-05	1.00E-05	1.00E-09	5.1	5.95	0.1	0.5	10	1	1
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	Oral Health Criteria Value (£g kg^{-1} BW day^{-1})		Inhalation Health Criteria Value (£g kg^{-1} BW day^{-1})		Oral Mean Daily Intake (£g day^{-1})	Inhalation Mean Daily Intake (£g day^{-1})	Air-water partition coefficient (K_{aw}) (cm^3 cm^{-3})	Coefficient of Diffusion in Air (m^2 s^{-1})	Coefficient of Diffusion in Water (m^2 s^{-1})	log K_{oc} (cm^3 g^{-1})	log K_{ow} (dimensionless)	Dermal Absorption Fraction (dimensionless)	Soil-to-dust transport factor (g g^{-1} DW)	Sub-surface soil to indoor air correction factor (dimensionless)	Relative bioavailability via soil ingestion (unitless)	Relative bioavailability via dust inhalation (unitless)
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		Soil-to-water partition coefficient ($cm^3\ g^{-1}$)	Vapour pressure (Pa)	Water solubility ($mg\ L^{-1}$)	Soil-to-plant concentration factor for green vegetables (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for root vegetables (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for tuber vegetables (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for herbaceous fruit (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for shrub fruit (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for tree fruit (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)
1	Arsenic	5.00E+02	NR	1.25E+06	0.00043 fw	0.0004 fw	0.00023 fw	0.00033 fw	0.0002 fw	0.0011 fw
2	Benzo(a)pyrene	4.48E+03	2.00E-08	3.80E-03	0.0125 dw	model	model	model	model	model
3	Dibenzo(a,h)anthracene	6.48E+03	1.66E-10	6.00E-04	0.00486 dw	model	model	model	model	model
4	Napthalene	2.25E+01	2.31E+00	1.90E+01	model	model	model	model	model	model
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6	Benzo(a)anthracene	2.70E+03	1.24E-06	3.80E-03	0.0149 dw	model	model	model	model	model
7	Benzo(k)fluoranthene	5.15E+03	1.64E-08	8.00E-04	0.0132 dw	model	model	model	model	model
8	Indeno(1,2,3-c,d)pyrene	3.03E+03	2.12E-09	2.00E-04	0.00555 dw	model	model	model	model	model
9	Aliphatic C10 - C12	8.35E+03	3.21E+01	3.39E-02	model	model	model	0.00E+00	0.00E+00	model
10	Aromatic C12 - C16	1.74E+02	1.14E+00	5.75E+00	model	model	model	0.00E+00	0.00E+00	model
11	Aliphatic C16 -C35	2.00E+07	2.38E-02	2.54E-06	model	model	model	0.00E+00	0.00E+00	model
12	Aromatic C5 - C7 (benzene)	2.35E+00	6.24E+03	1.78E+03	model	model	model	0.00E+00	0.00E+00	model
13	Aromatic C12 - C16	1.74E+02	1.14E+00	5.75E+00	model	model	model	0.00E+00	0.00E+00	model
14	Aromatic C16 - C21	4.92E+02	5.62E-03	6.53E-01	model	model	model	0.00E+00	0.00E+00	model
15	Aromatic C21 - C35	4.38E+03	1.61E-06	6.61E-03	model	model	model	0.00E+00	0.00E+00	model
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	Soil-to-water partition coefficient ($cm^3\ g^{-1}$)	Vapour pressure (Pa)	Water solubility ($mg\ L^{-1}$)	Soil-to-plant concentration factor for green vegetables (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for root vegetables (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for tuber vegetables (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for herbaceous fruit (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for shrub fruit (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for tree fruit (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)
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