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Technical Appendix 11.3 - Factual Phase II ESA
Regulation 5(2)(a)
Ramboll - March 2016

West Midlands Interchange

Four Ashes Ltd

Intended for
Four Ashes Limited

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FOUR ASHES, STAFFORDSHIRE

PHASE II ENVIRONMENTAL SITE ASSESSMENT – FACTUAL REPORT

RAMBOLL ENVIRON

FOUR ASHES, STAFFORDSHIRE
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CONTENTS

APPENDICES

EXECUTIVE SUMMARY

Ramboll Environ UK Limited ("Ramboll Environ") was commissioned by Four Ashes Limited (the "Client"), to undertake a Phase II Environmental Site Assessment (ESA) of the Four Ashes site, Staffordshire (the "Site"). The assessment was conducted in support of the Client as part of due diligence in relation to the proposed acquisition of the Site with an intention to redevelop for industrial / commercial usage; to inform the masterplanning of the proposed development; and to provide assessment data to support a Development Consent Order (DCO) application for the Site. It is understood that the DCO Application area may ultimately vary (as the masterplanning progresses) to that assessed as the Site in this report.

This Phase II Environmental Site Assessment (ESA) follows a Phase I report undertaken as a review of desk-based research and a Site inspection, which identified a number of potentially contaminative current and historical land uses in specific locations across the Site.

At the time of writing a finalised development layout was not available and hence assessment has been undertaken in consideration of a generic industrial / commercial development with a rail terminal.

The intrusive environmental works comprised the advancement of 26 no. deeper excavations with groundwater monitoring wells installed, 24 no. shallow excavations with dedicated gas monitoring wells installed; and 10 no. shallow excavations for soil sampling only. The sampling of soils and groundwater present was undertaken by Ramboll Environ, and analysis was completed by an accredited independent laboratory. Subsequent environmental monitoring has consisted of twelve groundwater level monitoring visits, two groundwater sampling rounds and four ground gas monitoring rounds.

Field Observations

The geology comprised generally glacial till with variable mudstone, sandstone and quartzite gravel underlain by weathered upper layers of the Bromsgrove Sandstone. No significant hardstanding was identified at the Site.

Screening of Analytical Results - Soils

The soil and groundwater analytical results were screened against assessment criteria for current Site users (human health) and future Site users in the context of commercial / industrial use, as well as with respect to the controlled waters environment.

None of the soil samples analysed were found to contain an exceedance of the Commercial/Industrial guideline values for inorganic compounds, with one minor exception which is not considered significant given the Site setting.

Asbestos was encountered in one soil sample taken from the Site (BH112 – a location in the south of the Site with reported landfilling). Further consideration of this location will be required once the development layout is finalised; preferably minimising earthworks required at this location (or adopting suitable mitigation measures during construction if applicable).

Screening of Analytical Results - Groundwater

A number of isolated exceedances for heavy metals was observed including copper and lead in BH212, copper in BH209, nickel in BH107 and BH203 and selenium in BH210 all of which are considered isolated exceedances and not an indication of significant impact to groundwater or surface waters.

Zinc was detected at concentrations in excess of the relevant screening criteria in BH221, BH201, BH203, BH212, BH215, BH223, BH222 and BH106. Exceedances were generally within one order

of magnitude above the relevant screening criteria and are limited to locations within the woodland area and in the southern part of the Site, east of the railway line. The proposed development at present does not include the area of the wood in the centre of the Site. If development were to be proposed for the woodland, further investigation is likely to be necessary.

An elevated concentration of ammoniacial nitrogen was detected within groundwater from BH112; the elevated concentration is potentially indicative of filled material and the production of leachate.

A number of exceedances for organic compounds was noted within BH217 which comprised individual volatile organic compounds and chlorinated solvents, lighter individual aromatic and aliphatic petroleum hydrocarbon fractions and speciated phenols. Also pyridine was identified in BH217 above the method detection limit and it is understood that pyridine was historically used at the adjacent, off-site SI Group facility.

1. INTRODUCTION

1.1 Background

Ramboll Environ UK Limited ("Ramboll Environ") was commissioned by Four Ashes Limited (the "Client"), to undertake a Phase II Environmental Site Assessment (ESA) of the Four Ashes site, Staffordshire (the "Site" as illustrated by Figure 1, Appendix 1). The assessment was conducted in support of the Client as part of due diligence in relation to the proposed acquisition of the Site with an intention to redevelop for industrial / commercial usage; to inform the masterplanning of the proposed development; and to provide assessment data to support a Development Consent Order (DCO) application for the Site. It is understood that the DCO Application area may ultimately vary (as the masterplanning progresses) to that assessed as the Site in this report.

This Phase II Environmental Site Assessment (ESA) follows a Phase I report[1] undertaken as a review of desk-based research and a Site inspection, which identified a number of potentially contaminative current and historical land uses in specific locations across the Site.

This ESA intrusive works were conducted by Waldeck Associated Ltd (the project consulting engineers) who instructed a third party site investigation contractor, RSA Geotechnics Ltd (RSA), to undertake and manage the Site investigation works, including the interpretive geotechnical Site assessment. Ramboll Environ, prior to the works, liaised with Waldeck Associates Ltd (Waldeck) and input into a specification works, as such Ramboll Environ acted as the environmental specialist and undertook all environmental sampling, monitoring and assessment.

This assessment was not intended to duplicate works undertaken in relation to land owned by SI Group (in the south-west of the Site). This area is currently subject to ongoing groundwater remediation works (under agreement with the Environment Agency). The scope of this assessment is not to consider the liabilities, viability or timescales associated with these remediation works. Therefore this particular area has only been assessed in terms of potential relevance to the proposed development (and not ultimate risk to controlled waters receptors).

At the time of writing a finalised development layout was not available and hence assessment has been undertaken in consideration of a generic industrial / commercial development with a rail terminal.

In advance of the intrusive works the proposed scope was issued to the Environment Agency (EA) and South Staffordshire District Council (SSDC) for comment. In general the proposed scope was agreed with these parties, however the following comments were received by Ramboll Environ:

- From the EA; an additional borehole was suggested in the south-west of the Site; and
- From SSDC; additional ground gas monitoring was suggested (i.e. beyond the four monitoring visits proposed).

In light of comments received Ramboll Environ included an additional borehole as per Environment Agency comment (thus making 26 'deeper' excavations). Regarding the SSDC comment further gas monitoring was considered more appropriate once a development layout was finalised and so the proposed ground gas monitoring was left as originally proposed and this approach was clarified with SSDC via email correspondence dated 25th September 2015.

[1] Phase I Environmental Assessment, Four Ashes, Ramboll Environ, February 2015 RUK15-19880_01

1.2 Objectives

The main objective of the works conducted by Ramboll Environ was to assess the potential presence and likely significance of ground contamination and associated potential liabilities at the Site which need to be addressed in the development of the Site for commercial / industrial end-use.

The specific objectives were as follows:

- to characterise soils beneath the Site and the extent to which contamination, if present, may have leached into the underlying deposits; and
- to characterise shallow groundwater beneath the Site, including the depth to groundwater, the direction of groundwater flow and presence and potential significance on contaminant impacts.

1.3 Limitations

In the preparation of this report Ramboll Environ has made reference to the UK regulatory guidance and methodologies, including, but not limited to: CLR11 Model Procedures for the Management of Land Contamination; BS5930:1999 Code of Practice for Site Investigation; BS10175:2011 Code of Practice for the Investigation of Potentially Contaminated Sites, and the EA Guiding Principles for Land Contamination (GPLC). This report does not constitute a geotechnical assessment of the Site and should not be relied upon for geotechnical appraisal of the proposed development (a geotechnical assessment is being undertaken by other parties).

This review cannot rule out the existence of latent conditions including contamination not identified and defined by the data and information available for Ramboll Environ's review; however, this report is intended, consistent with normal standards of practice and care, to assist the Client in identifying the risks of such latent conditions.

The conclusions presented in this report represent Ramboll Environ's best professional judgment based upon the information available and conditions existing as of the date of this report. In performing its assignment, Ramboll Environ must rely upon publicly available information, information provided by the Client and information provided by third-parties. Accordingly, the conclusions in this report are valid only to the extent that the information provided to Ramboll Environ was accurate and complete.

This review is not intended as legal advice, nor is it an exhaustive review of Site conditions or facility compliance. Ramboll Environ makes no representations or warranties, expressed or implied, about the conditions of the Site.

This report has been prepared for the exclusive use of the Client and may not be relied upon by any other person or entity without Ramboll Environ's prior express written permission.

1.4 Report Layout

The report is structured in the following way:-

Section 1: describes the background to the report and sets out the objectives of the investigation;

Section 2: describes the current Site layout and summarises pertinent desktop information;

Section 3: introduces a preliminary conceptual site model for the Site and describes the investigation strategy, sets out the sampling and analysis rationale/techniques;

Section 4: describes the findings of the investigation, including the ground and groundwater conditions and summarises field evidence of contamination;

Section 5: summarises the laboratory chemical analysis results for soils and groundwaters and screens the data against risk based Generic Assessment Criteria (GAC) for human health and controlled waters devised by Ramboll Environ; and

Section 6: screens ground gas data against generic screening criteria, summarises the results of ground gas monitoring and discusses potential risks to the built environment.

2. SITE DESCRIPTION

2.1 Site Setting

The Site is located approximately 10 km to the north of Wolverhampton City Centre, at National Grid Reference 391566, 309885 (see Figure 1, Appendix 1 for Site location). The Site forms an approximate horseshoe shape and occupies an area of approximately 194.1 hectares. The northern Site boundary is formed by the A5 road, the western Site boundary formed by the A449 (Stafford Road), the southern Site boundary formed by Vicarage Road and Junction 12 of the M6 motorway is located approximately 250 m to the north-east of the Site.

The horseshoe shape of the Site wraps around a central off-site area ('central area') which is composed primarily of (working from the north anti-clockwise) Calf Heath Wood, an area of hardstanding previously occupied by a chemical works and an associated undeveloped area, the SI Group works, and the northern part of the Four Ashes Industrial Estate. The Staffordshire and Worcestershire Canal runs through this central area as does a railway line. Four Ashes Industrial Estate is located adjacent to the southern Site boundary, extending to 490 m south. Residential properties (from 70 m south) are located on Station Road which is approximately 130 m to the south of the western side of the Site. South of the eastern side of the Site boundary are several scattered residential properties (some located directly adjacent to the Site boundary) and agricultural land.

To the east, north and west (outside the 'horseshoe') the land surrounding the Site primarily comprises open (greenfield) land used for agricultural purposes. Small residential and commercial properties are located along the A5 to the north of the Site, including a petrol filling station and a nursery/garden centre. Calf Heath Reservoir is located adjacent to the north-eastern Site boundary and light industrial units are located adjacent to the northern Site boundary.

2.2 Site Description

The Site forms an approximate horseshoe shape occupying an area of approximately 194.1 hectares. The topography of the Site is gently undulating with a gentle rise to the east. The corners of the Site are at the following elevations:

- NE: 113 m above Ordnance Datum (AOD);
- SE: 116 m AOD;
- NW: 105 m AOD; and
- SW: 102 m AOD.

The horseshoe can be arbitrarily split into three sections for ease of description – referred to herein as the western, northern and eastern parts. Figure 2, Appendix 1, details the Site layout and particular features within the Site boundary.

A railway line is orientated north-south along the eastern boundary of the western arm of the horseshoe creating a parcel of land between the railway and the A449 ('the western part'). The 'northern part' of the horseshoe is formed by land located between the railway (to the west) and Calf Heath Reservoir (to the east). The Staffordshire and Worcestershire Canal runs approximately north-south through the centre of the northern part, bisecting it. The 'eastern part' is the land aligned along Vicarage Road and is formed from a number of agricultural fields, part of Calf Heath Wood and part of the Salop quarry.

Western Part

The western part comprises a narrow section (two fields wide) of open agricultural land, characterised by drainage channels, hedges and trees, and bisected by Gravelly Way orientated west–east; essentially bisecting the western part into two areas, a northern and southern

section. The eastern boundary of this area is formed by the railway line, which is sited in a cutting varying between 1 – 5 m below ground level (bgl). Fir Tree Cottage (off-site residential property) is located adjacent to the south-western Site boundary. A small copse of trees is located adjacent to the railway line, and a small pond is located in the south. A copse and marsh is located in the north-west.

The southern area of this western part is currently owned by the SI Group with a number of monitoring / abstraction wells situated across this portion of land. The boreholes are generally installed on a concrete pad with two steel protective rails at either side. Some of the wells were enclosed in small individual compounds with steel security fencing and secured with a lock. The wells varied in size although typically, the top of the well was approximately 1 m above ground level. The unenclosed wells were locked with a padlock. The wells relate to on-site remediation / groundwater monitoring works.

Northern Part

The northern part primarily comprises open agricultural land, interspersed with trees, hedgerows and small ponds. The canal runs through this area, set approximately 0.5 m below Site level, and is lined with trees on the east side. Two copses, one with ponds, and a number of scattered individual landscape trees, are located between the railway and the canal. Inset into this area, but off-site, are a number of residential and light commercial properties aligned along Croft Lane and the northern part of the on-site canal. Unmarked storage buildings are situated to the west of the canal; however, situated outside of the boundary.

The east of this area is occupied by an active sand and gravel quarry (Salop Quarry) with a new road to access it from the north via the A5. During the Phase II ESA, the active area of the quarry had extended further south and was observed to be stripping top soil from fields adjacent to the southern Site boundary, thereby extending the quarry from the north-east through to the southern boundary, all directly east of Calf Heath Wood.

Eastern Part

The eastern part comprises open agricultural land lined with hedgerows and part of Calf Heath Wood. Its boundary is formed by Vicarage Road and Woodside Farm is located adjacent off-site.

2.3 Site Operations

The majority of the Site (other than the quarry, see below) is largely utilised for agriculture. The Site has a small number of access roads and paths for maintenance works for the canal and the railway as well as an access road to Gailey Park Industrial Estate, Gravelly Way, Four Ashes.

The following activities were observed either during the Site walkover (January 2015) or during the Phase II ESA (November 2015):

- a temporary boot wash and staff comfort facility (temporary portable cabin) for rail workers was present in the western part at the southern end by the railway for temporary use and was identified during the Site walkover, but not present from at least October 2015 during the intrusive works. Some equipment was stored in this location within a steel container. Railway workers reported that there were no generators or tanks for fuels or oils at this facility, and none were observed during the Site inspection;
- Calf Heath Quarry has been in operation in the north-east of the Site since March 2012. Salop Sand and Gravel Ltd have an Environmental Permit (not available to view during the Site inspection) to extract sand and gravel from six fields in total over 25 years. The extraction works are phased and at the time of the investigation the works had begun across Phase 4B in the southern portion of the Site with the stripping of topsoil to reveal the underlying superficial deposits for quarrying. The storage of fuels was observed during the Phase II ESA

which included a number of mobile above-ground storage tanks with pumps and generators adjacent. A number of 205-litre drums were observed with no secondary containment. Some oily residues (sheen) were observed on the wet ground adjacent to the storage of fuels and chemicals.

3. PRELIMINARY RISK ASSESSMENT

The following information was collated prior to the Phase II ESA to identify potential areas of concern to target during the intrusive works. The preliminary Conceptual Site Model (CSM) is a simplified representation of the environmental conditions at, and in the vicinity of the Site, and is used to initially identify potential sources, potentially sensitive receptors and potential contaminant linkages.

3.1 Potential Sources of Contamination

Potential for Contamination based on current on-site activities prior to investigation:

- The majority of the Site (approximately 85% of the total Site area) comprises open land of agricultural appearance with a ***low*** potential for significant soil or groundwater contamination. 15% of the Site comprises active areas of a sand and gravel quarry, and potentially contaminative activities (including storage and use of oils and fuels) are limited to a small sub-section. Housekeeping practices were observed to be relatively poor and use of secondary containment was limited, with storage and use of oils and fuels over unsurfaced ground noted in a few locations. However no signs of significant leaks or spills were noted and none were reported by the Site contact. Overall, the potential for significant soil and groundwater contamination in the quarry section of the Site is considered to be ***low-moderate***.

Potential for Contamination based on historic on-site activities prior to investigation:

- From at least 1883 the Site was largely undeveloped agricultural land with a ***low*** potential for significant soil or groundwater contamination.
- Anecdotal information suggests limited storage of fireworks in the centre of the Site, the specific location could not be identified. As such there is a **low-moderate** potential for significant soil or groundwater contamination as a result of this storage.
- Four Ashes Quarry landfill site, located in the south-east of the Site, was active from July 1982 until December 1985 and accepted inert waste. Based on current information available, the potential for significant soil or groundwater contamination to exist within the location of the former on-site landfill due to historic uses is considered to be ***moderate***.

Potential for Contamination based on current off-site activities:

- The majority of the Site is surrounded by undeveloped land with several residential properties and a few light industrial / commercial units located adjacent to the Site boundary.
- Four Ashes Industrial Estate and the SI Group are located within the central off-site area, and these comprise numerous large units of industrial / commercial appearance with the potential for re-fuelling activities and hazardous waste storage. In general there is a ***low*** potential for significant soil and groundwater contamination as a result of current off-site activities. The exception being the off-site SI Group works where there is ***low-moderate*** potential for significant soil or groundwater contamination as a result of current off-site activities. This potential risk is present for any neighbouring land with a similar usage, however it is noted that the SI Group facility is under regulatory control (Environmental Permit), with strict compliance requirements for the storage and management of hazardous materials.

Potential for Contamination based on historic off-site activities:

- Historically the majority of the Site has been surrounded by undeveloped land with a ***low*** potential for significant soil or groundwater contamination. Historical potentially contaminative activities in the vicinity that have been present within a 250 m radius of the Site include Four Ashes Industrial Estate which has been occupied by chemical works since

the mid-1920s, and by a carbon works and a tar and chemical works since the mid-1950s. The potential for significant soil or groundwater contamination to exist at the Site as a result of these off-site activities is considered to be ***high*** and it is known there is significantly impacted groundwater in the south-west of the Site, which comprises phenol contamination as a result of off-site historic activities. A remediation strategy has been developed and approved by regulatory bodies, which is expected to last between 12 and 20 years to remove a significant proportion of contaminated groundwater via a pump and treat method.

- Historic landfill sites are also located to the south-east of the Site. The potential for significant soil or groundwater contamination to exist at the Site as a result of the off-site landfills is considered to be ***low-moderate***.
- At the time of commencement of the intrusive site works (as works commenced) there was anecdotal reference to former munition works within off-site land (within the location of the current SI Group facility). This suggestion was purely anecdotal and not verified by any previous information. However, taking a precautionary approach Ramboll Environ included an explosives analytical suite within groundwater samples in the south-west of the Site (this location was chosen given the anticipated direction of groundwater flow).

3.2 Site Environmental Setting / Potential Pathways

- The Site is located on a Secondary A Aquifer (superficial deposits) which is further underlain by a Principal Aquifer (sandstone formation) and there are five sensitive groundwater abstractions within 2 km. Approximately 85% of the Site is situated within an Environment Agency designated Groundwater Source Protection Zone (SPZ) 3 Total Catchment; the remaining 15% (north-western corner) of the Site is situated within a Zone 2 (Outer Zone) SPZ. Overall, the hydrogeological sensitivity in the vicinity of the Site is considered to be ***high***, furthermore the vulnerability of the groundwater resources is considered to be ***high*** due to the lack of extensive building/hardstanding coverage of the Site, and the presence of abstractions including two for potable water supply located 1.39 km west and 1.49 km south.
- The Staffordshire and Worcestershire Canal is located in the west of the Site and the Calf Heath Reservoir is located immediately off-site to the north-east. There are three licensed surface water abstractions on-site and a further 18 within a 2 km radius. None of these are considered to be for a sensitive use. Overall, the hydrological sensitivity and vulnerability of the Site are considered to be ***moderate-high***.
- The Site is situated outside a currently designated floodplain, In general terms this means the risk of the Site flooding from rivers or seas is less than 0.1% (1 in 1000).
- Four Ashes SSSI is located 140 m south of the Site, there are no other designated ecologically sensitive sites within a 1 km radius of the Site.

3.3 Potential Receptors present

Table 3-1: Potential Receptors present at the Site

Potential Receptors to Contamination (if Present)			Receptor Present?
Humans	On-site	The site is currently in use as agricultural land with a quarry; there is very limited coverage with hardstanding.	Yes
	On-site	Future site users – the site is proposed to be redeveloped for industrial/commercial use.	Yes
	On-site	Controlled Waters for both groundwater and surface water:	Yes

Potential Receptors to Contamination (if Present)			Receptor Present?
Water Environment		Groundwater is expected to be present in the superficial deposits and Wildmoor/Bromsgrove Sandstone Formation, both classified as receptors, the latter as a Principal Aquifer. The Site is predominantly situated on a groundwater SPZ III with an area in the north-west designated at SPZ II. A number of watercourses are observed to traverse the Site, including: • an unnamed drain flowing across the northern area of the western part which reportedly connects to a culvert underneath the railway and then emanates on the eastern side of the railway to a drain (the eastern section of this drain was not observed to be flowing during the intrusive works); and • an unnamed drain flowing on-site and along the northern boundary.	
	Off-site	Surface water features within the surrounding land include: • Calf heath reservoir immediately off-site to the north-east; and • Saredon Brook (300m south at its nearest point) with a sluice connecting to an unknown drain/swale at 280m south.	Yes
Ecological Receptors	On-site	There are no designated ecological sites present on-site; however, the Site is formed from a number of fields with hedgerows across the Site, woodlands and a number of surface water features.	Unknown. Further ecological assessment is being undertaken and will be reported under separate cover.
	Off-site	Four Ashes SSSI is located 140 m south of the Site	Yes
Built Environment	On-site	No current and permanent buildings are cited within the Site boundary; however underground infrastructure is likely to be present in the form of land drains, electricity and gas supply as well as water and sewerage assets. The Site is proposed to be redeveloped for industrial/commercial use with underground structures anticipated.	Yes

The potential presence of contamination was not expected to preclude the future commercial / industrial redevelopment of the Site. However, further action (such as an intrusive investigation and/or remedial action) was recommended. The Phase 1 ESA concluded that the investigation should comprise assessment of the Site's contaminative profile specifically relevant to the proposed development, and early consultation with the relevant regulatory authorities; the Environment Agency and South Staffordshire District Council.

3.4 Preliminary Conceptual Model

In the UK, a risk-based approach is used to assess the potential impact associated with soil or groundwater contamination, as summarised in the Preliminary Conceptual Site Model (refer to Table 3.2). The groundwater underlying the Site is reported to migrate to the west, this suggests that any groundwater contamination caused from current or historical activities in Four Ashes Industrial Estate are likely to affect the south-west of the Site. The land in the east of the Site has remained largely undeveloped throughout the Site history; therefore since there are no significant sources of groundwater contamination, it was considered less likely that significant contamination is present in the groundwater underlying this portion of the Site.

Remedial works are ongoing in the south-west of the Site associated with the known phenol groundwater contamination; it is considered that these remedial works can continue during and following redevelopment of the Site (although there are a number of constraints to be overcome).

The preliminary conceptual site model is a simplified representation of the environmental conditions at, and in the vicinity of the Site, and is used to initially identify potential sources, potentially sensitive receptors and potential contaminant linkages.

Table 3.2: Preliminary Conceptual Site Model

Table 3.2: Preliminary Conceptual Site Model			
Source	**Pathway[2]**	**Receptor[3]**	**Risk of Contaminant Linkage[4]**
Current use of Site as undeveloped agricultural land (85% approximately). A sand and gravel quarry is located in the north-west of the Site (approximately 15% of the Site) and the production and storage of aggregate, mortar and screed, and concrete are also undertaken by separate companies from the quarry. A small section of the quarry is utilised for bulk oil and fuel storage, and for maintenance activities both on unsurfaced ground and on good quality concrete hardstanding. Use of secondary containment is not consistent.	Leaching to Groundwater & Groundwater Flow.	Groundwater in the superficial deposits and Wildmoor / Bromsgrove Sandstone Formation.	*Low (agriculture).* No significant on-site potential contamination sources from current use. There is potential for low-level herbicide / pesticide applications. However, following liaison with Site contacts there are no known areas of agricultural waste burial or activities of potential concern such as sheep 'dipping'. *Moderate (quarry)*. Some unbunded bulk storage of fuels and oils over unsurfaced ground; however the area affected is relatively small and there are no signs or reports of significant leaks or spills. There are three sensitive abstractions within a 1 km radius of the Site including an abstraction for potable water supply 1.39 km west of the Site.
	Surface water run-off.	Surface water as controlled water.	*Low.* No significant on-site potential contamination sources from agricultural use. Process water at the quarry is controlled and retained onsite and settled within a lagoon as part of the quarry's Environmental Permit. Potential receptors include the Staffordshire and Worcestershire Canal which is located on-site in the west and the Calf Heath Reservoir which is situated immediately off-site to the north-east. There are no sensitive surface water abstractions within 2 km of the Site.

[2]Pathway: mechanism or route by which a contaminant comes into contact with, or otherwise effects, a receptor.

[3]Receptor: persons, living organisms, ecological systems and controlled waters that could be adversely affected by the contaminants.

[4]Risk: probability of the occurrence of, and magnitude or the consequences of, an unwanted adverse effect on a receptor.

	Dermal contact / ingestion.	Site buildings, users and neighbours.	*Low to Moderate.* No significant on-site potential contamination sources from current use. Buildings present on-site comprise metal containers and elevated portable cabins, and limited users of the Site.
Potential sources of contamination relating to historic use on site include; A historical landfill is recorded to be present on-site in the south-east and a gravel pit was infilled in the north-west of the Site by 1902.	Leaching to Groundwater & Groundwater Flow.	Groundwater in the superficial deposits and Wildmoor / Bromsgrove Sandstone Formation.	*Low to Moderate.* Potential contamination from historical activities cannot be ruled out. Limited low permeability superficial deposits are present to protect the sandstone aquifer.
		Surface water as controlled water via connectivity with groundwater flow.	*Low.* Potential contamination from historical activities cannot be ruled out. The nearest receptor is the Staffordshire and Worcestershire Canal which is located on-site in the west and the Calf Heath Reservoir which is situated immediately off-site to the north-east. The Canal is considered likely to be a sealed unit and thus not in continuity with shallow groundwater flow.
	Dermal contact / ingestion.	Site buildings, users and neighbours.	*Low to Moderate.* Potential contamination from historical activities cannot be ruled out and there is potential for isolated pockets of contaminants to be located within soils or groundwater on-site. Potential Site users include employees and contractors of the quarry in the north-east of the Site and staff working on the railway. There is also potential for the public to access the Site as the area is not secured. The proposed development will likely comprise the placement of hardstanding cover across a significant portion of the Site, effectively breaking the potential direct contact pathway with future users of the Site. However, a potential short term risk would be posed to future construction workers during the redevelopment process such as during installation of foundations and utility services.
	Vapours/ground gases		*Low to Moderate (vapour).* Potential for vapours from historic use of the Site. There is no hardstanding and only approximately five small buildings currently onsite therefore there is limited opportunity for any vapours to accumulate to a

			hazardous level. There is a moderate potential for a pollutant linkage to exist with regards to vapour ingress into any future development for both sub-surface and above ground buildings, particularly in the SI Group Land. *Low to Moderate (ground gas):* There is the potential for ground gas from organic agricultural deposits likely present across the site (and from the historic landfill area), which may affect future development, particularly within any sub-surface or basement construction. Ground gas assessment is recommended.
Potential current and historical off-site contamination sources in the vicinity of the site include: Multiple chemical works located within Four Ashes Industrial Estate from c.1924; Carbon works 80 m off-site from the c.1974; Engineering works, depots and warehouses immediately off-site from c.1954; A petrol filling station 40 m north from the c.1975; Historical landfill sites immediately south of the Site; and Sand and gravel works 200 m south from c.1954.	Leaching onto Site in Groundwater & Groundwater Flow.	Groundwater in the superficial deposits and Wildmoor / Bromsgrove Sandstone Formation.	*High*. The presence of potential contamination sources from off-site activities cannot be ruled out. Third party reports indicate that there is contamination of phenols in the groundwater, located beneath Four Ashes Industrial Estate. The associated plumes are reported to migrate to the west, potentially affecting the south-west of the Site.
	Vapours and Ground Gases.	Site buildings, users and neighbours.	*Moderate-High*. Potential for ground gases and vapours from historic use of surroundings cannot be ruled out, particularly due to the number of historic landfills located immediately off-site to the south-east.

3.5 Site Investigation Strategy

The intrusive investigation works were carried out by Waldeck using sub-contractors RSA who in turn employed further sub-contractors for specific works within the geotechnical assessment.

Ramboll Environ carried out the Environmental Site Assessment (ESA) in tandem with the geotechnical investigation. The works were supervised by Alison Huggins, Emily Betts, Damian Luscombe and Paul Andrews of Ramboll Environ with the intrusive works undertaken between 19th October and 6th November 2015.

The environmental works comprised 60 exploratory locations for environmental assessment purposes, some of which comprised deeper boreholes and some shallower window sample or trial pits.

The following exploratory locations were advanced for environmental assessment:

- 26 no. deeper excavations with groundwater monitoring wells installed;
- 24 no. shallow excavations with dedicated gas monitoring wells installed; and
- 10 no. shallow excavations (BH103, BH202, TP401, TP407, TP412, TP413, TP415, TP416, TP419 and TP424) for soil sampling purposes only with no environmental monitoring wells installed. These exploratory locations were backfilled with clean arisings (trial pits) and capped with bentonite clay (shallow borehole).

Deeper excavations as groundwater monitoring wells

The deep exploratory locations were advanced using either cable percussion or rotary drilling techniques to a maximum depth of either 10m bgl or 20m bgl respectively.

In total 26 no. groundwater monitoring wells were installed across the Site (BH101, BH102, BH103A, BH106, BH107, BH108, BH109, BH110, BH112, BH113, BH201, BH203, BH205, BH209, BH210, BH211, BH212, BH213, BH215, BH217, BH219, BH220, BH221, BH222, BH223 and BH224).

Groundwater monitoring wells were installed to ensure a minimum of 3 m groundwater column following groundwater level stabilisation.

Shallow excavations as gas monitoring wells

These exploratory locations were advanced using either dynamic sampling techniques or using cable percussion techniques to a maximum depth of 4m bgl or 10m bgl respectively.

In total 24 no. gas monitoring wells were installed at varying locations across the Site (WS301-WS304, WS308 to WS311, WS313, WS314, WS317 to WS322, WS324, BH204, BH206 to BH208, BH214, BH216 and BH218.

In general the installation of the gas monitoring wells consisted of a maximum depth of 4m bgl with a minimum of 1m non-screened section at the top to ensure sufficient 'seal' of the monitoring well.

3.5.1 Investigation Works

The following scope of works was undertaken as part of the Environmental Assessment:

- Soils were logged and sampled at regular intervals throughout the soil profile which included on-site screening of soil samples for volatile organic compounds (VOCs) using a hand held photo-ionisation detector (PID).
- Soils were submitted to an accredited independent laboratory (Jones Environmental Services) for analysis of a range of contaminants determined based on the Site's current and historic

uses including potentially harmful elements, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPHs), Volatile and Semi-Volatile Organic Compounds (VOCs and SVOCs) asbestos (identification and quantification where present), pH, phenolic compounds, pesticide, herbicides and sulphate.

- Groundwater level monitoring was undertaken on all installed monitoring wells on twelve (12) occasions across a four month period.
- Groundwater sampling was conducted on two (2) occasions at all groundwater monitoring wells and six (6) specific surface water locations.
- Groundwater samples were submitted to an accredited independent laboratory (Jones Environmental Services) for analysis of a range of contaminants based on the Site's current and historic uses similar to the soils and included potentially harmful elements such as metals, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPHs), VOCs and SVOCs, pH, phenolic compounds, pesticide, herbicides and sulphate and hardness. Additionally select groundwater samples were analysed for a standard suite of explosives.

Exploratory holes were located to ensure sufficient coverage of the Site and where possible close to potential sources of contamination and in areas close to receptors that may be considered down-gradient of any potential contamination or adjacent to potential receptors. Details of the strata encountered and monitoring installation construction are presented on the exploratory hole logs included as Appendix 2. A plan showing the location of the boreholes including those installed with monitoring wells is presented in Annex 1 as Figure 3.

3.6 Ground Gas Monitoring

Four rounds of ground gas monitoring have been undertaken using a GA5000 portable gas monitor and PID to detected VOCs. The ground gas monitoring visits were undertaken across the 1st and 2nd December 2015; 21st and 22nd December 2015; 7th and 8th January 2016; and 9th and 10th February 2016.

3.7 Sample Location Rationale

The rationale for positioning the sampling locations is described in Table 3.3 below. Overall, sample locations were devised to obtain information on ground conditions across the Site and to target the identified potential sources of contamination, as identified during the Phase 1 ESA walkover.

Table 3.3: Exploratory Hole Positioning Rationale

Exploratory Hole	Location	Rationale
BH221, BH112 and WS322	Located in the western side of the eastern part of the 'horseshoe'.	Identified as historic infilling at this location and adjacent to a large electrical sub-station.
TP407, TP412, BH208, BH106 and BH209	Located in the north-east area within the quarry.	Targeting the quarry and in particular the above ground fuel storage identified during the Site inspection.
WS309, WS310, WS311, WS313, WS314, BH108,	Located in the central/eastern area all within or immediately adjacent to Calf Heath Wood.	Specifically targeting the woodland area where disused unknown drums were observed on the ground during the Site investigation (likely to be pheasant feed). The wood is currently in use for weekend game shoots.

Exploratory Hole	Location	Rationale
BH212 and BH215		
WS308, WS317, BH218, WS324, BH211, BH213, BH107, BH217, BH110, BH219, BH220, WS324, BH224 and BH113	All located within the southern side of the western part of the Site.	Targeting general coverage as well as specific locations within the area previously identified to contain groundwater impacted with phenolic compounds. This area of the Site is undergoing continuous remediation/groundwater pumping and monitoring.
BH102	Located on-site and adjacent to the northern boundary and to the west of the canal.	To target the off-site Petrol Filling Station and act as a boundary location for the assessment.

The locations for the remainder of the exploratory locations were selected to ensure that the Site area was covered sufficiently as an initial assessment of the Site and identified potential contamination sources.

3.11 Sample Acquisition and Analysis

3.11.1 Soils

Soil sampling was undertaken during the works. Soil arising's from exploratory locations were examined visually and logged broadly in accordance with BS 5930:1999 and the European/British Standards BS EN ISO 14688 (for soils). Ramboll Environ has been provided with a draft copy of the borehole logs, issued by RSA, a copy of which is presented within Appendix 2.

Selected samples were placed into containers appropriate to the type of analysis being undertaken and stored in cool boxes. An independent UKAS and MCERTS accredited laboratory, Jones Environmental Ltd, was contracted for all analysis. The explosive suite was sub-contracted to BAE Systems. Chain of custody documentation was maintained to track samples and to fulfil QA/QC requirements.

Soil samples were selected for submission for laboratory analysis based on their visual appearance, observations of potential contamination and potential contaminants associated with former uses. A minimum of one sample per location was obtained.

Selected soil samples were tested on-site for the presence of volatile organic compounds (VOCs) using a photo-ionisation detector (PID), calibrated in accordance with Ramboll Environ's Quality Management procedures. The PID screens for a wide range of VOCs but does not indicate a specific compound; therefore, the results of the PID screening provide a semi-quantitative indication of the concentration of VOCs present in soil pore spaces.

An additional PID calibrated to detect phenol was taken to Site and used during works and subsequent environmental monitoring within the area of the Site where groundwater is understood to be impacted from phenol. The results of the PID screening are discussed in Section 4.2.1.

3.11.2 Groundwater

Groundwater was sampled across two distinct events: 24th and 25th December 2015 and also across 13th and 14th January 2016. The monitoring wells were developed on 18th and 19th December 2015 which entailed the pumping of groundwater from each well for at least 10 times the volume of the groundwater within the well, or removal of such groundwater volume to 'dry out' the well a minimum of three times.

Prior to sampling, the depth to the resting groundwater level as well as the base of the monitoring wells was measured. The wells were purged prior to sampling to ensure that a volume of at least 3 well volumes was removed; however a small number of the wells were identified to have a reasonably slow recharge rate at which point an appropriate 'grab' sample was obtained. Standard physiochemical parameters were monitored on-site using a Quattro Pro YSI Water Quality Meter, results are detailed within Appendix 5C.

The recovered samples were placed in containers supplied by the laboratory and stored in cool boxes. All samples were dispatched accompanied by chain of custody documentation to the analytical laboratory.

3.12 Analytical Strategy

The analytical strategy for the Site investigation was developed with reference to information regarding the areas of concern identified during the Phase 1 Site walkover, the activities which are known to have taken place on-site, and observations during the Site investigation.

The chemical analytical strategy employed for the assessment is summarised in Table 3.4. Groundwater and surface water sampling was conducted twice and numbers given within the table refer to samples obtained per sampling event.

Table 3.4: Analytical Strategy

Analytical Suite	Rationale	No. of soil samples submitted	No. of groundwater samples submitted	No. of surface water samples submitted
Metals (arsenic, boron, beryllium, cadmium, total chromium, hexavalent chromium, copper, mercury, nickel, lead, selenium, vanadium, and zinc)	Typically associated with Made Ground	89	26	6
pH	Increased or decreased pH can be associated with Made Ground	89	26	6
Total Cyanide	Typically associated with Made Ground and landfills.	89	26	6
Total Petroleum Hydrocarbons Criteria Working Group (TPH CWG inc. BTEX compounds)	Typically associated with fuels and oils.	89	26	6

Analytical Suite	**Rationale**	**No. of soil samples submitted**	**No. of groundwater samples submitted**	**No. of surface water samples submitted**
Polycyclic aromatic hydrocarbons (PAHs) – USEPA16	Typically associated with fuels and oils.	89	26	6
Total Phenols	Typically associated with Made Ground and also chemicals used within the SI Group land.	89	26	6
Speciated Phenols	Associated with the use of phenolic compounds as those identified to have impacted groundwater within the south-western part of the Site.	0	9	4
Asbestos Screen and Identification	Typically associated with older buildings and may be found in Made Ground.	56	N/A	N/A
Sulphate	May be associated with Made Ground.	89	26	6
Natural Moisture Content	Used in assessment of asbestos fibre release/dust generation potential.	12	N/A	N/A
Total Organic Content (TOC)	Used to identify organic rich material to understand the potential leaching of contaminants (if present) and to identify potential areas of concern regarding ground gases.	10	N/A	N/A
Volatile Organic compounds	Typically associated with fuels and associated with chemicals used within the SI Group land.	14	26	6
Semi-Volatile Organic compounds		12	0	0

Analytical Suite	Rationale	No. of soil samples submitted	No. of groundwater samples submitted	No. of surface water samples submitted
Pesticide and herbicide screen	Typically associated with agricultural land.	8	10	0
Polychlorinated biphenyls (PCBs)	Typically associated with transformer oils or hydraulic equipment such as within electrical substations.	5	6	0
Explosives Suite (across one groundwater monitoring round only)	Associated with the use of explosives such as firework storage.	0	6	0
Ammoniacal nitrogen, Chloride, Nitrate, Nitrite, Ortho-phosphate and sulphide	Associated with general agricultural areas and particularly within Nitrate Vulnerable Zones and in areas of heavy farming.	0	26	6
Hardness	To be used as part of the groundwater assessment given its value alters the metal compound's availability.	0	26	6

4. SITE INVESTIGATION WORKS

4.1 Soils / Geology

A separate Geotechnical Assessment was conducted by Waldeck with a copy of the exploratory logs (Report Number: 14-1015-WDK-G-Log Report, Revision 1.0) issued to Ramboll Environ, a copy of exploratory logs is provided in Appendix 2.

The strata encountered beneath the Site were found to be broadly consistent with published geological information. The sequence of strata encountered from the ground surface is summarised below.

4.1.1 Made Ground

An absence of potentially impacted Made Ground was evident across the Site, with the exception of BH112 and BH212. A depth of approximately 2.5m of infill material was observed within BH112 comprising a gravelly clay with plastic, glass, concrete and pieces of petrified wood and a silty gravel with brick was observed within shallow deposits at BH212.

Shallow deposits (<1m bgl) across the Site consisted of a clayey topsoil and/or grass cover. At the time of the investigation works, the western part of the Site had been cultivated with winter crops. Fields within the northern part of the Site had not been cultivated and were covered in the previous year's crop stubble and grass. Fields along the southern/eastern part of the Site consisted of grass covered top soil. At the time of the investigation the quarry had moved onto Phase 4b of the works and topsoil had been stripped from the southern fields and placed into stockpiles on-site and adjacent to the southern boundary.

4.1.2 Superficial deposits

Glacial drift deposits consisted of brown/orange/red fine to coarse sand with varying amounts of sandstone, mudstone and quartzite gravel with occasional sandy gravel deposits present.

Alluvial material was observed within BH103 and BH103A consisting of variable clayey sand and gravels. Additionally a layer of peat and silt was observed within BH103 at a depth of between 0.8m and 1.5m bgl. This area was observed to be marshland during subsequent monitoring visits and stretches from BH103 to BH103A, extending a third of the distance across the field towards BH205. An oily residue was observed to be leaching from the marshland with a sheen observed on the surface water, indicative of inorganic microbial action within the deposits due to stagnated water. The groundwater level at BH103A was observed to lie approximately 0.8m above the ground level during the Site investigation and was considered potentially be artesian in nature or alternatively this may relate to issues regarding insufficient land drainage.

Mudstone deposits were observed within BH101 at a depth of between 4.35m and 8.8m bgl.

4.1.3 Solid Geology

The solid geology at the Site consisted of weathered Sandstone (Bromsgrove Sandstone) comprising red/brown silty, fine to medium sand underlies the superficial drift at the Site and tends to increase in strength with depth. The depth to the top of the Sandstone varied and in general was observed within 10m of the ground level across the Site.

4.1.4 Evidence of Contamination in Soils

The following olfactory and visual evidence of contamination was observed during the intrusive works:

- BH112: A depth of approximately 2.5m of infill material was observed at BH112, located in the suspected landfill area in the south. The fill comprised a gravelly clay with plastic, glass and pieces of petrified wood and a minor organic odour was observed at this depth and location, related direct headspace PID readings of no more than 2.2 parts per million (ppm) were observed. This identified infill area was not observed within BH221 or WS322 and is therefore likely to be limited in area cover, a suitable sample was obtained from this infill material.
- BH217: Strong volatile odours were observed at depths of approximately 5-6m below ground level at BH217 (adjacent to railway in the centre of the SI Group land) with a minor odour at BH218 (central area within the SI Group land). This strong odour corresponded to high headspace PID readings of 20ppm at BH217 and PID readings of more than 120ppm were observed emanating from the open well. No elevated PID readings were observed at BH218 within soils; however, the volatile odour was observed during drilling.
- BH212: An unknown and potentially inorganic odour was observed within shallow made ground at BH212 located in the centre of the woodland area with blue glassy slag observed within the topsoil, a corresponding headspace PID reading of 0.6ppm was observed. A strong organic odour was observed emanating during subsequent monitoring from the ground approximately 2m distance from the borehole BH212, considered likely to be horse/cattle manure.
- Limited organic material was observed within BH103, likely to be peat, between 0.4-1.0m bgl, associated with a nearby drain/marsh area of the site. The drilling at this location was stopped at approximately 5m given a high water table and relocated further south (BH103A). This area was observed to be a marshland with oily residue observed on some of the stagnating water at surface. The area extends from BH103 south to BH103A and approximately one third distance to the east towards BH205. The peat deposits were not observed within BH205 or BH103.
- A hardcore material comprising blue and white glassy slag coarse and cobble sized gravel was observed on internal access roads within the woodland area in the centre of the Site. Additionally a number of bricks were observed at BH215 within the woodland, likely to have either been associated with former tracks or placed in this position historically.

Headspace Screening

A total of 345 soil samples were screened in the field for VOC contamination by headspace analysis. In the vast majority of soil samples, VOCs were either at very low concentrations (less than 2.0 ppm) or not detected (<0.1 ppm). The following exceptions were noted:

- 24.3 ppm - BH215 at 0.8m bgl.
- 35.0 ppm – BH203 at 3.8-4.0m bgl.
- 20.0 ppm – BH217 at 6.0m bgl.

4.2 Groundwater

4.2.1 Monitoring Well Installations

Twenty-six (26) cable percussion and rotary exploratory locations were installed with dedicated groundwater monitoring wells (see borehole logs presented in Appendix 2 for details of the installations).

Due to the general shallow nature of the Made Ground and the need to assess the shallow groundwater body, the response zones were all within the underlying natural strata targeting the superficial deposits and the upper weathered layers of the Bromsgrove Sandstone. No monitoring wells were installed to depths of beyond 10m below ground level.

4.2.2 Groundwater Levels

Groundwater monitoring has been conducted on twelve separate occasions. Groundwater levels were monitored between 0.0m bgl (BH103A) and 7.6m bgl (BH201) and generally within the superficial deposits and upper weathered Sandstone. When calculated with Ordnance Datum groundwater levels were observed between 96.423m Above Ordnance Datum (m AOD) within BH201 and 107.78m AOD within BH209. It is likely that water is hydraulically connected between superficial and deeper bedrock deposits. A copy of the monitoring results can be viewed within Appendix 5B and details the specific physiochemical parameters monitored.

When plotting the groundwater levels using Surfer programme, a general westerly groundwater flow was inferred for the majority of the Site including within the SI Group land. This correlates with previous understanding of a westerly groundwater flow direction. Groundwater flow in the north-western part of the Site appears to flow in a northerly direction, which is likely to be affected by the nearby north-south orientated railway set within a cutting of approximately 3-5m depth below ground level. The groundwater flow Surfer plots suggest that the cutting interferes with the shallow groundwater flow direction. It should be noted that the monitoring wells were installed to monitor the 'shallow' groundwater (less than 10m in depth from ground level) and not to make an assessment on deeper groundwater flow. Groundwater level variance was limited to between 0.3m and 4.36m with the highest variance observed within the eastern and northern areas of the site (BH109 and BH209). Given the heavy periods of rain within this area over the 2015 / 2016 winter time, it is anticipated that further variance is likely during drier months where recharge of the groundwater aquifer is reduced.

It is considered likely that the shallow groundwater is hydraulically connected across the Site, although it was noted that some groundwater wells 'recharged' much less quickly that other indicating a changeable permeability depending on local ground conditions.

4.2.3 Evidence of Contamination in Groundwater

The only visual or olfactory evidence of contamination observed within the groundwater and surface water samples was in groundwater obtained from BH217. The groundwater was observed to have an 'oily' feel to the water with a greasy residue observed on the sampling bailer used at this location. A strong volatile organic/solvent odour was noted at this location during subsequent well development, groundwater sampling and also gas monitoring. Beyond BH217, no further visual or olfactory evidence of contamination (such as hydrocarbon sheen or solvent odour) was noted within the groundwater during sampling.

As indicated earlier an oily sheen was observed within the surface water collected in the marshland adjacent to BH103, indicative of anaerobic conditions.

5. CHEMICAL ANALYSIS ASSESSMENT

5.1 Legislative Background

Under Part 2A of the Environmental Protection Act 1990 Section 78A(2), "contaminated land" is defined as "land which appears… to be in such a condition, by reason of substances in, on or under the land, that:

A. significant harm is being caused or there is a significant possibility of such harm being caused; or

B. significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused"[5] .

Revised statutory guidance ("the Guidance") for local authorities on how to implement the regime, including the decision-making process on whether land is contaminated land in the legal sense, has been published by Defra and entered into force in April 2012. "Significant harm" is defined in the Guidance on risk based criteria and must be the result of one or more relevant 'contaminant linkages' relating to the land. The presence of a contaminant linkage relies on the Source-Pathway-Receptor concept, where all three factors must be present and potentially or actually linked for a potential risk to exist.

The Guidance introduced a new four-category system for classifying land under Part 2A, where Category 1 land poses an unacceptable risk to human health and Category 4 includes land where the level of risk posed is acceptably low. For six common contaminants (benzo(a)pyrene, cadmium, arsenic, benzene, hexavalent chromium and lead), a set of screening values have been developed and endorsed for use by Defra[6] (the Category 4 Screening Levels, or C4SLs) that describe a level of risk just below the Category 3/4 boundary set in the Statutory Guidance, i.e. where concentrations are below the C4SL, there is no risk or the level of risk is acceptably low.

The pollution of controlled waters is defined in Section 78A(9) of the Act as "the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter". The new Guidance stresses that the Part 2A regime is designed to identify and deal with 'significant pollution' and not lesser levels of pollution.

The risk assessment presented in this report is based on the C4SLs for those contaminants where values are available and a set of generic assessment criteria (the Ramboll Environ GAC) for other contaminants, considered to be threshold-based screening concentrations at which a significant risk is not considered to be present to the relevant receptors.

5.2 Soil Analytical Results

The results of the soil laboratory analyses are summarised below, with the full analytical certificates presented as Appendix 3.

5.2.1 Soils - Inorganics

Table 5.1 below summarises the inorganic compounds present within the analysed samples.

[5] Water Act 2003 (Commencement No. 11) Order 2012
[6] SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document, Defra, March 2014

Table 5.1: Summary of Inorganic Analysis for Soils

Analyte	No. of samples	Min Conc.	Max Conc.	Location and depth of Max Conc. (m bgl)	Guideline Value (Ramboll Environ GAC)	No of samples exceeding	Location of Exceedance
Inorganics							
pH (pH units)	89	3.73	8.93	BH101 9.2-9.4	NA	NA	-
Arsenic	89	<0.5	39.1	BH103A 0.2-0.4	640	0	-
Beryllium	89	<0.5	5.2	WS302 2.8-3.0	417	0	-
Boron (water soluble)	89	<0.1	4.2	BH112 2.5-2.6	192000	0	-
Cadmium	89	<0.1	2.3	BH112 2.5-2.6	410	0	-
Chromium (total)	89	28.5	170.8	BH218 0.2-0.3	30400	0	-
Hexavalent chromium	89	<0.3	1	BH103 1.2-1.4	49	0	-
Copper	89	2	67	BH103 1.2-1.4	71700	0	-
Cyanide (total)	89	<0.5	1	BH103A 0.2-0.4	14000	0	-
Lead	89	<5	191	BH112 2.5-2.6	2300	0	-
Mercury	89	<0.1	0.4	BH223 6.5	4.3	0	-
Nickel	89	3.3	40.5	WS302 2.8-3.0	1790	0	-
Selenium	89	<1	2	BH212 0.8-1.1	13000	0	-
Vanadium	89	6	57	BH212 0.8-1.1	3160	0	-
Zinc	89	5	416	BH103 1.2-1.4	665000	0	-
Sulphate (2:1 Ext g/l)	89	0.0015	0.1236	BH212 0.8-1.1	NC	NA	-

Notes:
All concentrations are in mg/kg unless stated
Ramboll Environ GAC based on an industrial/commercial land use
NC – no criteria
NA – not applicable

Metals were not detected above their respective GAC in any of the samples analysed.

pH values ranged from pH 3.73 (WS313 0-0.2m bgl) to pH 8.93 (BH101 9.2-9.4m bgl). pH values recorded below 4 were observed within the Calf Heath Wood amongst an expanse of pine trees at WS313 0-0.2m bgl (3.73 pH) and BH108 1.1-1.2m bgl (3.88 pH).

Total Sulphate was detected at concentrations above the Methodology Detection Limit (MDL) in 58 out of 89 samples submitted for analysis. The highest concentration detected was 123.6 mg/l at BH212 0.8-1.1m bgl located in the centre of the woodland corresponding to silty gravel with moderate inorganic odour.

Total Cyanide was detected at concentrations above the MDL in 5 out 89 samples analysed. A maximum concentration of 1 mg/kg was detected at BH103A 0.2-0.4m bgl.

Asbestos – Fifty-six (56) samples from the Made Ground were submitted for asbestos screening. One (1) of those samples were identified by the laboratory as containing quantifiable amosite asbestos fibres (BH112 at 1.1-1.2m bgl). Quantification testing reported 0.008 mass % described as a 'small bundle of fibres'. The potential for exposure of ground-workers involved in any future redevelopment works at the Site to asbestos in soil should be considered at the design stage of any planned works at this particular location.

5.2.2 Soils - Organics

Table 5.2 below summarises the data for the organic compounds.

Concentrations of determinands detected above their respective analytical MDLs have been screened against corresponding GAC for human health considering commercial/ industrial site use.

Table 5.2: Summary of Organic Analysis for Soils

Analyte	No. of samples	Min Conc.	Max Conc.	Location of Max Conc.	Guideline Value (Ramboll Environ GAC)	No of samples exceeding	Location of Exceedance
PAHs							
Naphthalene	89	<0.04	1.88	BH212 0.8-1.1	75	0	-
Acenaphthylene	89	<0.03	0.48	BH212 0.8-1.1	85.5	0	-
Acenaphthene	89	<0.05	5.1	BH212 0.8-1.1	56.7	0	-
Fluorene	89	<0.04	5.04	BH212 0.8-1.1	30.8	0	-
Phenanthrene	89	<0.03	22.07	BH212 0.8-1.1	21900	0	-
Anthracene	89	<0.04	7.99	BH212 0.8-1.1	522000	0	-
Fluoranthene	89	<0.03	22.73	BH212 0.8-1.1	22600	0	-
Pyrene	89	<0.03	16.48	BH212 0.8-1.1	54300	0	-
Benzo(a)anthracene	89	<0.06	6.26	BH212 0.8-1.1	15.6	0	-
Chrysene	89	<0.02	6.67	BH212 0.8-1.1	13.1	0	-
Benzo(b)fluoranthene	89	<0.05	7.96	BH212 0.8-1.1	17	0	-
Benzo(k)fluoranthene	89	<0.02	3.1	BH212 0.8-1.1	18.6	0	-
Benzo(a)pyrene	89	<0.04	6.91	BH212 0.8-1.1	77	0	-
Indeno(1,2,3-cd)pyrene	89	<0.04	4.91	BH212 0.8-1.1	18.5	0	-
Dibenzo(ah)anthracene	89	<0.04	0.93	BH212 0.8-1.1	18.6	0	-
Benzo(g,h,i)perylene	89	<0.04	3.9	BH212 0.8-1.1	18.8	0	-
Hydrocarbons							
>C5-C6 Aliphatic	89	<0.1	0.2	BH210 2.5-3.0	368	0	-
>C6-C8 Aliphatic	89	<0.1	0.7	BH210 2.5-3.0	157	0	-
>C8-C10 Aliphatic	89	<0.1	18.1	BH210 2.5-3.0	79.2	0	-
>C16-C21 Aliphatic	89	<7	9	BH212 0.8-1.1	5000	0	-

Analyte	No. of samples	Min Conc.	Max Conc.	Location of Max Conc.	Guideline Value (Ramboll Environ GAC)	No of samples exceeding	Location of Exceedance
>C21-C35 Aliphatic	89	<7	65	BH212 0.8-1.1	5000	0	-
>C5-C7 Aromatic	89	<0.1	1	BH217 6.9-7.0	98	0	-
>EC7-EC8 Aromatic	89	<0.1	0.4	BH217 6.9-7.0	835	0	-
>EC8-EC10 Aromatic	89	<0.1	0.3	BH217 6.9-7.0	610	0	-
>EC12-EC16 Aromatic	89	<4	31	BH212 0.8-1.1	168	0	-
>C16-C21 Aromatic	89	<7	238	BH212 0.8-1.1	5000	0	-
>C21-C35 Aromatic	89	<7	557	BH212 0.8-1.1	5000	0	-
Volatile Organic Compounds (VOCs)							
Methyl Tertiary Butyl Ether	73	<0.002	0.005	BH108 1.1-1.2	4020	0	-
Chloromethane	14	<0.003	0.079	WS313 0-0.2	0.0593	1	WS313 0-0.2
Chloroform (trichloromethane)	14	<0.003	0.057	BH103 1.2-1.4	57.3	0	-
Thrichloroethene (TCE)	14	<0.003	0.013	BH102 01.-0.3	0.725	0	-
1,3,5-Trimethylbenzene	14	<0.003	0.047	BH112 2.5-2.6	12.7	0	-
1,2,4-Trimethylbenzene	14	<0.006	0.129	BH112 2.5-2.6	22.9	0	-
Benzene	73	<0.003	0.963	BH217 9.9-7.0	98	0	-
Toluene	73	<0.003	0.303	BH217 9.9-7.0	835	0	-
Ethylbenzene	73	<0.003	0.016	BH217 9.9-7.0	508	0	-
Xylene o, m, p	73	<0.008	0.090	BH217 9.9-7.0	467	0	-
Semi-Volatile Organic Compounds (SVOCs)							
Bis(2-ethylhexyl)phthalate	12	<0.1	0.232	BH112 2.5-2.6	85400	0	-
Carbazole	12	<0.01	0.016	BH112 2.5-2.6	4380	0	-
Total phenol	89	<0.15	0.63	BH212 0.8-1.1	30800	0	-
Other Organic Parameters							
Total Organic Carbon (%)	10	<0.02	2.12	BH108 1.1-1.2	NC	NA	-

Notes:
All concentrations are in mg/kg unless stated
Only those determinands which were detected above the MDL are included within the above table
Ramboll Environ GAC based on an industrial/commercial land use
NC – no criteria
NA – not applicable

Organic Summary

One (1) of the analysed organic compounds was reported at concentration (0.079 mg/kg) in exceedance of Ramboll Environ Generic Assessment Criteria (0.0593 mg/kg) for commercial or

industrial land use. This exceedance related to chloromethane within shallow made ground encountered at WS313 situated within the woodland area.

PAHs were detected at concentrations above the respective MDL in thirty-five (35) out of eighty-nine (89) samples analysed. No concentrations of individual PAHs were detected above the relevant screening value.

Individual SVOC compounds were detected above the MDL in two out of twelve samples analysed.

Concentrations of herbicides, pesticides, PCBs and speciated phenolic compounds were not detected in excess of the relevant MDL.

5.2.3 Soil Analytical Results Summary

None of the samples tested were found to contain an exceedance of the guideline values for inorganic compounds. An exceedance of Ramboll Environ Generic Assessment Criteria for commercial or industrial land use was reported for one (1) organic compound; chloromethane. This exceedance is considered isolated and not significant.

Asbestos was encountered in one (1) soil sample taken from the Site and was noted to be in the form a 'small bundle of fibres' obtained from infill material identified within BH112.

5.3 Water Analytical Results

The results of the groundwater laboratory analyses are summarised below, with the full analytical certificates provided by the laboratory contained in Appendix 4.

The groundwater assessment has been undertaken with reference to the Site and its situation in the surrounding environment i.e. the nearby watercourses and the underlying Principal Aquifer relating to bedrock geology, as follows:

- human health has been assessed against criteria derived to safeguard human health following exposure to contaminants that have volatilised from groundwater and migrated to air (where they may be inhaled); and
- the water environment has been assessed against primarily Environmental Quality Standards (EQS). Where no published EQS are available, UK Drinking Water Standards (DWS) or an alternative appropriate international standard has been applied for assessment purposes.

5.3.1 Water Assessment – Human Health

Two of the sixty-four (64) samples analysed contained concentrations of an individual determinand at a concentration which exceeded the Ramboll Environ GAC protective of human health (via the groundwater volatilisation pathway). These were obtained from BH217 where benzene concentrations of 12605.7 µg/l and 7150.2 µg/l were detected across the two monitoring rounds respectively. This compares with the benzene screening value for volatilisation of 1580 µg/l.

A single groundwater sample from BH212 detected indeno(123-cd)pyrene concentration of 0.3 µg/l during the second monitoring round, marginally above the volatilisation GAC of 0.2 µg/l.

No further exceedances were observed with respect to groundwater volatilisation screening criteria.

5.3.2 Controlled Water Assessment – Environmental Assessment

Table 5.3 below summarises the data for those analysed surface water and groundwater samples where at least one (1) determinand was detected at a concentration exceeding the laboratory

detection limit. The range of concentrations measured within the samples is shown, as well as the location of the maximum concentration measured and any samples which exceeded the Ramboll Environ GAC protective of the water environment (EQS or other applicable guideline value).

Table 5.3: Summary of Water Analytical Results – Inorganic Parameters

Analyte	No. of samples	Min Conc.	Max Conc.	Location of Max Conc. Across both rounds	Guideline Value (EQS or other applicable)	No locations where exceedances present	Location of Exceedance
Inorganics							
pH	64	4.47	8.1	SW6	6-9	8	BH203, BH102, BH212, BH215, BH223, BH107, BH108, BH221
Arsenic	64	<2.5	14.5	BH112	50	0	-
Beryllium	64	<0.5	2.3	BH212	4**	0	-
Boron	64	34	522	BH112	2000	0	-
Cadmium	64	<0.5	1.2	BH203	40 – 200^	0	-
Total Chromium	64	<1.5	8.6	SW5	8.1	1	SW5
Copper	64	<7	13	BH212	6 – 28^	2	BH212, BH109
Lead	64	<5	11	SW3	7.2	2	BH212, SW3
Nickel	64	<2	26	BH203	20	2	BH203, BH107
Selenium	64	<3	22	BH210	10*	1	BH210
Vanadium	64	<1.5	4.6	SW5	20	0	-
Zinc	64	<3	431	BH215	8-125^	8	BH221, BH201, BH203, BH212, BH215, BH223, BH222, BH106
Ammoniacal nitrogen as N (mg/l)	64	<0.03	32.55	BH112	NC	NA	-
Total Hardness (as $CaCO_3$) (mg/l)	64	46	2087	BH101	NC	NA	-
Total cyanide	64	<10	40	BH217	50	0	-
Sulphate (mg/l)	64	5.84	226.88	BH101	400	0	-

Analyte	No. of samples	Min Conc.	Max Conc.	Location of Max Conc. Across both rounds	Guideline Value (EQS or other applicable)	No locations where exceedances present	Location of Exceedance
Chloride (mg/l)	64	5.4	4634.8	BH101	NC	NA	-
Nitrate as NO3 (mg/l)	64	<0.2	156.3	BH113	50*	14	BH210, BH101, BH201, BH203, BH102, BH215, BH223, BH113, BH107, BH110, BH213, BH211, BH220, BH217
Nitrite as NO2 (mg/l)	64	<0.02	5.92	BH201	0.5*	7	BH210, BH109, BH201, BH108, BH215, BH113, BH107
Orthophosphate as PO4 (mg/l)	64	<0.06	1.84	SW5	NC	NA	-

Notes:
All concentrations are in µg/L unless stated
Ramboll Environ GAC based on UK Environmental Quality Standards (EQS) unless noted as below:-
* - In the absence of a EQS, UK Drinking Water Standards (DWS) have been used.
** - In the absence of a UK DWS or EQS, suitable international standards have been applied.
^ - Value determined by the specific hardness at each location.
NC – no criteria
NA – not applicable

5.3.3 Waters – Organic Parameters

Table 5.4 below summarises the data for those analysed samples where at least one (1) determinand was detected at a concentration exceeding the laboratory detection limit.

Table 5.4: Water results - Organic Parameters

Analyte	No. of samples	Min Conc.	Max Conc.	Location of Max Conc.	Guideline Value (EQS or other applicable)	No of locations exceedances present	Location of Exceedance
Organics							
>C5-C6 Aliphatic	64	<5	33	BH217	10*	2	BH217, SW2
>C6-C8 Aliphatic	64	<5	9592	BH217	10*	1	BH217
>C8-C10 Aliphatic	64	<5	11324	BH217	10*	1	BH217
>C5-EC7 Aromatic	64	<5	34219	BH217	10*	1	BH217
>EC7-EC8 Aromatic	64	<5	9757	BH217	10*	1	BH217
>EC8-EC10 Aromatic	64	<5	2463	BH217	10*	1	BH217
>EC10-EC12 Aromatic	64	<5	3640	BH217	10*	1	BH217
>EC12-EC16 Aromatic	64	<10	1240	BH217	10*	1	BH217
PAHs							
Naphthalene	64	<0.1	0.5	BH217	2.4	0	-
Acenaphthylene	64	<0.013	0.08	BH217	8000^^	0	-
Acenaphthene	64	<0.013	0.37	BH212	400**	0	-
Fluorene	64	<0.014	0.19	BH212	220**	0	-
Phenanthrene	64	<0.011	0.34	BH212	5*	0	-
Anthracene	64	<0.013	0.14	BH212	0.1	1	BH212
Fluoranthene	64	<0.012	0.64	BH212	0.1	2	BH212, SW1
Pyrene	64	<0.013	0.62	BH212	87**	0	-
Benzo(a)anthracene	64	<0.015	0.31	BH212	0.029	2	SW1, BH212
Chrysene	64	<0.011	0.3	BH212	2.9	0	
Benzo(b)fluoranthene	64	<0.01	0.77	SW2	0.03	3	SW1, SW2, BH212
Benzo(k)fluoranthene	64	<0.01					
Benzo(a)pyrene	64	<0.016	0.5	SW2, BH212	0.05	1	BH212
Indeno(123cd)pyrene	64	<0.011	0.3	BH212	0.002	2	BH212, SW2
Deibenzo(ghi)perylene	64	<0.011	0.005				
Volatile Organic Compounds (VOCs)							
Vinyl chloride	64	<0.1	5.4	BH217	0.5*	1	BH217
1,1-Dichloroethane	64	<3	5	BH217	2.4**	1	BH217
Cis-1-2-Dichloroethane	64	<3	116	BH217	10	1	BH217
Isopropylbenzene	64	<3	18	BH217	390**	0	-

Analyte	No. of samples	Min Conc.	Max Conc.	Location of Max Conc.	Guideline Value (EQS or other applicable)	No of locations exceedances present	Location of Exceedance
1,3,5-Trimethylbenzene	64	<3	103	BH217	87**	1	BH217
1,2,4-Trimethylbenzene	64	<3	308	BH217	45**	1	BH217
1,2,3-Trichlorobenzene	64	<2	2	BH217	2.4	0	BH217
Benzene	64	<0.5	12605.7	BH217	10	1	BH217
Toluene	64	<0.5	7181.9	BH217	50	1	BH217
Ethylbenzene	64	<0.5	485.7	BH217	20	1	BH217
Xylene p/m/o	64	<1	2143.7	BH217	60	1	BH217
Styrene	64	<2	398	BH217	50	1	BH217
Phenolic compounds (all mg/l)							
Total Phenols (mg/l)	64	<0.1	20.7	BH217	0.0077$	1	BH217
Phenol	15	<0.01	0.4	BH217	0.0077$	1	BH217
Resorcinol	15	<0.01	0.03	BH217	NC	NA	-
Catechol	15	<0.01	0.02	BH217	NC	NA	-
Cresol m/p/o	15	<0.03	3.5	BH217	NC	NA	-
Xylenols	15	<0.06	12.06	BH217	NC	NA	-
1-Naphthol	15	<0.01	0.02	BH217	NC	NA	-
2,3,5-Trimethylphenol	15	<0.01	0.32	BH217	NC	NA	-
2-isopropylphenol	15	<0.01	4.36	BH217	NC	NA	-

Notes:
All concentrations are in µg/L unless stated
Ramboll Environ GAC based on UK Environmental Quality Standards (EQS) unless noted as below:-
* - In the absence of a EQS, UK Drinking Water Standards (DWS) have been used.
** - In the absence of a UK DWS or EQS, suitable international standards have been applied.
^ - Value determined by the specific hardness at each location.
^^ - criteria for groundwater volatilization pathway.
$ - GAC represents phenol and not Total phenols and is given as a guidance screening value.
NC – no criteria
NA – not applicable

5.3.4 Groundwater Sample Summary

The following inorganic determinands were detected at concentrations above the most suitable screening criteria:

- Copper and lead in BH212, copper in BH109, nickel in BH107 and BH203, total chromium in SW5 and selenium in BH210 all of which are considered isolated in location and not an indication of significant impact to groundwater.

- Zinc in BH221, BH201, BH203, BH212, BH215, BH223, BH222 and BH106. The relevant screening criteria for zinc is dependent on the variable hardness of the groundwater. Exceedances were generally within one order of magnitude above the relevant GAC and are limited to locations within the woodland area and in the northern part of the Site east of the railway track lines.
- Nitrate as NO_3 in fourteen (14) locations and nitrite as NO_2 in seven (7) locations which is considered likely to be associated with the arable agricultural setting of the Site. The entire Site is situated within a surface water and groundwater Nitrate Vulnerable Zone.
- pH was monitored below 6.0 in eight (8) locations, predominantly within the pine tree woodland in the centre and in the northern part east of the railway track line.

A maximum concentration of 32.55 mg/l ammoniacial nitrogen was detected within groundwater from BH112, the next highest concentration was 1.86 mg/l in groundwater obtained from BH217. The high concentration at BH112 is potentially indicative of filled material and the production of leachate.

The following organic determinands were detected at concentrations above the most suitable screening criteria:

- PAHs in three locations BH212 (6 individual PAHs); SW2 (2 individual PAHs) and SW1 (3 individual PAHs).
- VOCs in one location BH217 (eleven individual VOCs including benzene, toluene, ethyl benzene and xylene (BTEX) compounds and chlorinated solvents).
- Lighter individual aromatic and aliphatic hydrocarbon fractions in one location BH217 and a single aliphatic hydrocarbon C5-C6 band concentration was noted from SW2 slightly above the relevant screening criteria.
- Speciated phenolic compounds in one location BH217.

VOC tentatively identified compounds (TICs) were detected above the MDL in one (1) out of the nine (9) groundwater samples analysed. Concentrations of all the VOC TICs were detected above the MDL in the groundwater sample from BH217. This correlates with the high PID readings identified during drilling this monitoring well. Furthermore, one of the TICs (pyridine is known to have been used at the SI Group facility historically).

Mercury and hexavalent chromium concentrations were not detected above the relevant MDL across all locations.

Pesticides, herbicides, PCB concentrations were not detected above the MDL across all locations.

5.3.5 Non-Aqueous Phase Liquids

No evidence of Non-Aqueous Phase Liquids (NAPL) in either light or dense forms were encountered in soil or groundwater at the Site; however, the groundwater obtained from BH217 appeared to have an oily ‘feel’ to the water.

6. GROUND GAS ASSESSMENT

6.1 Ground Gas Assessment Criteria

Ground gas can be produced as a result of the decomposition of organic materials and may also originate from natural sources, such as coal seams and organic rich soils. The principal components of ground gas are methane and carbon dioxide, although other gases may be present in trace concentrations. Ground gas can present a hazard to site occupants and property as result of flammable/explosive hazards, physiological effects, odour and effects on vegetation.

There is no one specific guidance document relating to ground gas measurement methods, risk assessment, and gas protection measures. Several documents have been published since the early 1990s and generally provide guidance for new developments, some of which have been more recently revised.

Whilst this report has been produced in consideration of the proposed commercial / industrial usage of the Site, reference has been made to the following guidance documents as part of this assessment:

Table 6.1: Ground Gas Assessment Criteria

Table 6.1: Ground Gas Assessment Criteria	
Constituent	**Reference Documents**
Methane and Carbon Dioxide	• *Assessing Risks Posed by Hazardous Ground Gases to Buildings*. Report C665, Construction Industry Research and Information Association (CIRIA), 2007. • Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. BSi 8485:2015. • The Building Regulations, Approved Document C: Site preparation and resistance to contaminants and moisture, (2004) • Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present. Report Edition No. 4, NHBC, March 2007.
Oxygen	• Waste Management Paper 27 – Guidelines for Building Houses near Landfill Sites. Department of the Environment 1991.

Carbon Dioxide and Methane

Guidance on undertaking ground gas risk assessment is provided by the Construction Industry Research and Information Association (CIRIA), Report C665 "Assessing Risks Posed by Hazardous Ground Gases to Buildings" (2007). The guidance consolidates the requirement for good practice in site investigation, the collection of relevant data and monitoring programmes in the context of a risk based approach to gas contaminated ground.

Two semi-quantitative methods are set out in the guidance for the assessment of ground gas risk, one method for low rise housing with gardens and the other for all remaining development types, including commercial/industrial development.

The method applicable for all developments with the exception of low rise housing is called the 'Modified Wilson and Card Classification'. This is applicable to all development types except low rise housing, and makes no assumption that an underfloor void is present within the development. The method by Wilson and Card was a development of the one proposed in CIRIA publication R149 (1995).

The 'Modified Wilson and Card Classification' uses gas concentrations and borehole flow rates to define a characteristic situation for the Site, by calculating a Gas Screening Value (GSV). The GSV is calculated using a worst case scenario (i.e. the maximum gas concentration and flow rates detected) across the entire Site during the monitoring period. The GSV is calculated for both methane and carbon dioxide, and the 'Characteristic Situation' is derived by comparison with a table relevant to each method. It is important to note that GSVs are not absolute thresholds but guideline values.

The NHBC has developed a characterisation system similar to Wilson and Card system but is specific to low rise housing development with a clear ventilated underfloor void. This risk based approach compares measured ground gas rates to 'generic traffic' lights scenarios. The assessment also generates a gas screening value using worst case scenario and flow rates. The thresholds are based on a number of assumptions regarding the proposed housing structure and designers should ensure that these assumptions are appropriate before proceeding.

The Building Regulations, Approved Document C (2004) states that where methane concentrations do not exceed 1% and that the floor of the building to be constructed is suspended and ventilated, no further protection needs to be provided. Above 1% by volume there is a need to consider possible measures to prevent gas ingress into new buildings.

Approved Document C also states that there is a need to consider possible measures to prevent gas ingress into new buildings if concentrations of carbon dioxide above 1.5% are detected in the ground, and that measures are definitely required at concentrations above 5%.

Oxygen

Waste Management Paper 27 (WMP27) states that a minimum concentration of 18% oxygen is required to prevent asphyxiation.

6.2 Ground Gas Monitoring Results

The following section presents a summary of the ground gas monitoring results obtained as part of the four visits undertaken at the Site. Where appropriate the results were screened against Gas Screening Values (GSVs). The results of the ground gas monitoring are presented in full in Appendix 5A, with a summary presented within the following sections.

The monitoring was undertaken across the 1st and 2nd December 2015; 21st and 22nd December 2015; 7th and 8th January 2016; and 9th and 10th February 2016.

6.2.1 Flow Rates

Flow rates in litres per hour (l/h) were recorded at the Site between slightly negative to slightly positive in all but one location, WS309, where a peak flow of 5.0 l/hr was observed which settled at 2.2 l/hr.

6.2.2 Oxygen

Oxygen concentrations at the Site ranged between 4.6 % v/v in BH216 to 21.7% v/v in WS301. Oxygen concentrations were detected below the guidance value of 18% v/v for nine (9) out of the twenty-four (24) gas monitoring locations. In general, slightly reduced oxygen concentrations correlated with slightly elevated concentrations of carbon dioxide.

6.2.3 Methane and Carbon Dioxide

Methane was recorded at either below the instrument detection level (<0.1% v/v) or at 0.1% in all gas monitoring locations.

Carbon dioxide was recorded in all twenty-four of the exploratory locations between 0.1% v/v % (BH218, WS301, WS303 and WS314) and 7.6% v/v (BH216). Concentrations of more than 5% v/v were consistently detected in only one location BH216.

6.2.4 Atmospheric Pressure

This initial ground gas monitoring visit was undertaken during periods of increasing pressure on the 1st December 2015 and stable pressure on the 2nd December 2015. Over the 21st and 22nd December 2015 monitoring event pressure was observed to decrease and increase sharply and then decrease continuously across the second day. The pressure over the third monitoring session was observed to decrease and then increase and becoming stable across the second day. Pressure was decreasing on the morning of the first day of the fourth monitoring event and then steadily increasing; on the second day pressure was increasing steadily.

6.2.5 Significance of Ground Gas Monitoring & Analysis

The assessment has been undertaken in the context of the proposed commercial/industrial use in light of the proposed redevelopment of the Site. The ground gas results have been assessed in accordance with CIRIA Report 665 – Assessing Risks posed by Hazardous Ground Gases to Buildings (2007). As discussed above, CIRIA 665 was developed to assess the requirement for gas mitigation measures within new buildings and not to determine risk and gas mitigation measures which should be employed with respect to current buildings.

CIRIA Report 665 incorporates the methodology within Wilson & Card Reliability and Risk in Gas Protection Design (1999) to develop site specific Gas Screening Values (GSV). The GSV is derived by the following calculation:

GSV (l/hr) = borehole flow rate (l/hr) x gas concentration (% v/v).

The superficial deposits across the Site are bisected by a number of features: the railway orientated north-south; the canal orientated north-north-east to south; as well as a number of land drains or ditches formerly annotated as watercourses and/or drains. Essentially this segregates the Site into areas which have similar gas regimes.

Given this assessment is based upon four monitoring rounds and thus represents a preliminary gas assessment the maximum flow rate for the entire Site was used within the calculation. This provides a worst-case scenario based upon current preliminary measurements.

The maximum flow rate of 5.0 l/hr was detected, although it was noted this was a peak value. The following methane and carbon dioxide Gas Screening Values (GSV) were calculated:

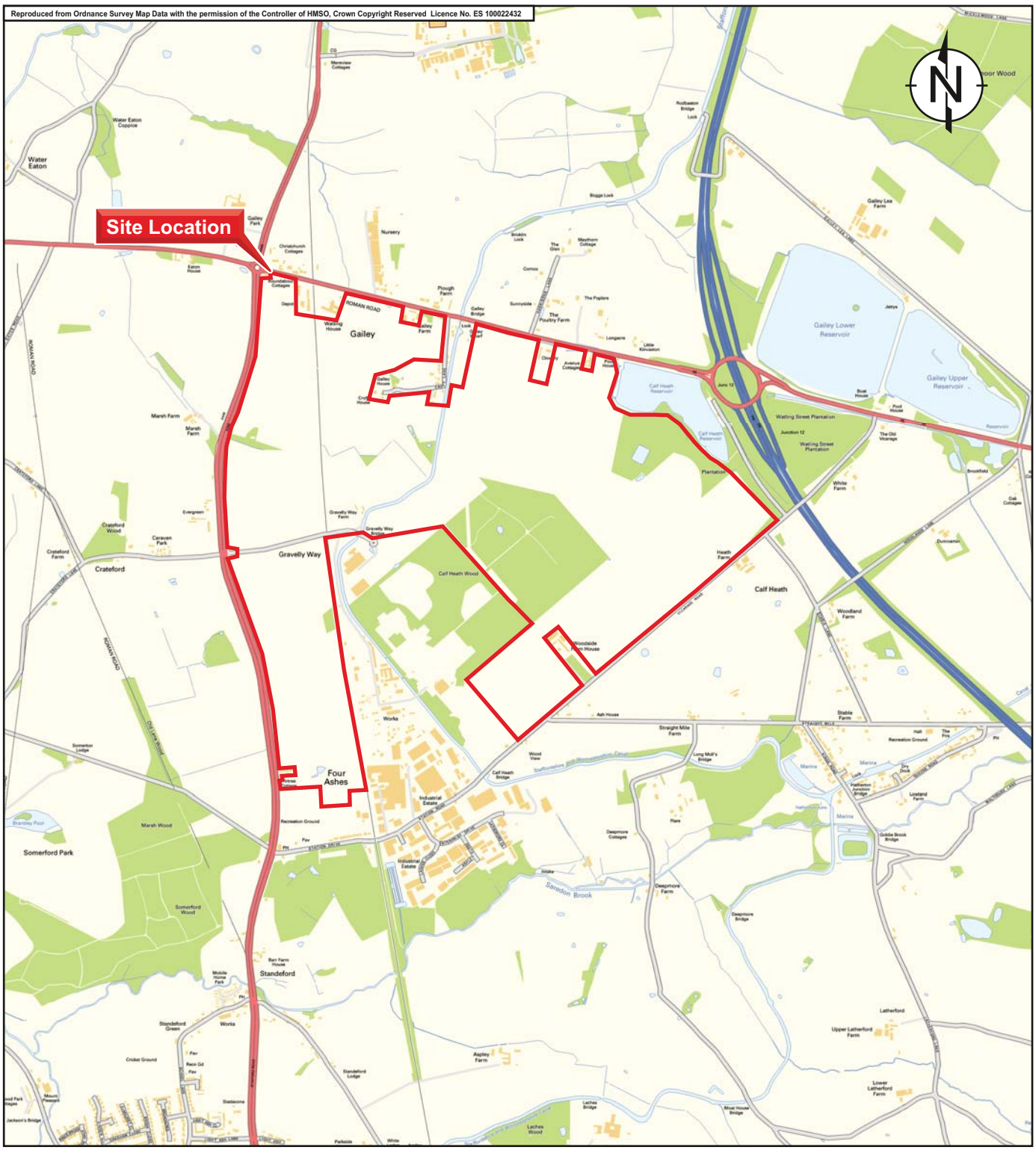
- Methane GSV = Max methane conc. (<0.1% v/v) X max flow rate (5.0 l/hr) /100 = 0.005 l/hr
- Carbon Dioxide GSV = Max Carbon dioxide conc. (7.6% v/v) X max flow rate (5.0 l/hr) /100 = 0.38 l/hr.

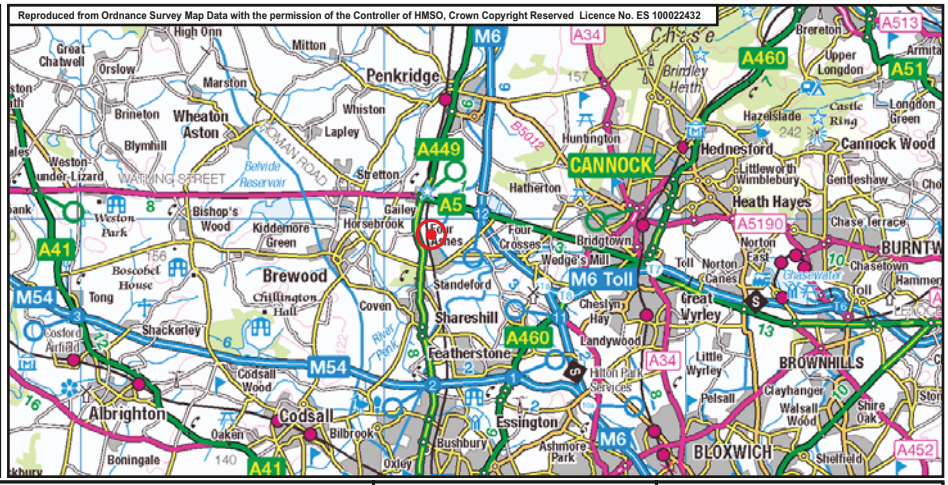
The above presents the worst-case maximum GSV for the whole Site. Therefore, in accordance with CIRIA Report 665, the calculated GSVs for the whole Site corresponds to Characteristic Situation 2 'Low Risk', with the recorded ground gas concentrations considered 'typical of made ground'.

Individual calculations of the carbon dioxide GSV for each specific gas monitoring location using the data collected in four monitoring rounds indicate that seventeen (17) out of twenty-six (26) are considered to correspond to Characteristic Situation 2 'Low Risk'. The identified seventeen locations are spread across the south-western area (SI Group land), the southern landfilled area, the central woodland area and fields to its north and in the eastern section of the Site. Further

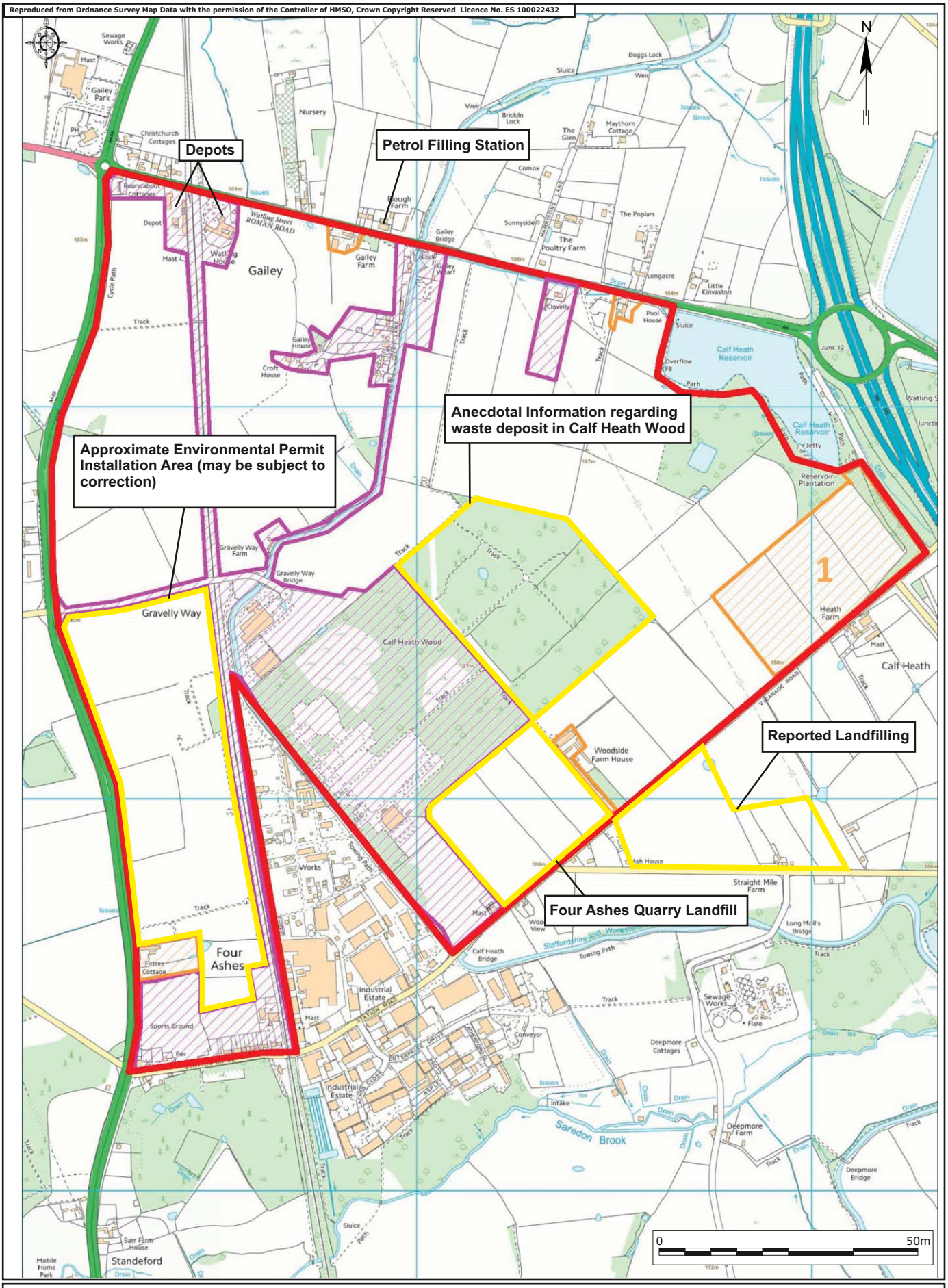
ground gas monitoring will enable better understanding of the gas regimes relevant to specific areas. This assessment presents a worst-case scenario and is based upon a single maximum gas flow rate proposed across the entire Site. Furthermore the requirement of specific development layout has not been taken into account.

APPENDIX 1
FIGURES





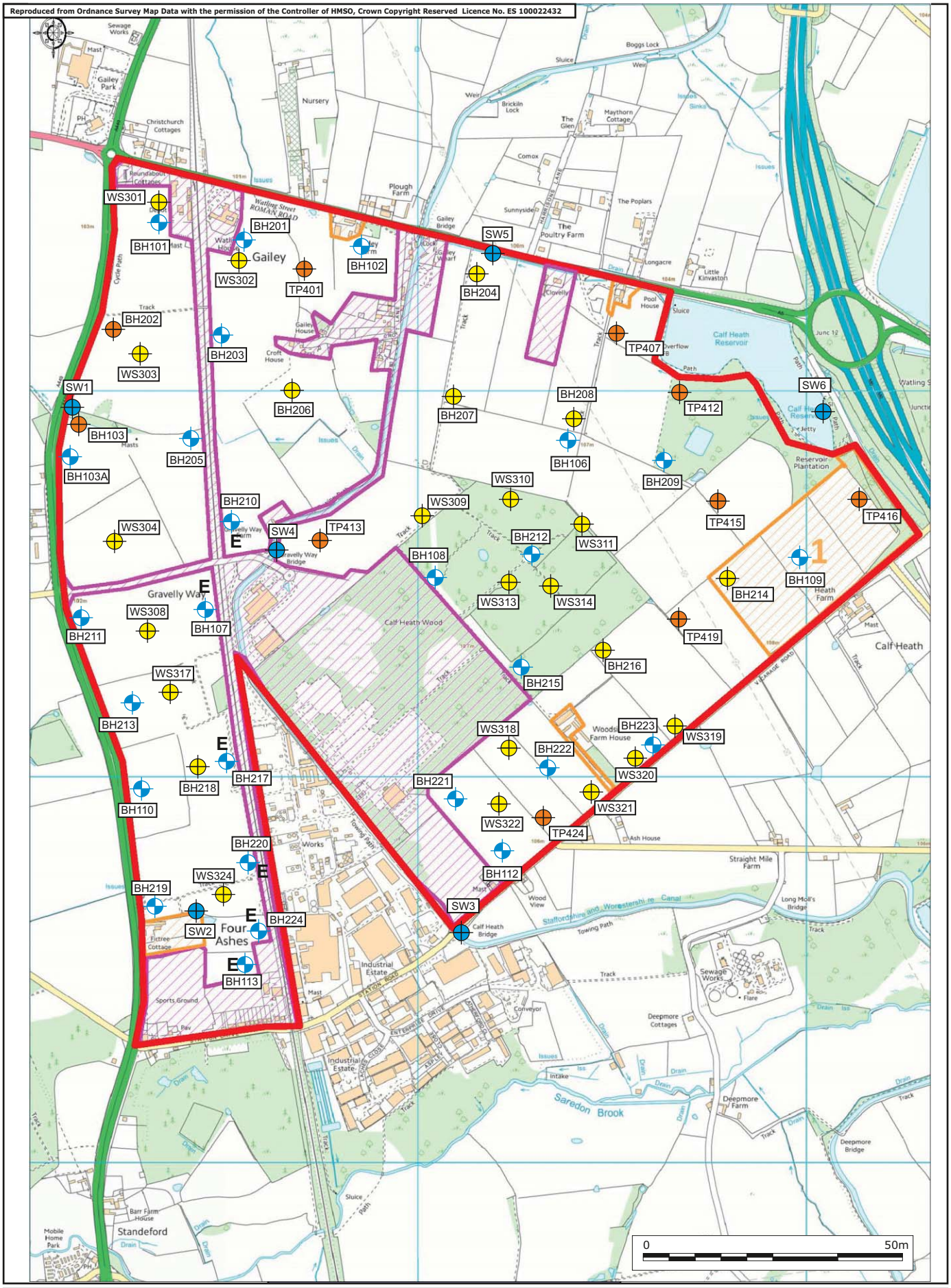
Title: Figure 1: Site Location	Site: Four Ashes, Wolverhampton, WV10 7DF	Date: February 2016	RAMBOLL ENVIRON
		Scale: NTS	
Project No.: UK15-22306	Client: Four Ashes Ltd.	Issue: 1 Drawn by: EB/AMH	



Key

- Site Boundary
- Land to be excluded
- Properties which are likely to be included in option area, apart from orange area 1. (The other orange areas are residential holdings.)

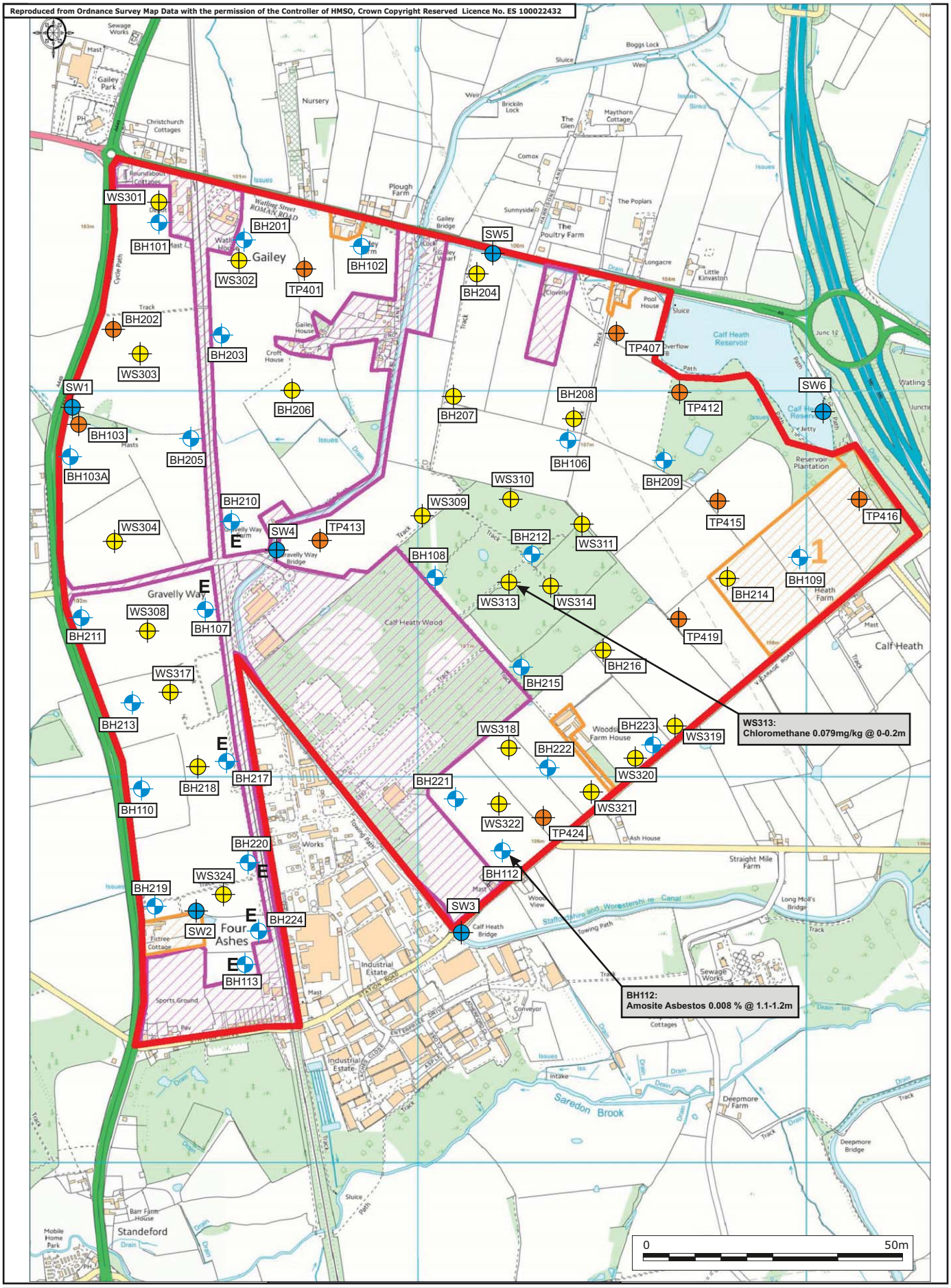
Title: Figure 2 - Site Layout Plan	Site: Four Ashes	Date: February 2016	RAMBOLL ENVIRON
		Scale: See scale bar	
Project No.: UK15-22306	Client: Four Ashes Ltd.	Issue: 1 Drawn by: VA/AMH	



Key

- Site Boundary
- groundwater monitoring well
- gas monitoring well
- Shallow excavation (no monitoring well)
- Surface water sampling location

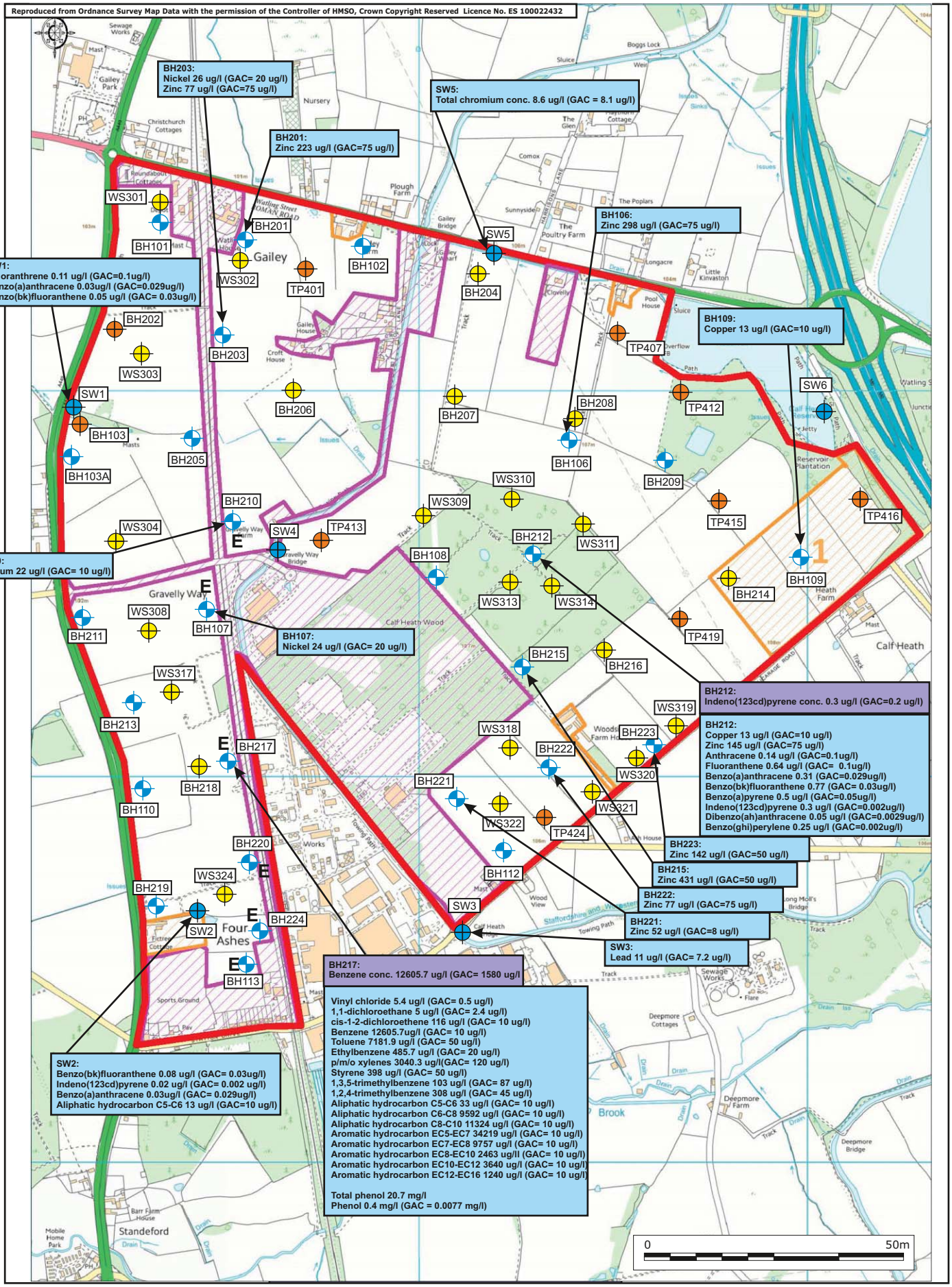
Title: Figure 3: Monitoring locations	Site: Four Ashes	Date: February 2016	RAMBOLL ENVIRON
		Scale: NTS	
Project No.: UK15-22306	Client: Four Ashes Ltd.	Issue: 1 Drawn by: VA/AMH	



Key

- Site Boundary
- groundwater monitoring well
- gas monitoring well
- Shallow excavation (no monitoring well)
- Surface water sampling location

Title: Figure 4: Exceedances within soil samples	Site: Four Ashes	Date: February 2016	RAMBOLL ENVIRON
		Scale: NTS	
Project No.: UK15-22306	Client: Four Ashes Ltd.	Issue: 1 Drawn by: VA/AMH	



Key

- Site Boundary
- groundwater monitoring well
- gas monitoring well
- Shallow excavation (no monitoring well)
- Surface water sampling location
- Controlled Water Exceedances
- Groundwater Volatilization Exceedances

Title: Figure 4: Exceedances within groundwater samples	Site: Four Ashes	Date: February 2016	RAMBOLL ENVIRON
		Scale: NTS	
Project No.: UK15-22306	Client: Four Ashes Ltd.	Issue: 1 Drawn by: VA/AMH	

APPENDIX 2
WALDECK BOREHOLE LOGS

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 19.50m	**Hole No.** BH101 **Sheet** 1 of 4 **Job No** 14317GI
Ground Level 102.90 m.A.O.D.	**Coordinates** 391352 m.E. 310467 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Topsoil (Dark brown slightly gravelly sandy clay. Gravel is rounded fine quartzite and sandstone, rare rootlets)		102.60	0.30	0.10-0.30						B1				Hand excavated from ground level to 1.20m
				Light brown mottled orange/brown gravelly silty clayey fine-coarse SAND. Gravel is rounded fine-coarse standstone and quartzite (Glaciofluvial Deposits)		102.10	0.80	0.50-0.70						B2				Particle size distribution and sedimentation
				Orange/brown and red/brown slightly clayey silty fine-medium SAND with a little subrounded fine-medium quartzite and sandstone gravel (Glaciofluvial Deposits)				1.00-1.10 1.10 1.20-2.70						B3 X4				Particle size distribution and BRE SD1 chemical suite Percussive sampling from 1.20m to 2.70m (128mm diameter)
				Soft grey/brown mottled orange and dark brown very sandy CLAY (Bromsgrove Sandstone Formation)		100.95	1.95											
				Stiff greenish grey mottled dark brown slighlty sandy CLAY (Bromsgrove Sandstone Formation)		100.65	2.25											
22/10/15	2.70			Stiff red/brown silty CLAY (Bromsgrove Sandstone Formation)		100.10	2.80	2.70-3.00		100				C5				Rotary cored 2.70 to 19.50m (146mm diameter), water flush Groundwater not encountered prior to use of water flush HSV at 3.00m = 75kPa
				Very stiff thinly laminated red/brown CLAY with rare green/grey reduction spots (up to 40mm) (Bromsgrove Sandstone Formation)		99.85	3.05	3.00-4.50						C6				
				Extremely weak thinly laminated red/brown MUDSTONE, locally disintegrated to claybound fine-coarse gravel size mudstone lithorelicts with rare greenish grey reduction spots (up to 20mm) (Bromsgrove Sandstone Formation)		98.55	4.35	4.50-6.00 4.60-4.80		100				C7 D1				HSV at 4.00m = >120kPa If (4.35-6.1m): NI/-/-
						97.90	5.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 1 of 4	BH101
Dates	22/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 19.50m	**Hole No.** BH101
	Engineer		**Sheet** 2 of 4
Ground Level 102.90 m.A.O.D.	**Coordinates** 391352 m.E. 310467 m.N.		**Job No** 14317GI

WATER

Date/Time at Depth	Depth of Casing m	Depth to Water m

STRATA

Inst	Description	Legend	Level m.A.O.D.	Depth m
	Extremely weak thinly laminated red/brown MUDSTONE, locally disintegrated to claybound fine-coarse gravel size mudstone lithorelicts with rare greenish grey reduction spots (up to 20mm) (Bromsgrove Sandstone Formation)		96.80	6.10
	Weak thinly laminated red/brown MUDSTONE. Fractures are subhorizontal, closely and medium spaced, undulating and smooth (Bromsgrove Sandstone Formation)		96.05	6.85
	Weak thinly laminated red/brown locally light grey MUDSTONE. Fractures are subhorizontal closely and medium spaced, undulating and smooth (Bromsgrove Sandstone Formation)		94.10	8.80
	Weak red/brown fine and medium SANDSTONE. Fractures are subhorizontal to 20 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)		92.90	10.00

SAMPLING/IN SITU TEST/FIELD RECORDS

Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %
		100	0	0				
6.00-7.50						C8		
		97	93	93				
7.50-9.00						C9		
8.00-8.10						D2		
		100	97	87				
9.00-10.50						C10		
		80	70	15				

OTHER TESTS AND NOTES

If (6.1-8.80): NI/200/400

Point load test carried out at 8.00m

If (8.80-12.6): NI/70/130

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 2 of 4	BH101
Dates	22/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 19.50m	Hole No.	**BH101**
		Engineer				Sheet	3 of 4
Ground Level	102.90 m.A.O.D.	Coordinates	391352 m.E. 310467 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Weak red/brown fine and medium SANDSTONE. Fractures are subhorizontal to 20 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)				10.50-12.00						C11				
										53	45	15						
								11.90-12.03						D3				
								12.00-13.50						C12				
				- fractures are extremely closely and very closely spaced, randomly orientated, undulating and smooth between 12.60 and 13.40m														If (12.6-13.4): NI/30/80
										87	60	0						
								13.50-15.00						C13				If (13.4-19.5): NI/20/90/190
										93	87	23						
						88.50	14.40											
				Weak red/brown fine and medium SANDSTONE. Fractures are subhorizontal to 20 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)														
								14.90-15.00						D4				Point load test carried out at 14.90m
						87.90	15.00	15.00-16.50						C14				

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 3 of 4	BH101
Dates	22/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 19.50m	Hole No.	**BH101**
		Engineer				Sheet	4 of 4
Ground Level	102.90 m.A.O.D.	Coordinates	391352 m.E. 310467 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Weak red/brown fine and medium SANDSTONE. Fractures are subhorizontal to 20 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)															
										97	90	35							
								16.50-18.00						C15					
										100	94	53							
								17.80-17.90						D5					Point load test carried out at 17.80m
								18.00-19.50						C16					
										92	89	33							
22/10/15	19.50					83.40	19.50	19.50											Borehole complete at 19.50m 50mm diameter HDPE pipe installed to 9.50m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after			
		5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	22/10/15
Log	NAB

Sheet 4 of 4 | BH101

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	**Client**	WALDECK CONSULTING
		Engineer	
Ground Level	104.70 m.A.O.D.	**Coordinates**	391900 m.E. 310390 m.N.
Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 3.40m 140mm DIAMETER 3.40 TO 20.00m		
Hole No.	**BH102**		
Sheet	1 of 4		
Job No	**14317GI**		

WATER

Date/Time at Depth	Depth of Casing m	Depth to Water m
23/10/15	3.40	
26/10/15	3.40	

STRATA

Inst	Description	Legend	Level m.A.O.D.	Depth m
	Topsoil (Dark brown slightly gravelly sandy silt. Gravel is subrounded-rounded fine-medium sandstone and quartzite. Rare roots (up to 6mm) and rootlets)		104.30	0.40
	Mottled dark brown and orange/brown slightly silty very gravelly fine-coarse SAND. Gravel is subrounded and rounded fine-coarse sandstone (Glaciofluvial Deposits)		103.90	0.80
	Light brown and orange/brown silty very gravelly fine-coarse SAND. Gravel is subrounded-rounded fine-coarse sandstone (Glaciofluvial Deposits)			
	Red/brown gravelly silty fine-medium SAND. Gravel is subrounded-rounded fine-medium sandstone (Wildmoor Sandstone Formation)		102.90	1.80
	Red/brown slightly gravelly fine-medium SAND. Gravel is a fine-coarse sandstone (Wildmoor Sandstone Formation)		102.00	2.70
	(Limited recovery) Extremely weak dark red/brown fine-medium SANDSTONE. Fractures are subhorizontal, very closely spaced, planar, rough (Wildmoor Sandstone Formation)		101.30	3.40
	(Limited recovery) Extremely weak, locally very weak, dark red/brown locally light grey fine-medium SANDSTONE interbedded with slightly silty sand. Fractures are subhorizontal and 60 to 70 degrees, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation)		100.20	4.50
			99.70	5.00

SAMPLING/IN SITU TEST/FIELD RECORDS

Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %
0.10-0.30						B1		
0.50-0.60						B2		
0.70-0.80						B3		
0.90-1.10						B4		
1.20-2.70						X5		
1.50						D1		
2.50						D2		
2.70-3.40						X6		
3.40-4.50		28	17	0		C7		
4.50-6.00						C8		

OTHER TESTS AND NOTES

- Hand excavated from ground level to 1.20m
- Particle size distribution
- Particle size distribution
- Percussive sampling from 1.20 to 3.40m (128mm diameter)
- Particle size distribution
- Particle size distribution and BRE SD1 chemical suite
- Rotary cored 3.40 to 20.00m (146mm diameter), water flush
- Groundwater not encountered prior to use of water flush
- If (3.4-4.5m): NI/40/50
- If (4.5-6.0m): NI/60/116

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	
Dates	23/10/15 to 26/10/15	
Log	NAB	
Sheet 1 of 4		BH102

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 3.40m 140mm DIAMETER 3.40 TO 20.00m	Hole No.	**BH102**
		Engineer				Sheet	2 of 4
Ground Level	104.70 m.A.O.D.	Coordinates	391900 m.E. 310390 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				(Limited recovery) Weak, locally very weak dark red/brown locally light grey fine-medium SANDSTONE interbedded with slightly silty sand. Fractures are subhorizontal and 60-70 degrees, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation)				5.10		73	40	12		D3				Point load test carried out at 5.10m
								6.00-7.50						C9				
										40	70	0						
				(Limited recovery) Extremely weak, red/brown fine-medium SANDSTONE recovered as slightly clayey sand (Wildmoor Sandstone Formation)		97.20	7.50	7.50-9.00						C10				If (7.5-8.7m): NI/-/-
										53	19	0						
				Weak dark red/brown fine-medium SANDSTONE with rare grey spots (up to 5mm diameter). Fractures are subhorizontal, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation)		96.00	8.70											If (8.7-16.5m): NI/60/120
								9.00-10.50						C11				
								9.60						D4				Point load test carried out at 9.60m
										77	60	8						
						94.70	10.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after			
		5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 2 of 4	BH102
Dates	23/10/15 to 26/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 3.40m 140mm DIAMETER 3.40 TO 20.00m	Hole No.	**BH102**
		Engineer				Sheet	3 of 4
Ground Level	104.70 m.A.O.D.	Coordinates	391900 m.E. 310390 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Weak dark red/brown fine-medium SANDSTONE with rare grey spots (up to 5mm diameter). Fractures are subhorizontal, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation)														
				- limited recovery between 10.50 and 16.50m				10.50-12.00						C12				
				- locally weak						67	67	7						
								12.00-13.50						C13				
				- becoming very weak from approximately 12.50m				12.50						D5				Point load test carried out at 12.50m
										50	50	0						
								13.50-15.00						C14				
				- very thin bed of extremely weak, light green/ grey fine-medium sandstone between 14.20 and 14.25m						61	37	0						
						89.70	15.00	15.00-16.50						C15				

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after			
		5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 3 of 4	BH102
Dates	23/10/15 to 26/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 3.40m 140mm DIAMETER 3.40 TO 20.00m	Hole No.	**BH102**
		Engineer				Sheet	4 of 4
Ground Level	104.70 m.A.O.D.	Coordinates	391900 m.E. 310390 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Very weak dark red/brown fine-medium SANDSTONE with rare grey spots (up to 5mm diameter). Fractures are subhorizontal, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation)				15.40		68	60	20		D6				Point load test carried out at 15.40m
				- very thin bed of extremely weak light green/grey fine-medium sandstone														
				Very weak and weak red/brown locally green/grey fine-medium SANDSTONE. Fractures subhorizontal to 20 degrees, very closely and closely spaced, undulating and planar, rough (Wildmoor Sandstone Formation)		88.20	16.50	16.50-18.00						C16				If (16.5-20.0m): NI/60/190
										83	60	20						
				No recovery		86.70	18.00	18.00-19.00		0	-	-		C17				
				Very weak and weak red/brown locally green/grey fine-medium SANDSTONE. Fractures subhorizontal to 20 degrees, very closely and closely spaced, undulating and planar, rough (Wildmoor Sandstone Formation)		85.70	19.00	19.00-19.20 19.00-20.00						D7 C18				Borehole complete at 20.00m 50mm diameter HDPE pipe installed to 8.00m Pipework capped and protected with raised lockable cover
										83	37	13						
26/10/15	20.00					84.70	20.00	20.00										

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after			
		5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 4 of 4	BH102
Dates	23/10/15 to 26/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 3.70m 140mm DIAMETER 3.70 TO 6.00m	**Hole No.** BH103
	Engineer		**Sheet** 1 of 2
Ground Level 97.40 m.A.O.D.	**Coordinates** 391104 m.E. 309916 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Topsoil (Brown slighlty clayey slightly gravelly sand. Gravel is rounded fine-coarse quartzite and sandstone rare rootlets)				0.20-0.40						B1			Hand excavated from ground level to 1.20m
						96.90	0.50										
				Dark grey slightly silty peaty fine-coarse SAND and GRAVEL. Gravel is fine-coarse quartzite and sandstone (Alluvium)				0.60-0.80						B2			Particle size distribution
						96.60	0.80										
				Spongy dark brown fibrous PEAT (Alluvium)				1.20-1.20						B3			Groundwater struck at 1.20. Rose to 0.98m after 20mins
19/10/15 20/10/15	1.20	(1) ▼						1.20-2.70						X4			
								1.30						D1			Organic matter content
																	Percussive sampling from 1.20m to 3.10 (128mm diameter)
						95.90	1.50										
				Dark grey slightly sandy gravelly SILT. Gravel is rounded fine-medium quartzite and sandstone (Alluvium)													
						95.55	1.85										
				Firm red/brown silty CLAY (Bromsgrove Sandstone Formation)		95.40	2.00										
				Stiff red/brown CLAY with light grey reduction spots (up to approximately 40mm in diameter) (Bromsgrove Sandstone Formation)				2.40						D2		18.9	Plasticity Index
						94.80	2.60										
				Very stiff thinly laminated red/brown CLAY with rare light grey/green reduction spots (up to approximately 50mm in diameter) (Bromsgrove Sandstone Formation)				2.70-3.10						X5			
						94.30	3.10	3.10-4.50						C6			If (3.1-4.3m): NI/-/-
				Extremely weak thinly laminated red/brown mottled grey MUDSTONE, locally disintegrated to claybround fine-coarse gravel size mudstone lithorelicts. Fractures are subhorizontal to 10-70 degrees to subvertical, undulating, smooth (Bromsgrove Sandstone Formation)						87	1	0					
																	If (4.3-4.75m): NI/20/30
								4.50-6.00						C7			
						92.65	4.75										If (4.75-5.3m): NI/40/110
				Very weak light grey/green mottled red/brown SILTSTONE (Bromsgrove Sandstone Formation)		92.40	5.00	5.00						D3			Point load test carried out at 5.00m

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	1.20				0.98

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 1 of 2
Dates	19/10/15	BH103
Log	NAB	

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 3.70m 140mm DIAMETER 3.70 TO 6.00m	Hole No.	**BH103**
		Engineer				Sheet	2 of 2
Ground Level	97.40 m.A.O.D.	Coordinates	391104 m.E. 309916 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Locally disintegrated to claybound fine-medium gravel size SILTSTONE lithorelicts. Fractures are subhorizontal to 10 degrees, very closely and closely spaced, undulating smooth (Bromsgrove Sandstone Formation)		92.10	5.30			61	17	7						If (5.3-6.0m): NA
20/10/15	6.00	+0.80 C		Red/brown silty fine-medium SAND (Wildmoor Sandstone Formation)		91.40	6.00	6.00										Borehole complete at 6.00m due to artesian groundwater Groundwater level at +0.8m on morning of 20/10/15 Borehole terminated and backfilled with bentonite

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 2 of 2	BH103
Dates	19/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.10m 140mm DIAMETER 5.10 TO 20.20m	**Hole No.** BH103A **Sheet** 1 of 5 **Job No** 14317GI
Ground Level 99.10 m.A.O.D.	**Coordinates** 391109 m.E. 309758 m.N.		

WATER

Date/Time at Depth	Depth of Casing m	Depth to Water m
20/10/15	4.20	2.05
21/10/15	4.20	

STRATA

Inst	Description	Legend	Level m.A.O.D.	Depth m
	Topsoil (Soft dark brown slightly sandy slightly gravelly clay. Gravel is subrounded-rounded fine-medium sandstone and quartzite. Frequent roots up to approximately 8mm in diameter)		98.80	0.30
	Light brown clayey gravelly SAND. Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)		98.60	0.50
	Light brown silty fine-coarse SAND with occasional subrounded fine quartzite and sandstone gravel (Glaciofluvial Deposits)			
	Light brown silty very gravelly SAND. Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)		96.40	2.70
	Extremely weak red/brown mottled light green/grey MUDSTONE with rare grey reduction spots (up to 30mm diameter). Locally disintegrated to claybound subangular fine-medium gravel size mudstone lithorelicts. Fractures are subhorizontal to 10 degrees, extremely closely and very closely spaced, planar, smooth (3.5-4.2m, limited recovery) (Bromsgrove Sandstone Formation)		96.10	3.00
	No recovery		94.90	4.20
			94.10	5.00

SAMPLING/IN SITU TEST/FIELD RECORDS

Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %
0.10-0.30						B1		
0.30-0.50						B2		
0.80-1.00						B3		
1.20-2.70						X4		
2.50						D1		
2.70-3.50						X5		
3.50-4.20		47	0	0		C6		
4.20		-	-	-				

OTHER TESTS AND NOTES

- Hand excavated from ground level to 1.20m
- BRE SD1 chemical suite
- Percussive sampling 1.2m to 3.5m (128mm diameter)
- Particle size distribution
- If (3.0-6.5m): NI/10/40
- Rotary cored 3.5 to 4.2m (146mm diameter), water flush
- 4.2-5.2m: Borehole advanced by reaming casing

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	20/10/15 to 21/10/15
Log	NAB

Sheet 1 of 5 | BH103A

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.10m 140mm DIAMETER 5.10 TO 20.20m	Hole No.	**BH103A**
		Engineer				Sheet	2 of 5
Ground Level	99.10 m.A.O.D.	Coordinates	391109 m.E. 309758 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				No recovery		93.90	5.20	5.20-6.70						C7				Rotary cored 5.2-20.2m (146mm diameter). Water flushing BRE SD1 chemical suite
				(Limited recovery) Extremely weak red/brown fine-medium SANDSTONE. Fractures subhorizontal to 10 degrees and subvertical to 75 degrees, extremely and very closely spaced, planar, smooth (Wildmoor Sandstone Formation)				5.30						D2				
										66	0	0						If (6.5-12.1m): NI/40/90
								6.70-8.20						C8				
				- weak light grey fine-medium sandstone between 7.95 and 8.10m						60	25	0						
								8.20-9.70						C9				
										50	45	0						
				Weak red/brown fine-medium SANDSTONE. Fractures very closely spaced, subhorizontal to 10 degrees, planar, smooth (Wildmoor Sandstone Formation)		90.00	9.10											
				- limited recovery between 9.10-12.70m				9.50						D3				
								9.70-11.20						C10				
						89.10	10.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 2 of 5	BH103A
Dates	20/10/15 to 21/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.10m 140mm DIAMETER 5.10 TO 20.20m	Hole No.	**BH103A**
		Engineer				Sheet	3 of 5
Ground Level	99.10 m.A.O.D.	Coordinates	391109 m.E. 309758 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Weak red/brown fine-medium SANDSTONE. Fractures very closely spaced, subhorizontal to 10 degrees, planar, smooth (Wildmoor Sandstone Formation)						37	34	0						
								11.20-12.70						C11				
										40	24	0						If (12.1-14.0m): NI/60/160
				- becoming very weak at approximately 12.50m				12.50						D4				Point load test carried out at 12.50m
								12.70-14.20						C12				
				- fractures 30 degrees, very closely spaced, planar, smooth between 12.90 and 14.00m						73	43	11						
																		If (14.0-15.6m): 20/50/90
								14.20-15.70						C13				
										70	61	0						
						84.10	15.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after			
		5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 3 of 5	BH103A
Dates	20/10/15 to 21/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.10m 140mm DIAMETER 5.10 TO 20.20m	Hole No.	**BH103A**
		Engineer				Sheet	4 of 5
Ground Level	99.10 m.A.O.D.	Coordinates	391109 m.E. 309758 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Weak red/brown fine-medium SANDSTONE. Fractures very closely spaced, subhorizontal to 10 degrees, planar, smooth (Wildmoor Sandstone Formation)		83.70	15.40											
				Weak red/brown locally light grey/green fine-medium SANDSTONE. Fractures subhorizontal to 10 degrees, very closely spaced, plantar, smooth (Wildmoor Sandstone Formation)				15.50-15.60						D5				If (15.6-18.7m): NI/20/130
								15.70-17.20						C14				
										78	66	15						
								17.20-18.70						C15				
				- becoming very weak from approximately 17.90m				17.90		63	50	7		D6				Point load test carried out at 17.90m
								18.70-20.20						C16				If (18.7-20.2m): 73/71/14
										73	71	14						
								19.90						D7				Point load test carried out at 19.90m
						79.10	20.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	20/10/15 to 21/10/15
Log	NAB

Sheet 4 of 5 **BH103A**

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.10m 140mm DIAMETER 5.10 TO 20.20m	Hole No.	**BH103A**
		Engineer				Sheet	5 of 5
Ground Level	99.10 m.A.O.D.	Coordinates	391109 m.E. 309758 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
21/10/15	20.20	0.45 C		Very weak red/brown locally light grey/green fine-medium SANDSTONE. Fractures subhorizontal to 10 degrees, very closely spaced, planar, smooth (Wildmoor Sandstone Formation)		78.90	20.20	20.20										Borehole complete at 20.20m 50mm diameter HDPE pipe installed to 8.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	20/10/15 to 21/10/15
Log	NAB

Sheet 5 of 5 | **BH103A**

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 20.00m	**Hole No.** BH104 **Sheet** 1 of 4 **Job No** 14317GI
Ground Level 106.30 m.A.O.D.	**Coordinates** 392224 m.E. 310121 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Topsoil (Dark grey/brown slightly gravelly sandy silt. Gravel is subangular-rounded fine-medium sandstone and quartzite. Frequent roots (up to 5mm in diameter) and rootlets)		105.90	0.40	0.00-0.40						B1				Hand excavated from ground level to 1.20m
				Dark brown/orange slightly gravelly fine-medium SAND. Gravel is subangular-rounded, fine-medium sandstone and quartzite (Glaciofluvial Deposits)		105.50	0.80	0.40-0.80						B2				
				Light brown/orange and red/brown gravelly fine-medium SAND. Gravel is angular-subrounded, fine-medium sandstone and quartzite (Glaciofluvial Deposits)				0.80-1.20						B3				
								1.20-2.70						X4				Percussive sampling from 1.2 to 3.0m (128mm diameter)
				Light brown/yellow silty very gravelly fine-medium SAND. Gravel is angular-subrounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)		104.40	1.90	2.00						D1				Particle size distribution
								2.70-3.00						X5				
				Red/brown silty fine-medium SAND (Wildmoor Sandstone Formation)		103.25	3.05	3.00-4.50						C6				Rotary cored 3.0-20.0m (146mm), water flush Groundwater not encountered prior to use of water flush If (3.0-5.7m): NA
										100	-	-						
								4.00						D2				Particle size distribution and BRE SD1 chemical suite
								4.50-6.00						C7				
						101.30	5.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 1 of 4	BH104
Dates	29/10/15 to 30/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 20.00m	Hole No.	**BH104**
		Engineer				Sheet	2 of 4
Ground Level	106.30 m.A.O.D.	Coordinates	392224 m.E. 310121 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Red/brown silty fine-medium SAND (Wildmoor Sandstone Formation)						98	-	-						
						100.60	5.70											If (5.7-8.2m): NI/300/600
				Weak red/brown, locally light grey/green, fine-medium SANDSTONE, locally disintegrated to slightly clayey fine-medium SAND. Fractures subhorizontal closely to medium spaced, planar, smooth (Wildmoor Sandstone Formation)				6.00 6.00-7.50						D3 C8				Point load test carried out at 6.00m
										100	97	83						
								7.50-9.00						C9				
						98.10	8.20			95	95	89						If (8.2-16.4m): NI/300/600
				Very weak red/brown locally green/grey and grey/yellow fine-medium SANDSTONE, locally disintegrated to slightly clayey fine-medium sand. Fractures subhorizontal closely spaced, planar, smooth (Wildmoor Sandstone Formation)														
								9.00 9.00-10.50						D4 C10				Point load test carried out at 9.00m
										80	67	61						
						96.30	10.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	BH104
Dates	29/10/15 to 30/10/15	Sheet 2 of 4
Log	NAB	

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 20.00m	Hole No.	**BH104**
		Engineer				Sheet	3 of 4
Ground Level	106.30 m.A.O.D.	Coordinates	392224 m.E. 310121 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Very weak red/brown locally green/grey and grey/ yellow fine-medium SANDSTONE, locally disintegrated to slighlty clayey fine-medium sand. Fractures subhorizontal, closely spaced, planar, smooth (Wildmoor Sandstone Formation)				10.50-12.00		100	97	97		C11				
				- becoming weak at approximately 12.00m				12.00 12.00-13.50		100	98	98		D5 C12				Point load test carried out at 12.00m
								13.50-15.00		98	83	80		C13				
								14.70-14.85						D6				
						91.30	15.00	15.00-16.50						C14				

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 3 of 4	BH104
Dates	29/10/15 to 30/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 20.00m	Hole No.	**BH104**
		Engineer				Sheet	4 of 4
Ground Level	106.30 m.A.O.D.	Coordinates	392224 m.E. 310121 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Very weak red/brown locally green/grey and grey/ yellow fine-medium SANDSTONE, locally disintegrated to slightly clayey fine-medium sand. Fractures subhorizontal, closely spaced, planar, smooth (Wildmoor Sandstone Formation)															
										100	87	87							
								16.50-18.00						C15					If (16.4-20.0m): NI/90/270
										93	67	55							
								17.50						D7					Point load test carried out at 17.50m
29/10/15	18.00																		
30/10/15	18.00	0.70 N						18.00-19.50						C16					
										97	73	53							
																			Point load test carried out at 19.80m Borehole complete at 20.00m Borehole backfilled with bentonite
								19.50-20.00						C17					
										92	76	24							
								19.80						D8					
30/10/15	20.00	DRY C				86.30	20.00	20.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 4 of 4	BH104
Dates	29/10/15 to 30/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 17.50m	**Hole No.** BH105 **Sheet** 1 of 4 **Job No** 14317GI
Ground Level 102.70 m.A.O.D.	**Coordinates** 391816 m.E. 309824 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Topsoil (Dark grey/brown slightly gravelly sandy silt. Gravel is rounded-subrounded fine-medium sandstone and quartzite. Frequent roots (up to 8mm in diameter) and rootlets)		102.40	0.30	0.30-0.50						B1					Hand excavated from ground level to 1.20m
				Light and dark grey/brown silty gravelly fine-coarse SAND. Gravel is subangular-rounded fine-coarse sandstone (Glaciofluvial Deposits)				0.70-0.90						B2					Particle size distribution
						101.70	1.00	1.00-1.20						B3					
				Light grey/brown and orange/brown silty fine-medium SAND (Wildmoor Sandstone Formation)				1.20-2.70						X4					Percussive sampling from 1.20 to 2.70m (128mm diameter)
								1.80						D1					Particle size distribution
				Dark red/brown fine-medium SAND (Wildmoor Sandstone Formation)		100.60	2.10												
26/10/15	2.70																		
27/10/15	2.70			No recovery		100.00	2.70	2.70-4.00		0				C1					Rotary cored 2.7 to 17.5m (146mm), water flush Groundwater not encountered prior to use of water flush
								4.00-5.50		0				C2					
						97.70	5.00												

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 1 of 4	BH105
Dates	26/10/15 to 27/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 17.50m	Hole No.	**BH105**
		Engineer				Sheet	2 of 4
Ground Level	102.70 m.A.O.D.	Coordinates	391816 m.E. 309824 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				No recovery														
				Red/brown slightly gravelly slightly silty fine-medium SAND. Gravel is subangular-subrounded fine-coarse sandstone (Limited sample recovery) (Wildmoor Sandstone Formation)		97.20	5.50	5.50-7.00						C3				If (5.5-7.0m): NA
										33	-	-						
				No recovery		95.70	7.00	7.00-8.50						C4				
										0								
				Weak dark red/brown fine-medium SANDSTONE with rare black specks (up to 5mm diameter). Fractures are subhorizontal, extremely closely to closely spaced, planar, rough (limited sample recovery) (Wildmoor Sandstone Formation)		94.20	8.50	8.50-10.00						C5				If (8.5-11.0m): NI/20/80
								9.00						D2				Point load test carried out at 9.00m
				- thick laminae of extremely weak grey/green sandstone at 9.30m						53	17	0						
						92.70	10.00	10.00-11.50						C6				

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 2 of 4	BH105
Dates	26/10/15 to 27/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 17.50m	Hole No.	**BH105**
		Engineer				Sheet	3 of 4
Ground Level	102.70 m.A.O.D.	Coordinates	391816 m.E. 309824 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Extremely weak dark red/brown fine-medium SANDSTONE with rare black specks (up to 5mm in diameter). Fractures are subhorizontal, extremely closely to closely spaced, planar, rough (limited sample recovery) (Wildmoor Sandstone Formation)						33	1	0					
				- fractures randomly orientated, extremely closely spaced, planar smooth between 11.00 and 11.40m													If (11.0-11.5m): NI/NI/10
				- extremely weak, light grey/green sandstone between 11.40 and 11.50m													
				Very weak dark red/brown fine-medium SANDSTONE. Fractures subhorizontal, extremely and very closely spaced, planar, rough (limited sample recovery) (Wildmoor Sandstone Formation)		91.20	11.50	11.50-13.00						C7			If (11.5-14.5m): NI/20/50
										37	6	0					
				- extremely weak light grey sandstone between 12.50 and 12.70m													
				- extremely weak light grey.brown sandstone between 12.80 and 12.90m													
								13.00-14.50						C8			
								13.20						D4			Point load test carried out at 13.20m
										27	3	0					
				Very weak/weak red/brown fine-medium SANDSTONE with rare black specks (up to 5mm in diameter). Fractures subhorizontal, extremely closely to closely spaced, planar, rough (limited sample recovery) (Wildmoor Sandstone Formation)		88.20	14.50	14.50-16.00						C9			If (14.5-17.5m): NI/40/90
						87.70	15.00										

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	26/10/15 to 27/10/15
Log	NAB

Sheet 3 of 4 | BH105

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 17.50m	Hole No.	**BH105**
		Engineer				Sheet	4 of 4
Ground Level	102.70 m.A.O.D.	Coordinates	391816 m.E. 309824 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Very weak red/brown fine-medium SANDSTONE with rare black specks (up to 5mm in diameter). Fractures are subhorizontal, extremely closely to closely spaced, planar, rough (limited sample recovery) (Wildmoor Sandstone Formation)						47	13	0						
				- thin bed of very weak light brown/grey sandstone between 12.80 and 12.90m				16.00-17.50						C10				
				- very thin bed of very weak/weak light grey/brown sandstone at 16.80m						60	32	0						
27/10/15	17.50							17.40						D6				Point load test carried out at 17.40m
						85.20	17.50	17.50										Borehole complete at 17.50m Borehole backfilled with bentonite Due to poor recovery (using water flush) borehole relocated to BH105A

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	26/10/15 to 27/10/15
Log	NAB

Sheet 4 of 4 | **BH105**

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 20.00m	**Hole No.** BH105A
	Engineer		**Sheet** 1 of 4
Ground Level 102.60 m.A.O.D.	**Coordinates** 391810 m.E. 309836 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Topsoil (Dark grey/brown slightly gravelly sandy silt. Gravel is subrounded-rounded fine-medium sandstone and quartzite. Frequent roots (up to approximately 8mm in diameter) and rootlets)		102.20	0.40	0.20-0.40						B1			Hand excavated from ground level to 1.20m
				Light and dark grey/brown slightly gravelly and silty fine-coarse SAND. Gravel is subangular-rounded fine-coarse sandstone (Glaciofluvial Deposits)				0.60-0.80						B2			
						101.60	1.00	1.00-1.20						B3			
27/10/15 28/10/15	1.20 1.20	DRY N		Light grey/brown slightly gravelly fine SAND. Gravel is subrounded-rounded fine-medium sandstone and quartzite (Glaciofluvial Deposits)				1.20-2.70						X4			Percussive sampling from 1.2 to 2.8m (128mm diameter)
				Light grey brown fine SAND (Wildmoor Sandstone Formation)		101.05	1.55										
				Red/brown slightly gravelly silty fine-medium SAND. Gravel is subrounded-rounded coarse sandstone (Wildmoor Sandstone Formation)		100.60	2.00	2.10						D1			Particle size distribution and BRE SD1 chemical suite
								2.70-2.80						X5			
								2.80-3.00		100	-	-		C6			If (2.8-3.4m): NA
								3.00-3.50		15	8	0		C7			Rotary cored 2.8 to 20.0m (146mm diameter), polymer flush Groundwater not encountered prior to use of flush If (3.4-3.6m): 60/-/- If (3.6-5.6m): NA
				Extremely weak red/brown fine-medium SANDSTONE. Fractures subhorizontal, very closely spaced, planar, rough (Wildmoor Sandstone Formation)		99.20	3.40	3.50-4.50						C8			
				Dark red/brown slightly gravelly fine SAND. Gravel is angular-subrounded fine-coarse sandstone (Limited sample recovery) (Wildmoor Sandstone Formation)		99.00	3.60			53	0	0					
								4.50-5.25						C9			
						97.60	5.00			27	-	-					

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	27/10/15 to 28/10/15
Log	NAB

Sheet 1 of 4 | BH105A

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 20.00m	**Hole No.** BH105A
	Engineer		**Sheet** 2 of 4
Ground Level 102.60 m.A.O.D.	**Coordinates** 391810 m.E. 309836 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	OTHER TESTS AND NOTES
				Dark red/brown slightly gravelly fine SAND. Gravel is angular-subrounded fine-coarse sandstone (Limited sample recovery) (Wildmoor Sandstone Formation)		97.00	5.60	5.25-6.00		73	20	16		C10			If (5.6-6.5m): NI/40/120
				Weak red/brown fine-medium SANDSTONE. Fractures subhorizontal, extremely closely to closely spaced, planar, rough (Wildmoor Sandstone Formation) - limited sample recovery between 6.00 and 7.50m				5.90 6.00-7.50						D2 C11			Point load test carried out at 5.90m
				Dark red/brown slightly silty fine SAND (Wildmoor Sandstone Formation) - very thin bed of extremely weak red/brown sandstone		96.10	6.50			47	8	0					If (6.5-8.0m): NA
								7.50-9.00						C12			
				Extremely weak and very weak, red/brown fine-medium SANDSTONE. Fractures subhorizontal, extremely closely to closely spaced, planar, rough (Wildmoor Sandstone Formation)		94.60	8.00			67	29	0					If (8.0-8.8m): NI/30/70
				Red/brown fine SAND (Wildmoor Sandstone Formation) - limited sample recovery between 9.00 and 10.50m		93.80	8.80	9.00-10.50						C13			If (8.8-9.7m): NA
				Very weak red/brown mottled grey fine-medium SANDSTONE. Fractures subhorizontal, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation)		93.10	9.50	9.50		53	37	0		D3			Point load test carried out at 9.50m If (9.7-10.6): 30/80/90
						92.60	10.00										

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	27/10/15 to 28/10/15
Log	NAB

Sheet 2 of 4 | BH105A

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 20.00m	Hole No.	**BH105A**
		Engineer				Sheet	3 of 4
Ground Level	102.60 m.A.O.D.	Coordinates	391810 m.E. 309836 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Very weak red/brown mottled grey fine-medium SANDSTONE. Fractures subhorizontal, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation)				10.50-12.00					C14				
						92.00	10.60											If (10.6-12.2m): NI/90/190
				Extremely weak and very weak red/brown fine-medium SANDSTONE. Fractures subhorizontal, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation) - very thin bed of red/brown find sand at 11.10m - very thin bed of extremely weak light grey fine-medium sandstone at 11.30m						73	33	8					
								12.00-13.50					C15				
						90.40	12.20											If (12.2-14.45m): NI/90/190
				Extremely weak and very weak red/brown mottled light grey fine-medium SANDSTONE. Fractures subhorizontal, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation)													
						89.90	12.70			87	67	27						
				Weak red/brown and light grey fine-medium SANDSTONE. Fractures subhorizontal, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation)				12.80					D4				Point load test carried out at 12.80m
								13.50-15.00					C16				
				- becoming very weak at approximately 14.00m				14.00					D5				Point load test carried out at 14.00m
										80	60	20					
						88.15	14.45											If (14.45-16.5m): NI/50/120
				Extremely weak red/brown fine-medium SANDSTONE. Fractures subhorizontal very closely and clsoely spaced, planar, rough (Wildmoor Sandstone Formation)													
						87.60	15.00	15.00-16.50					C17				

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 3 of 4	BH105A
Dates	27/10/15 to 28/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 2.70m 140mm DIAMETER 2.70 TO 20.00m	Hole No.	**BH105A**
		Engineer				Sheet	4 of 4
Ground Level	102.60 m.A.O.D.	Coordinates	391810 m.E. 309836 m.N.			Job No	**14317GI**

WATER			STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Extremely weak red/brown fine-medium SANDSTONE. Fractures subhorizontal, very closely and closely spaced, planar, rough (Wildmoor Sandstone Formation)													
				- very thin bed of extremely weak light grey/green fine-medium sandstone						73	49	20					
				- very thin bed of extremely weak light grey/green fine-medium sandstone		86.10	16.50	16.50-18.00						C18			If (16.5-20.0m): NI/60/120
				Weak red brown locally grey fine-medium SANDSTONE. Fractures subhorizontal, extremely closely to closely spaced, planar, smooth (Wildmoor Sandstone Formation)						70	27	15					
								18.00-19.50						C19			
								18.50						D7			Point load test carried out at 18.50m
										73	57	26					
																	Borehole complete at 20.00m
																	Borehole backfilled with bentonite
								19.50-20.00						C20			
										70	60	28					
28/10/15	20.00					82.60	20.00	20.00									

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 4 of 4	BH105A
Dates	27/10/15 to 28/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 3.90m 140mm DIAMETER 3.90 TO 12.90m	Hole No.	**BH106**
		Engineer				Sheet	1 of 3
Ground Level	107.00 m.A.O.D.	Coordinates	392389 m.E. 309891 m.N.			Job No	**14317GI**

WATER

Date/Time at Depth	Depth of Casing m	Depth to Water m
30/10/15	0.70	
02/11/15	0.70	DRY

STRATA

Inst	Description	Legend	Level m.A.O.D.	Depth m
	Topsoil (Dark brown slighlty gravelly silty fine-coarse sand. Gravel is subrounded fine-medium sandstone)			
			106.60	0.40
	Stiff brown slightly gravelly slightly sandy silty CLAY. Gravel is rounded fine-medium sandstone and quartzite (Till)			
			106.10	0.90
	Red/brown silty gravelly fine-coarse SAND. Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits) - mottled light brown between 0.90 and 1.10m			
			104.80	2.20
	Dark red/brown gravelly clayey fine-medium SAND. Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)		104.60	2.40
	Brown slightly silty sandy subangular-rounded fine-coarse sandstone and quartzite GRAVEL (Glaciofluvial Deposits)		104.35	2.65
	Red/brown and light brown slightly clayey silty very gravelly fine-coarse SAND. Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)			
			103.10	3.90
	Red/brown gravelly fine-medium SAND with occasional rounded sandstone cobbles. Gravel is angular-rounded fine-coarse sandstone (Limited sample recovery) (Wildmoor Sandstone Formation)			
			102.00	5.00

SAMPLING/IN SITU TEST/FIELD RECORDS

Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %
0.00-0.20						B1		
0.20-0.40						B2		
0.40-0.70						B3		16.8
0.70-1.30						X4		
1.30-2.40						X5		
1.50						D1		
2.40-3.90						X6		
3.00						D2		
3.90-5.40		15	-	-		C7		

OTHER TESTS AND NOTES

- Hand excavated from ground level to 0.70m
- Plasticity Index and BRE SD1 chemical suite
- HV at 0.70m >120kPa
- Percussive sampling from 0.70 to 3.90m (128mm diameter)
- Particle size distribution
- Particle size distribution
- Rotary cored from 3.9 to 12.9m (146mm diameter), water flush
- Groundwater not encountered prior to use of water flush
- If (3.9-5.4m): NA

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	30/10/15 to 03/11/15
Log	NAB

Sheet 1 of 3 | **BH106**

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 3.90m 140mm DIAMETER 3.90 TO 12.90m	Hole No.	**BH106**
		Engineer				Sheet	2 of 3
Ground Level	107.00 m.A.O.D.	Coordinates	392389 m.E. 309891 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Red/brown gravelly fine-medium SAND with occasional rounded sandstone cobbles. Gravel is angular-rounded fine-coarse sandstone (Limited sample recovery) (Wildmoor Sandstone Formation)		101.60	5.40	5.40-6.90						C8				If (5.4-6.9m): NI/-/-
				Extremely weak red/brown fine-medium SANDSTONE (Limited recovery - not intact) (Wildmoor Sandstone Formation)						67	0	0						
02/11/15	6.90																	
03/11/15	6.90	3.40 N		Weak red/brown locally light grey/green, fine-medium SANDSTONE. Fractures subhorizontal and subvertical, extremely closely to closely spaced, planar, smooth (Limited sample recovery) (Wildmoor Sandstone Formation)		100.10	6.90	6.90-8.40						C9				If (6.9-8.4m): 61/15/0
										61	15	0						
								8.30						D4				Point load test carried out at 8.30m
				Weak red/brown fine-medium SANDSTONE locally disintegrated to slightly clayey fine-medium sand. Fractures subhorizontal and subvertical, very closely spaced, planar, smooth (Wildmoor Sandstone Formation)		98.60	8.40	8.40-9.90						C10				If (8.4-9.9m): 61/5/0
										61	5	0						
								9.80						D5				Point load test carried out at 9.80m
						97.00	10.00	9.90-11.40						C11				If (9.9-11.4m): 63/16/0

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	30/10/15 to 03/11/15
Log	NAB

Sheet 2 of 3 | BH106

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 200mm DIAMETER GROUND LEVEL TO 3.90m 140mm DIAMETER 3.90 TO 12.90m	Hole No.	**BH106**
		Engineer				Sheet	3 of 3
Ground Level	107.00 m.A.O.D.	Coordinates	392389 m.E. 309891 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Extremely weak red/brown fine-medium SANDSTONE locally disintegrated to slightly clayey fine-medium sand. Fractures subhorizontal and subvertical, very closely spaced, planar, smooth (Wildmoor Sandstone Formation)						63	16	6						
								11.40-12.90						C12				If (11.4-12.9m): 65/39/13
										65	39	13						
						94.10	12.90	12.90										Borehole complete at 12.90m
																		50mm diameter HDPE pipe installed to 8.00m
																		Pipework capped and protected with flush lockable cover
																		Borehole redrilled as BH106A due to limited sample recovery

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after			
		5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	30/10/15 to 03/11/15
Log	NAB

Sheet 3 of 3 | **BH106**

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.10m 140mm DIAMETER 4.10 TO 20.50m	**Hole No.** BH106A
	Engineer		**Sheet** 1 of 5
Ground Level 106.60 m.A.O.D.	**Coordinates** 392320 m.E. 309907 m.N.		**Job No** 14317GI

WATER			STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Topsoil (Dark brown/grey slightly gravelly silty fine-medium sand with frequent roots (up to approximately 5mm in diameter) and rootlets. Gravel is subangular-rounded fine-medium sandstone and quartzite)		106.25	0.35	0.10-0.30						B1			Hand excavated from ground level to 1.00m
				Dark brown/orange slightly clayey slightly gravelly fine-medium SAND. Gravel is subangular-rounded fine-medium sandstone and quartzite (Glaciofluvial Deposits)				0.50-0.70						B2			
								0.80-1.00						B3			
						105.60	1.00	1.00-2.30						X4			Percussive sampling from 1.0 to 4.1m (128mm diameter)
				Light brown and red/brown slightly clayey silty very gravelly fine-coarse SAND. Gravel is angular-subrounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)													
								2.00						D1			BRE SD1 chemical suite
								2.30-3.80						X5			
								3.00						D2			Particle size distribution
						103.20	3.40										
				Red/brown slightly clayey silty fine-medium SAND (Wildmoor Sandstone Formation)													
								3.80-4.10						X6			
								4.00						D3			
								4.10-5.60						C7			Particle size distribution If (4.1-6.1m): NA Rotary cored 4.1 to 20.5m (146mm diameter), polymer flush Groundwater not encountered prior to use of polymer flush
				Red/brown slightly clayey fine-medium SAND with rare black specks (up to 5mm in diameter) (Wildmoor Sandstone Formation)		102.45	4.15										
										92	-	-					
						101.60	5.00										

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 1 of 5
Dates	03/11/15 to 04/11/15	BH106A
Log	NAB	

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.10m 140mm DIAMETER 4.10 TO 20.50m	Hole No.	**BH106A**
		Engineer				Sheet	2 of 5
Ground Level	106.60 m.A.O.D.	Coordinates	392320 m.E. 309907 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Red/brown slightly clayey fine-medium SAND with rare black specks (up to 5mm in diameter) (Wildmoor Sandstone Formation)				5.60-6.10		100	-	-		C8				
				Weak red/brown locally light brown/grey and grey/green fine-medium SANDSTONE. Fractures subhorizontal to 20 degrees, very closely to medium spaced, planar, smooth, locally infilled (up to 2mm) with slightly clayey fine-medium sand (Wildmoor Sandstone Formation)		100.50	6.10	6.10-7.10						C9				If (6.1-7.1m): NI/140/580
03/11/15	7.10	2.10								100	82	70						
04/11/15	7.10	2.80 N						7.10-8.60						C10				If (7.1-10.1m): NI/120/240
				- becoming weak at approximately 8.00m				8.00		88	47	38		D5				Point load test carried out at 8.00m
								8.60-10.10						C11				
										100	73	43						
				Extremely weak red/brown locally grey/yellow/brown fine-medium SANDSTONE. Fractures subhorizontal, medium and widely spaced, planar, smooth (Wildmoor Sandstone Formation)		96.90	9.70											
						96.60	10.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	03/11/15 to 04/11/15
Log	NAB

Sheet 2 of 5 | **BH106A**

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.10m 140mm DIAMETER 4.10 TO 20.50m	Hole No.	**BH106A**
		Engineer				Sheet	3 of 5
Ground Level	106.60 m.A.O.D.	Coordinates	392320 m.E. 309907 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Extremely weak red/brown locally grey/yellow/brown fine-medium SANDSTONE. Fractures subhorizontal, medium and widely spaced, planar, smooth (Wildmoor Sandstone Formation)				10.10-11.60					C12			If (10.1-11.6m): 400/400/1050
										97	97	97					
								11.00-11.14						D6			
						95.00	11.60	11.60-12.00						C13			If (11.6-13.3m): NI/45/90
				Very weak red/brown fine-medium SANDSTONE with rare black specks (up to 5mm in diameter). Fractures subhorizontal, very closely to medium spaced, planar, smooth (Wildmoor Sandstone Formation)						100	45	45					
								12.00-12.90						C14			
										100	98	24					
								12.90-13.30						C15			
										100	100	50					
								13.30-14.50						C16			If (13.3-14.6m): 40/100/280
										100	79	46					
								14.00						D7			Point load test carried out at 14.00m
								14.50-16.00						C17			
				Very weak dark red/brown locally grey/green medium SANDSTONE. Fractures subhorizontal, medium and widely spaced, locally very closely spaced, planar, smooth (Wildmoor Sandstone Formation)		92.00	14.60										If (14.6-18.5m): 40/280/1000
						91.60	15.00										

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	03/11/15 to 04/11/15
Log	NAB

Sheet 3 of 5 **BH106A**

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.10m 140mm DIAMETER 4.10 TO 20.50m	Hole No.	**BH106A**
		Engineer				Sheet	4 of 5
Ground Level	106.60 m.A.O.D.	Coordinates	392320 m.E. 309907 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Very weak dark red/brown locally grey/green medium SANDSTONE. Fractures subhorizontal, medium and widely spaced, locally very closely spaced, planar, smooth (Wildmoor Sandstone Formation)						92	89	89						
								16.00-17.50						C18				
										93	92	92						
								17.50-19.00						C19				
								18.00						D8				Point load test carried out at 18.00m
										78	35	27						
				Very weak dark red/brown fine-medium SANDSTONE. Fractures subhorizontal and subertical, closely and medium spaced, planar, smooth, infilled (up to 10mm) with slighlty clayey fine-medium sand (Wildmoor Sandstone Formation)		88.10	18.50											If (18.5-20.5m): 40/260/420
								19.00-20.50						C20				
										100	53	35						
						86.60	20.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 4 of 5	BH106A
Dates	03/11/15 to 04/11/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.10m 140mm DIAMETER 4.10 TO 20.50m	Hole No.	**BH106A**
		Engineer				Sheet	5 of 5
Ground Level	106.60 m.A.O.D.	Coordinates	392320 m.E. 309907 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
04/11/15	20.50	3.70 C		Very weak dark red/brown fine-medium SANDSTONE. Fractures subhorizontal and subvertical, closely and medium spaced, planar, smooth, infilled (up to 10mm) with slightly clayey fine-medium sand (Wildmoor Sandstone Formation)		86.10	20.50	20.50										Borehole complete at 20.50m Borehole backfilled with bentonite

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	03/11/15 to 04/11/15
Log	NAB

Sheet 5 of 5 **BH106A**

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.05m	**Hole No.** BH107
	Engineer		**Sheet** 1 of 5
Ground Level 103.70 m.A.O.D.	**Coordinates** 391473 m.E. 309443 m.N.		**Job No** 14317GI

WATER

Date/Time at Depth	Depth of Casing m	Depth to Water m
03/11/15	3.95	1.54
04/11/15	3.95	1.87 N

STRATA

Inst	Description	Legend	Level m.A.O.D.	Depth m
	Topsoil (Dark grey/brown slightly gravelly silty fine-medium sand. Gravel is rounded fine-medium sandstone and quartzite. Rare rootlets)		103.30	0.40
	Firm light red/brown mottled dark grey slightly gravelly slightly sandy CLAY. Gravel is rounded fine-medium sandstone and quartzite (Till)		103.00	0.70
	Light brown/red mottled dark grey silty clayey very gravelly fine-coarse SAND. Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)		102.00	1.70
	Red/brown clayey fine-coarse SAND and GRAVEL. Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)		101.45	2.25
	Red/brown occasional light grey and light brown slightly silty slightly gravelly fine-medium SAND. Gravel is rounded fine-coarse sandstone (Wildmoor Sandstone Formation)		101.10	2.60
	Red/brown occasional light brown silty fine-medium SAND (Wildmoor Sandstone Formation)		98.70	5.00

SAMPLING/IN SITU TEST/FIELD RECORDS

Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %
0.10-0.30						B1		
0.40-0.60						B2		
0.80-1.00						B3		
1.20-2.70						X4		
2.00						D1		
2.70-3.95						X5		
3.95-5.45		100	-	-		C6		
5.00						D3		

OTHER TESTS AND NOTES

- Hand excavated from ground level to 1.20m
- Particle size distribution and sedimentation and BRE SD1 chemical suite
- Percussive sampling from 1.20 to 3.95m (128mm diameter)
- Particle size distribution
- If (2.7-6.3m): NA
- Rotary cored 3.95 to 20.45m (146mm diameter), water flush Groundwater not encountered prior to use of water flush
- Particle size distribution

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	03/11/15 to 04/11/15
Log	NAB

Sheet 1 of 5 | BH107

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.05m	Hole No.	**BH107**
		Engineer				Sheet	2 of 5
Ground Level	103.70 m.A.O.D.	Coordinates	391473 m.E. 309443 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Red/brown occasional light brown silty fine-medium SAND (Wildmoor Sandstone Formation)				5.45-6.95						C7				
				Extremely weak red/brown locally grey/green fine-medium SANDSTONE (occasionally recovered as silty fine-medium sand). Fractures subhorizontal, extremely closely spaced, planar, smooth (Wildmoor Sandstone Formation)		97.40	6.30			100	-	-						If (6.3-8.55m): NI/-/-
								6.95-8.45						C8				
										100	0	0						
				Extremely weak red/brown occasional light brown/ grey fine-medium SANDSTONE. Fractures subhorizontal extremely closely to very closely spaced, planar, smooth (Wildmoor Sandstone Formation)		95.15	8.55	8.45-9.95						C9				If (8.55-10.65m): NI/30/60
										98	24	0						
								9.45										
						93.70	10.00	9.95-11.45						C10				

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	03/11/15 to 04/11/15
Log	NAB

Sheet 2 of 5

BH107

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.05m	Hole No.	**BH107**
		Engineer				Sheet	3 of 5
Ground Level	103.70 m.A.O.D.	Coordinates	391473 m.E. 309443 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Extremely weak red/brown occasional light brown/ grey fine-medium SANDSTONE. Fractures subhorizontal, extremely closely to very closely spaced, planar, smooth (Wildmoor Sandstone Formation)						91	23	0						
						93.05	10.65											If (10.65-20.45m): MO/60/160
				Very weak red/brown locally grey/green fine-medium SANDSTONE. Fractures 10-15 degrees and 20-30 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)				11.00					D4				Point load test carried out at 11.00m
								11.45-12.95					C11				
						91.80	11.90											
				Very weak red/brown occasionally light grey/brown/ green fine-medium SANDSTONE. Fractures subhorizontal to 10 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)						93	70	16						
								12.95-14.45					C12				
										93	56	11						
								14.00-14.10					D5				
								14.45-15.95					C13				
						88.70	15.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	03/11/15 to 04/11/15
Log	NAB

Sheet 3 of 5

BH107

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.05m	Hole No.	**BH107**
		Engineer				Sheet	4 of 5
Ground Level	103.70 m.A.O.D.	Coordinates	391473 m.E. 309443 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Very weak red/brown occasionally light grey/brown/ green fine-medium SANDSTONE. Fractures subhorizontal at 10 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)						99	55	14							
								15.95-17.45						C14					
				Weak red/brown occasionally grey/green fine-medium SANDSTONE. Fractures subhorizontal to 10 degrees and 40-60 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)		87.30	16.40			88	51	29							
								17.45-18.95						C15					
								18.00						D6					Point load test carried out at 18.00m
										90	50	9							
								18.95-20.45						C16					
										100	55	14							
						83.70	20.00												

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after			
		5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 4 of 5	BH107
Dates	03/11/15 to 04/11/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.05m	Hole No.	**BH107**
		Engineer				Sheet	5 of 5
Ground Level	103.70 m.A.O.D.	Coordinates	391473 m.E. 309443 m.N.			Job No	**14317GI**

WATER			STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Very weak red/brown occasionally grey/green fine-medium SANDSTONE. Fractures subhorizontal to 10 degrees and 40-60 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)		83.25	20.45	20.45									Borehole complete at 20.45m 50mm diameter HDPE pipe installed to 8.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	03/11/15 to 04/11/15
Log	NAB

Sheet 5 of 5 | **BH107**

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.05m	**Hole No.** BH108 **Sheet** 1 of 5 **Job No** 14317GI
Ground Level 105.50 m.A.O.D.	**Coordinates** 392007 m.E. 309543 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Topsoil (Light brown slightly gravelly silty fine-medium sand. Gravel is subangular-rounded fine-medium sandstone and mudstone. Rare rootlets)		105.20	0.30	0.10-0.30						B1			Hand excavated from ground level to 1.20m
				Dark brown slightly silty very gravelly fine-coarse SAND with some fine-coarse gravel size pockets of dark brown and grey silty clay. Gravel is subangular-rounded fine-coarse sandstone and mudstone with occasional rounded sandstone cobbles. Rare rootlets (Glaciofluvial Deposits)		104.60	0.90	0.40-0.50						B2			
				Dark brown slightly silty slightly gravelly fine-medium SAND. Gravel is subangular-subrounded fine-medium sandstone and mudstone (Glaciofluvial Deposits)		104.40	1.10	0.70-0.80						B3			Particle size distribution and sedimentation
				Stiff dark red/brown with rare black specks slightly sandy slightly gravelly silty CLAY. Gravel is subrounded-rounded fine-coarse sandstone (Till)		103.70	1.80	1.00-1.20						B4			
				Red/brown silty fine-medium SAND (Wildmoor Sandstone Formation)				1.20-2.55						X5			Percussive sampling from 1.20-4.05mm (128mm diameter)
								1.60						D1		14.8	Plasticity Index HSV at 1.60m = >120kPa
								2.55-4.05						X6			
								3.00						D2			Particle size distribution
28/10/15	4.05	1.09															
29/10/15	4.05	1.25 N						4.05-5.55						C7			Rotary cored 4.05 to 20.55m (146mm diameter), water flush Groundwater not encountered prior to use of water flush If (4.05-9.0m): NI/20/80
				Extremely weak red/brown locally grey/green and light grey/brown fine-medium SANDSTONE locally disintegrated to subangular fine-medium gravel size sandstone fragments. Fractures subhorizontal to 10 degrees, extremely closely to very closely spaced, planar, smooth (Wildmoor Sandstone Formation)		101.30	4.20			60	3	0					
						100.50	5.00										

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 1 of 5	BH108
Dates	28/10/15 to 29/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.05m	Hole No.	**BH108**
		Engineer				Sheet	2 of 5
Ground Level	105.50 m.A.O.D.	Coordinates	392007 m.E. 309543 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Extremely weak red/brown locally grey/green and light grey/brown fine-medium SANDSTONE locally disintegrated to subangular fine-medium gravel size sandstone fragments. Fractures subhorizontal to 10 degrees, extremely closely to very closely spaced, planar, smooth (Wildmoor Sandstone Formation)				5.55-7.05					C8				
										70	17	0						
				- becoming weak from approximately 6.70m				6.70						D3				Point load test carried out at 6.70m
								7.05-8.55						C9				
				Weak red/brown occasionally light grey/brown fine-medium SANDSTONE locally disintegrated to subangular fine-medium gravel size sandstone fragments. Fractures subhorizontal to 10 degrees, very closely and extremely closely spaced, planar, smooth (Wildmoor Sandstone Formation)		98.20	7.30											
										100	25	0						
								8.55-10.05						C10				
								9.10						D4				If (9.0-14.2m): NI/60/110 Point load test carried out at 9.10m
										70	44	0						
						95.50	10.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 2 of 5	BH108
Dates	28/10/15 to 29/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.05m	Hole No.	**BH108**
		Engineer				Sheet	3 of 5
Ground Level	105.50 m.A.O.D.	Coordinates	392007 m.E. 309543 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Weak red/brown occasionally light grey/brown fine-medium SANDSTONE locally disintegrated to subangular fine-medium gravel size sandstone fragments. Fractures subhorizontal to 10 degrees, very closely and extremely closely spaced, planar, smooth (Wildmoor Sandstone Formation)				10.05-11.55		87	80	0		C11					
								11.55-13.05						C12					
								12.00						D5					Point load test carried out at 12.00m
										93	77	9							
								13.05-14.55						C13					
										83	50	16							If (14.2-20.0m): NI/50/110
								14.55-16.05						C14					
						90.50	15.00	15.00-15.10						D6					

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	28/10/15 to 29/10/15
Log	NAB

Sheet 3 of 5 | **BH108**

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	Client WALDECK CONSULTING Engineer	Drilling Methods ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.05m	Hole No. **BH108** Sheet 4 of 5 Job No **14317GI**
Ground Level 105.50 m.A.O.D.	Coordinates 392007 m.E. 309543 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Weak red/brown occasionally light grey/brown fine-medium SANDSTONE locally disintegrated to subangular fine-medium gravel size sandstone fragments. Fractures subhorizontal to 10 degrees, very closely and extremely closely spaced, planar, smooth (Wildmoor Sandstone Formation)						80	57	8						
				- limited sample recovery between 16.05 and 17.35m				16.05-17.55						C15				
										53	31	7						
								17.55-19.05						C16				
								18.00						D7				Point load test carried out at 18.00m
										68	30	0						
								19.05-20.55						C17				
										87	80	16						
						85.50	20.00											If (20.0-20.55m): NI/80/140

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	28/10/15 to 29/10/15
Log	NAB

Sheet 4 of 5 | BH108

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 4.05m	Hole No.	**BH108**
		Engineer				Sheet	5 of 5
Ground Level	105.50 m.A.O.D.	Coordinates	392007 m.E. 309543 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
29/10/15	4.05	2.27 C		Weak red/brown occasionally light grey/brown fine-medium SANDSTONE locally disintegrated to subangular fine-medium gravel size sandstone fragments. Fractures subhorizontal to 10 degrees, very closely and extremely closely spaced, planar, smooth (Wildmoor Sandstone Formation)		84.95	20.55	20.55										Borehole complete at 20.55m 50mm diameter HDPE pipe installed to 7.80m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	28/10/15 to 29/10/15
Log	NAB

Sheet 5 of 5

BH108

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.30m	**Hole No.** BH109 **Sheet** 1 of 4 **Job No** 14317GI
Ground Level 107.90 m.A.O.D.	**Coordinates** 392969 m.E. 309565 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Topsoil (Light brown/dark brown slightly silty slightly gravelly fine-medium sand. Gravel is subrounded-rounded fine-coarse sandstone and quartzite. Rare rootlets)		107.60	0.30	0.20-0.30						B1				Hand excavated from ground level to 1.20m
				Red/brown slightly silty gravelly fine-medium SAND. Gravel is subrounded-rounded fine-medium sandstone and quartzite (Glaciofluvial Deposits)				0.50-0.60						B2				
				Light red/brown slightly clayey silty very gravelly fine-medium SAND. Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)		107.10	0.80	0.90-1.00						B3				
								1.20-2.70						X3				Percussive sampling from 1.2 to 4.9m (128mm diameter)
								1.50						D1				Particle size distribution and BRE SD1 chemical suite
				Light red/brown slightly clayey silty very gravelly fine-coarse SAND. Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)		106.30	1.60											
								2.40						D2				Particle size distribution
								2.70-3.00						X4				
				Light brown slightly silty fine-coarse SAND/ GRAVEL. Gravel is rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)		105.05	2.85	3.00-4.50						X5				
				- becoming a sandy rounded fine-coarse sandstone and quartzite GRAVEL with depth				4.50						D3				Particle size distribution
								4.50-4.90						X6				
				Red/brown silty fine-medium SAND (Wildmoor Sandstone Formation)		103.15	4.75	4.90-6.40						C7				Rotary cored 4.9 to 19.9m (146mm diameter), water flush
						102.90	5.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	30/10/15 to 02/11/15
Log	NAB

Sheet 1 of 4 | BH109

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.30m	Hole No.	**BH109**
		Engineer				Sheet	2 of 4
Ground Level	107.90 m.A.O.D.	Coordinates	392969 m.E. 309565 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Red/brown silty fine-medium SAND (Wildmoor Sandstone Formation)		102.80	5.10												Groundwater not encountered prior to use of water flush If (5.1-8.2m): NI/NI/50
				Weak highly fractured red/brown occasionally light grey/brown fine-medium SANDSTONE locally disintegrated to clayey subangular fine-medium gravel sized sandstone lithorelicts. Fractures subhorizontal to 10 degrees extremely closely and very closely spaced, undulating, smooth (Wildmoor Sandstone Formation)						67	18	0						
								6.40-7.90						C8					
								6.50						D4					Point load test carried out at 6.50m
										83	9	0							
								7.90-9.40						C9					
				Extremely weak to very weak red/brown occasionally light green/grey fine-medium SANDSTONE. Locally disintegrated to clayey sand and subangular fine-coarse gravel size sandstone lithorelicts. Fractures subhorizontal to 10 degrees, closely and medium spaced, undulating, smooth (Wildmoor Sandstone Formation)		99.70	8.20												If (8.2-15.2m): NI/120/250
										92	47	9							
								9.40-10.90						C10					
						97.90	10.00												

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	30/10/15 to 02/11/15
Log	NAB

Sheet 2 of 4 | **BH109**

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.30m	Hole No.	**BH109**
		Engineer				Sheet	3 of 4
Ground Level	107.90 m.A.O.D.	Coordinates	392969 m.E. 309565 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Extremely weak to very weak red/brown occasionally light green/grey fine-medium SANDSTONE locally disintegrated to clayey sand and subangular fine-coarse gravel size siltstone lithorelicts. Fractures subhorizontal to 10 degrees, closely and medium spaced, undulating, smooth (Wildmoor Sandstone Formation)						72	45	21							
				- light brown/grey mottled between 10.40 and 10.60m				10.90-12.40 11.00-11.10						C11 D6				
										93	72	34							
								12.40-13.90						C12					
										97	87	73							
								13.90-15.40						C13					
										95	92	72							
						92.90	15.00												

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after			
		5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 3 of 4	BH109
Dates	30/10/15 to 02/11/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.30m	Hole No.	**BH109**
		Engineer				Sheet	4 of 4
Ground Level	107.90 m.A.O.D.	Coordinates	392969 m.E. 309565 m.N.			Job No	**14317GI**

WATER			STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Extremely weak to very weak red/brown occasionally light green/grey fine-medium SANDSTONE locally disintegrated to clayey sand and subangular fine-coarse gravel size sandstone lithorelicts. Fractures subhorizontal to 10 degrees, closely and medium spaced, undulating, smooth (Wildmoor Sandstone Formation)		92.70	15.20										If (15.2-19.9m): NI/150/370
				Weak locally extremely weak red/brown occasionally grey/brown fine-medium SANDSTONE locally disintegrated to fine-medium sand and subangular fine-coarse claybound sandstone lithorelicts. Fractures subhorizontal to 10 degrees, closely and medium spaced, undulating, smooth (Wildmoor Sandstone Formation)				15.40-16.90					C14			
										84	71	35					
								16.90-18.40						C15			
								17.10						D8			Point load test carried out at 17.10m
										100	96	27					
								18.40-19.90						C16			
										100	95	62					Borehole complete at 19.90m 50mm diameter HDPE pipe installed to 7.00m Pipework capped and protected with raised lockable cover
02/11/15	5.30	2.06 C				88.00	19.90	19.80-19.99 19.90						D9			

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 4 of 4	BH109
Dates	30/10/15 to 02/11/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.35m	**Hole No.** BH110
	Engineer		**Sheet** 1 of 5
Ground Level 100.10 m.A.O.D.	**Coordinates** 391261 m.E. 308931 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Topsoil (Dark brown slightly gravelly clayey silty fine-medium sand. Gravel is rounded fine quartzite and sandstone)		99.80	0.30	0.10-0.30						B1			Hand excavated from ground level to 1.20m
				Firm/stiff red/brown mottled grey slightly gravelly sandy silty CLAY. Gravel is rounded fine-coarse sandstone and quartzite (Till)				0.50-0.70						B2			
								0.80-1.00						B3			HSV at 0.90m = 78kPa
								1.20-2.70						X4			Percussive sampling from 1.2 to 3.85m (128mm diameter) Plasticity Index and BRE SD1 chemical suite HSV at 1.50m = 81kPa
								1.30						D1		14.6	
				Dark brown slightly gravelly silty fine-medium SAND. Gravel is rounded fine-coarse quartzite and sandstone (Glaciofluvial Deposits)		98.35	1.75										
				Red/brown silty fine-medium SAND (Wildmoor Sandstone Formation)		97.90	2.20										
								2.40						D2			Particle size distribution and BRE SD1 chemical suite
								2.70-3.85						X5			
04/11/15 05/11/15	3.85 3.85			- occasionally gravelly subrounded-rounded fine-coarse sandstone at 3.85m				3.85-5.35						C6			Rotary cored 3.85 to 20.35m (146mm diameter), water flush Groundwater not encountered prior to use of water flush
										80	-	-					
				Red/brown slightly clayey gravelly fine-medium SAND. Gravel is subangular fine-medium sandstone (Limited sample recovery) (Wildmoor Sandstone Formation)		95.25 95.10	4.85 5.00										

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 1 of 5	BH110
Dates	04/11/15 to 05/11/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.35m	**Hole No.** BH110 **Sheet** 2 of 5 **Job No** 14317GI
Ground Level 100.10 m.A.O.D.	**Coordinates** 391261 m.E. 308931 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Red/brown slightly clayey gravelly fine-medium SAND. Gravel is subangular fine-medium sandstone (Wildmoor Sandstone Formation)				5.35-6.85						C7				
										40	-	-						
								6.85-8.35						C8				
				Weak red/brown occasionally yellow/brown/grey fine-medium SANDSTONE. Fractures subhorizontal to 10 degrees and 40-70 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)		93.15	6.95	7.00						D3				If (6.95-12.30m): NI/20/110 Point load test carried out at 7.00m
										80	10	0						
				No sample recovery		91.75	8.35	8.35-9.85						C9				
										0								
				Weak red/brown occasionally yellow/brown/grey fine-medium SANDSTONE. Fractures subhorizontal to 10 degrees and 40-70 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)		90.25 90.10	9.85 10.00	9.85-11.35 10.00						C10 D4				Point load test carried out at 10.00m

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	04/11/15 to 05/11/15
Log	NAB

Sheet 2 of 5 | BH110

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.35m	Hole No.	**BH110**
		Engineer				Sheet	3 of 5
Ground Level	100.10 m.A.O.D.	Coordinates	391261 m.E. 308931 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Weak red/brown occasionally yellow/brown/grey fine-medium SANDSTONE. Fractures subhorizontal to 10 degrees and 40-70 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)						82	27	7							
								11.35-12.85						C11					
										92	41	7							
				Weak locally very weak red/brown occasionally light grey/brown fine-medium SANSTONE. Fractures subhorizontal to 10 degrees, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)		87.80	12.30												If (12.3-14.5m): NI/40/120
				- subvertical, undulating smooth fracture between 12.50 and 12.60m				12.85-14.35						C12					
										90	34	7							
								14.00						D5					Point load test carried out at 14.00m
				Weak red/brown occasionally light grey/brown fine-medium SANDSTONE locally recovered as silty fine-medium sand. Fractures subhorizontal to 10 degrees, extremely closely and very closely spaced, planar, smooth (Wildmoor Sandstone Formation)		85.60	14.50	14.35-15.85						C13					If (14.5-17.0m): NI/30/80
						85.10	15.00												

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 3 of 5	BH110
Dates	04/11/15 to 05/11/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.35m	Hole No.	**BH110**
		Engineer				Sheet	4 of 5
Ground Level	100.10 m.A.O.D.	Coordinates	391261 m.E. 308931 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Weak red/brown occasionally light grey/brown fine-medium SANDSTONE locally recovered as silty fine-medium sand. Fractures subhorizontal to 10 degrees, extremely closely and very closely spaced, planar, smooth (Wildmoor Sandstone Formation)						67	3	0							
								15.85-17.35						C14					
										100	12	0							
								17.00						D6					Point load test carried out at 17.00m If (17.0=20.35m): NI/50/110
				- 75 degrees planar, smooth fracture at 17.45m				17.35-18.85						C15					
										100	31	7							
				- 70 degrees planar, smooth fracture at 18.50m				18.85-20.35						C16					
								19.50						D7					Point load test carried out at 19.50m
										100	40	0							
						80.10	20.00												

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 4 of 5	BH110
Dates	04/11/15 to 05/11/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 5.35m	Hole No.	**BH110**
		Engineer				Sheet	5 of 5
Ground Level	100.10 m.A.O.D.	Coordinates	391261 m.E. 308931 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
05/11/15	5.35	3.12 C		Extremely weak red/brown occasionally light grey/ brown fine-medium SANDSTONE locally recovered as silty fine-medium sand. Fractures subhorizontal to 10 degrees, extremely closely and very closely spaced, planar, smooth (Wildmoor Sandstone Formation)		79.75	20.35	20.35											Borehole complete at 20.35m 50mm diameter HDPE pipe installed to 7.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	04/11/15 to 05/11/15
Log	NAB

Sheet 5 of 5 | **BH110**

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 3.85m	Hole No.	**BH111**
		Engineer				Sheet	1 of 5
Ground Level	107.50 m.A.O.D.	Coordinates	392620 m.E. 309274 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Topsoil (Brown slightly gravelly sandy silt. Gravel is rounded fine sandstone. Rare rootlets)		107.10	0.40	0.10-0.30						B1				Hand excavated from ground level to 1.20m
				Brown slightly silty gravelly fine-coarse SAND with rare rounded sandstone cobble. Gravel is rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)		106.80	0.70	0.50-0.70						B2				
				Light grey/red brown slightly clayey silty gravelly SAND. Gravel is rounded fine-medium sandstone and quartzite (Glaciofluvial Deposits)				0.70-0.90						B3				
								1.20-2.70						X4				Percussive sampling from 1.20 to 3.85m (128mm diameter)
								1.50						D1				Particle size distribution
				Red/brown locally light grey/green silty clayey fine-medium SAND (Wildmoor Sandstone Formation)		105.10	2.40											
								2.70-3.85						X5				
								3.20						D2				Particle size distribution and sedimentation
				- limited sample recovery between 3.85 and 5.35m				3.85-5.35						C6				If (3.85-6.20m): NA Rotary cored 3.85 to 20.35m (146mm diameter), water flush Groundwater not encountered prior to use of water flush
										50	-	-						
						102.50	5.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	26/10/15
Log	NAB

Sheet 1 of 5 | **BH111**

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 3.85m	Hole No.	**BH111**
		Engineer				Sheet	2 of 5
Ground Level	107.50 m.A.O.D.	Coordinates	392620 m.E. 309274 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Red/brown locally light grey/green slightly clayey silty fine-medium SAND (Wildmoor Sandstone Formation)				5.35-6.85						C7				
						101.30	6.20			66	8	0						If (6.2-8.35m): NI/10/40
				Weak red/brown occasionally grey/green fine-medium SANDSTONE locally recovered as sand. Fractures subhorizontal to 10 degrees and subvertical, extremely closely and very closely spaced, planar, smooth (Wildmoor Sandstone Formation)				6.85-8.35 7.00						C8 D4				Point load test carried out at 7.00m
										93	4	0						
								8.35-9.85						C9				If (8.35-11.40m): NI/-/-
										86	0	0						
								9.85-11.35						C10				
						97.50	10.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after			
		5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	26/10/15
Log	NAB

Sheet 2 of 5 | BH111

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 3.85m	Hole No.	**BH111**
		Engineer				Sheet	3 of 5
Ground Level	107.50 m.A.O.D.	Coordinates	392620 m.E. 309274 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Weak red/brown occasionally grey/green fine-medium SANDSTONE locally recovered as sand. Fractures subhorizontal to 10 degrees and subvertical, extremely closely and very closely spaced, planar, smooth (Wildmoor Sandstone Formation)						80	0	0							
						96.10	11.40	11.35-12.85						C11					If (11.4-18.6m): NI/NI/30
				Weak red/brown occasionally light grey/green fine-medium SANDSTONE locally recovered as sand. Fractures subhorizontal to 10 degrees, extremely closely and very closely spaced, planar, smooth (Wildmoor Sandstone Formation) - 55 degrees, planar, smooth fracture at 11.65m				12.00		93	3	0		D6					Point load test carried out at 12.00m
								12.85-14.35						C12					
				- fractures becoming 25 degrees between 13.70 and 14.00m						80	4	0							
				- limited sample recovery between 14.35 and 15.85m				14.35-15.85						C13					
						92.50	15.00												

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	26/10/15
Log	NAB

Sheet 3 of 5 | BH111

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 3.85m	Hole No.	**BH111**
		Engineer				Sheet	4 of 5
Ground Level	107.50 m.A.O.D.	Coordinates	392620 m.E. 309274 m.N.			Job No	**14317GI**

WATER			STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Extremely weak red/brown occasionally light grey/ green fine-medium SANDSTONE locally recovered as sand. Fractures subhorizontal to 10 degrees, extremely closely and very closely spaced, planar, smooth (Wildmoor Sandstone Formation)						53	3	0						
								15.85-17.35						C14				
										93	40	10						
								17.35-18.85						C15				
								18.00-18.12		70	40	31		D8				
				- fractures becoming closely spaced at 18.60m - limited sample recovery between 18.85 and 20.35m														If (18.6-20.35m): NI/NI/100
								18.85-20.35						C16				
										40	8	7						
						87.50	20.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	26/10/15
Log	NAB

Sheet 4 of 5

BH111

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 3.85m	Hole No.	**BH111**
		Engineer				Sheet	5 of 5
Ground Level	107.50 m.A.O.D.	Coordinates	392620 m.E. 309274 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
26/10/15	3.85	2.92 C		Extremely weak red/brown occasionally light grey/ green fine-medium SANDSTONE locally recovered as sand. Fractures subhorizontal to 10 degrees, extremely closely and veyr closely spaced, planar, smooth (Wildmoor Sandstone Formation)		87.15	20.35	20.35										Borehole complete at 20.35m Borehole backfilled with bentonite

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	26/10/15
Log	NAB

Sheet 5 of 5

BH111

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 170mm DIAMETER GROUND LEVEL TO 8.90m	**Hole No.** BH112 **Sheet** 1 of 2 **Job No** 14317GI
Ground Level 106.40 m.A.O.D.	**Coordinates** 392223 m.E. 308797 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Topsoil (Dark brown slightly gravelly sand silt. Gravel is rounded fine-coarse sandstone and quartzite. Frequent rootlets)				0.10-0.30						B1				Hand excavated from ground level to 1.20m
								0.40-0.60						B2				
						105.80	0.60	0.60-0.70						B3				
				Made Ground (Dark grey/brown mottled light brown slightly gravelly slightly clayey sand. Gravel is angular-subrounded fine-coarse sandstone, quartzite, brick, concrete and glass. Rare wood fragments) - concrete boulder at 0.90m														
								1.00-1.20						B4				
								1.20-2.70						X5				Percussive sampling from 1.20 to 5.30m (128mm diameter)
						104.45	1.95											
				Made Ground (Firm grey and orange/brown slightly sandy slightly gravelly clay. Gravel is subangular-rounded fine-coarse sandstone, brick and concrete)		104.10	2.30											
				Made Ground (Soft dark grey slightly gravelly sandy clay with rare wood fragments and brick cobbles. Gravel is rounded fine sandstone and rare angular glass fragments)				2.70-4.20						X6				
						102.70	3.70											
				Brown/orange silty SAND with rounded medium-coarse sandstone gravel (Glaciofluvial Deposits)														
						102.20	4.20	4.20-5.30						X7				
				Light brown slightly silty occasional sandy fine-coarse sandstone and quartzite GRAVEL with rare sandstone cobbles (Glaciofluvial Deposits)														
						101.40	5.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 1 of 2	BH112
Dates	27/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 170mm DIAMETER GROUND LEVEL TO 8.90m	**Hole No.** BH112 **Sheet** 2 of 2 **Job No** 14317GI
Ground Level 106.40 m.A.O.D.	**Coordinates** 392223 m.E. 308797 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %		
				Light brown slightly silty occasional sandy rare fine-coarse sandstone and quartzite GRAVEL with rare sandstone cobbles (Glaciofluvial Deposits) - limited sample recovery between 5.30 and 8.20m				5.30-6.00 5.30-6.80						D1 C8				Particle size distribution Rotary cored 5.3 to 9.7m (146mm diameter), water flush Groundwater not encountered prior to use of water flush If (5.3-9.7m): NA
										33	-	-						
								6.80-8.20						C9				
										43	-	-						
				Red/brown slightly silty fine-medium SAND (Wildmoor Sandstone Formation)		98.40	8.00											
				No sample recovery		98.20	8.20	8.20-9.70						C10				
27/10/15	8.90	1.98								0								Boundary between Glaciofluvial Deposits and Wildmoor Sandstone - estimated level due to poor sample recovery
						96.70	9.70	9.70										Borehole complete at 9.70m. Unable to proceed through gravel 50mm diameter HDPE pipe installed to 8.40m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL	Sheet 2 of 2	BH112
Dates	27/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 7.05m	**Hole No.** BH113 **Sheet** 1 of 3 **Job No** 14317GI
Ground Level 101.80 m.A.O.D.	**Coordinates** 391582 m.E. 308501 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS										OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %	
				Topsoil (Dark grey/brown slightly silty gravelly fine-medium sand with rare sandstone cobbles. Gravel is subangular-rounded fine-coarse sandstone and quartzite. Frequent roots (up to 5mm in diameter) and rootlets		101.30	0.50	0.30-0.50						B1				Hand excavated from ground level to 1.20m
				Brown/orange slightly silty very gravelly fine-coarse SAND. Gravel is subangular-rounded fine-coarse sandstone and quartzite (Glaciofluvial Deposits)				0.70-0.90						B2				Particle size distribution
								1.00-1.20						B3				BRE SD1 chemical suite
								1.20-2.70						X4				Percussive sampling from 1.20 to 7.05m (128mm diameter)
				Firm dark red/brown silty sandy CLAY with rare black specs (up to 5mm in diameter) (Till)		100.45	1.35											
				Red/brown and orange/brown fine-medium SAND (Till)		100.15	1.65											
				Firm red/brown slightly gravelly silty very sandy CLAY with rare black specks (up to 5mm in diameter). Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Till)		100.05	1.75											HSV at 2.00m = 48kPa
								2.50						D1		13.5		Plasticity Index
								2.70-4.20						X5				
				- firm/stiff at 4.00m				4.00						D2		14.6		Plasticity Index HSV at 4.00m = 68kPa
								4.20-5.70						X6				
				- subrounded sandstone cobble at 4.90m		96.80	5.00											

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	05/11/15 to 06/11/15
Log	NAB

Sheet 1 of 3 | BH113

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Drilling Methods** ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 7.05m	**Hole No.** BH113
	Engineer		**Sheet** 2 of 3
Ground Level 101.80 m.A.O.D.	**Coordinates** 391582 m.E. 308501 m.N.		**Job No** 14317GI

WATER

Date/Time at Depth	Depth of Casing m	Depth to Water m

STRATA

Inst	Description	Legend	Level m.A.O.D.	Depth m
	Firm red/brown slightly gravelly silty very sandy CLAY with rare black specs (up to 5mm in diameter). Gravel is subrounded-rounded fine-coarse sandstone and quartzite (Till)			
	- stiff at 5.00m			
	- subrounded sandstone cobble at 6.00m			
	Dark red/brown gravelly clayey SAND with rare black specs (up to 5mm in diameter). Gravel is subangular-subrounded fine-medium sandstone and quartzite (Till)		94.80	7.00
	Extremely weak red/brown occasionally light grey/green fine-medium SANDSTONE. Fractures are subhorizontal, very closely and closely spaced, planar, smooth (Wildmoor Sandstone Formation)		94.60	7.20
			91.80	10.00

SAMPLING/IN SITU TEST/FIELD RECORDS

Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %
5.70-7.05						X7		
7.05-8.55		100	12	0		C8		
8.55-10.05						C9		
9.40-9.50		100	35	7		D4		

OTHER TESTS AND NOTES

HSV at 5.50m = 86kPa

Rotary cored 7.05 to 10.05m (146mm diameter), water flush
Groundwater not encountered prior to use of water flush
If (7.05-10.05m): NI/45/100

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	05/11/15 to 06/11/15
Log	NAB

Sheet 2 of 3 | BH113

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Drilling Methods	ROTARY DYNAMIC SAMPLING WITH ROTARY FOLLOW ON CASED 168mm DIAMETER GROUND LEVEL TO 7.05m	Hole No.	**BH113**
		Engineer				Sheet	3 of 3
Ground Level	101.80 m.A.O.D.	Coordinates	391582 m.E. 308501 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST/FIELD RECORDS											OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Core Run	TCR %	SCR %	RQD %	FI	Type & No	Blows	W %			
				Extremely weak red/brown occasionally light grey/ green fine-medium SANDSTONE. Fractures are subhorizontal, very closely and closely spaced, planar smooth (Wildmoor Sandstone Formation)		91.75	10.05	10.05						C10					Borehole complete at 10.05m 50mm diameter HDPE pipe installed to 7.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- TCR Total Core Recovery
- SCR Solid Core Recovery
- RQD Rock Quality Designation
- FI Fracture Index

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test

BLOWS
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only

Fieldwork By	GEL
Dates	05/11/15 to 06/11/15
Log	NAB

Sheet 3 of 3 | **BH113**

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 9.00 m UNCASED 9.00 TO 10.00 m	**Hole No.** BH201
	Engineer		**Sheet** 1 of 1
Ground Level 104.00 m.A.O.D.	**Coordinates** 391522 m.E. 310380 m.N.		**Job No** 14317GI

WATER			STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		103.60	0.40										Hand excavated from ground level to 1.20m
				Firm red brown silty CLAY with a little subangular-subrounded fine-coarse quartzite gravel and occasional partings of light grey and yellow brown silt, light blue grey gleying with decayed rootlets and pockets of clayey fine-coarse sand (Till)				0.50	D1								
								0.60-0.80	B1								
								1.00	D2		62	11.2	12	20			
				- sand content increasing with depth, becoming stiff				1.50-1.95	C1	N=20							BRE SD1 chemical suite
								1.50	D3								
								1.50-1.95	B2								
								2.00	D4		57	8.7	13	20			
				Stiff red brown slightly sandy silty CLAY with a little subangular-subrounded fine gravel to cobble size quartzite and occasional partings of light grey and yellow brown silt (Till)		101.50	2.50	2.50-2.95	C2	N=35							
								2.50	D5								
								2.50-2.95	B3								
								3.00	D6			14.5					
				- sand increasing with depth				3.50-3.95	S3	N=42							
								3.50-3.95	D7								
								3.50-3.95	B4								Water added to borehole between 4.00 and 8.00m to assist drilling
								4.00	D8								
				Very dense red brown silty fine-medium SAND with rare subrounded fine-medium sandstone gravel (Wildmoor Sandstone Formation)		99.50	4.50	4.50-4.82	S4	50/170							Particle size distribution
								4.50-4.95	D9								
								4.50-4.95	B5								
								5.00	D10								
								5.50-5.73	S5	49/75							
								5.50-5.95	D11								
								5.50-5.95	B6								
								6.00	D12								
								6.50	D13								
				- no gravel from approximately 7.00m				7.00-7.21	S6	50/60							Particle size distribution
								7.00-7.45	D14								
22/10/15	7.40	(1) ▼						7.00-7.40	B7								Groundwater seepage recorded at 7.40m, slow inflow
								8.00	D15								
								8.50-8.69	S7	50/40							
								8.50-8.95	D16								On completion groundwater standing at 6.80m
								8.50-8.95	B8								Borehole complete at 10.00m
								9.50	D17								50mm diameter HDPE pipe installed to 10.00m
22/10/15	9.00	6.80 C				94.00	10.00	10.00-10.19	S8	50/35							Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	7.40	7.20	7.00	6.90	6.80

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1	BH201
Dates	22/10/15		
Log	JK		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 4.50 m UNCASED 4.50 TO 6.00 m	**Hole No.** BH202 **Sheet** 1 of 1 **Job No** 14317GI
Ground Level 100.60 m.A.O.D.	**Coordinates** 391214 m.E. 310204 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		100.20	0.40										Hand excavated from ground level to 1.20m
				Stiff red brown silty CLAY with occasional subrounded fine-medium quartzite gravel and occasional partings of light grey silt (Till)				0.50	D1								Dry density/moisture content relationship, Particle density, Hand shear vane and California bearing ratio, 2.5 kg rammer method (B34-Combined sample)
								0.50-3.95	B34								
								0.50-3.95	B36								
								1.00	D2		93	12.3	14	28			
				Firm red brown slightly sandy silty CLAY with a little subrounded fine-coarse quartzite gravel, occasional partings of light grey silt and rare fine gravel size pockets of black silty material (Till)		99.30	1.30	0.50-3.95	B55								Dry density/moisture content relationship, Hand shear vane and California bearing ratio, 4.5 kg rammer method (B36-Combined sample)
								0.50-3.95	CP1								
								0.50-3.95	CP2								
								1.50-1.95	C1	N=20							
								1.50	D3								
								1.50-1.95	B1								
				- silt partings becoming frequent from approximately 2.50m				0.50-3.95	CP3								
						97.90	2.70	0.50-3.95	CP4								Moisture condition value - relationship (B55-Combined sample)
				Stiff very high strength friable red brown slightly sandy silty CLAY with occasional light grey silt partings (Bromsgrove Sandstone Formation)				2.00	D4			15.2					BRE SD1 chemical suite
								0.50-3.95	CP5								
								0.50-3.95	CP6								
								2.50-2.95	U1	(60)		15.9			2.23	167	One-dimensional consolidation
								2.50	D5								
								2.50-2.95	B2								
								3.00	D6		83	16.8	23	41			
								3.50-3.95	S2	N=48							
								3.50-3.95	D7								No recovery
								3.50-3.95	B3								
								4.00	D8			15.9					
								4.50-4.95	U2	(90)							
								4.50-4.95	B4								
				- with a little subangular weakly cemented claystone fragments from approximately 5.60m				5.00	D9			10.6					Chisel in use between 5.50 and 5.90m (60mins)
20/10/15	4.50	DRY	C					5.00-5.45	B5								
						94.60	6.00	5.00-5.45	D10								Unable to progress beyond 6.00m
								5.50-5.73	S3	50/80							No groundwater encountered
																	Borehole complete at 6.00m

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

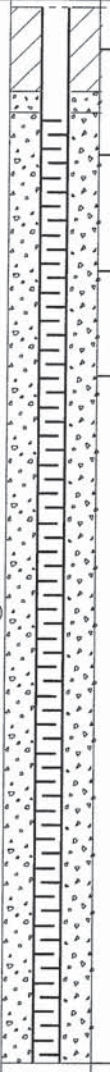
TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1	BH202
Dates	20/10/15		
Log	JK		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES. STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 10.00 m	**Hole No.** BH203
	Engineer		**Sheet** 1 of 1
Ground Level 102.70 m.A.O.D.	**Coordinates** 391470 m.E. 310190 m.N.		**Job No** 14317GI



WATER			STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
			Topsoil (Brown gravel) [Driller's description]		102.30	0.40										Hand excavated from ground level to 1.20m
			Firm-stiff red brown, yellow brown and brown sandy silty CLAY with occasional subangular-subrounded fine-coarse quartzite gravel with dark red brown clayey sand pockets (Till)				0.50	D1								
							0.50-0.90	B1								
							1.00	D2			8.8					
			Medium dense orange brown and yellow brown slightly silty fine-coarse SAND with rare subangular-subrounded fine gravel to cobble size quartzite (Glaciofluvial Deposits)		101.30	1.40										
							1.50-1.95	S1	N=27							Particle size distribution
							1.50-1.95	D3								Water added to borehole between 1.50 and 7.00m to assist drilling
							1.50-1.95	B2								
							2.00	D4								
			Dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)		100.20	2.50	2.50-2.95	S2	N=44							Particle size distribution
							2.50-2.95	D5								
							2.50-2.95	B3								
							3.00	D6								
			Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)		99.20	3.50	3.50-3.88	S3	50/225							
							3.50-3.95	D7								
							3.50-3.95	B4								BRE SD1 chemical suite
							4.00	D8								
							4.50-4.75	S4	50/100							
							4.50-4.95	D9								
							4.50-4.95	B5								Particle size distribution
							5.00	D10								
							5.50-5.71	S5	50/60							
21/10/15	6.00	(1) ▼					5.50	D11								Groundwater seepage recorded at 6.00m, slow inflow
							5.50-5.95	B6								
							6.00	D12								
							6.50	D13								
							7.00-7.19	S6	50/35							
							7.00-7.45	D14								
							7.00-7.40	B7								
							8.00	D15								
							8.50-8.69	S7	50/40							
							8.50-8.95	B8								Particle size distribution
																On completion groundwater standing at 7.10m
							9.50	D16								Borehole complete at 10.00m
21/10/15	10.00	7.10 C			92.70	10.00	10.00-10.18	S8	50/30							50mm diameter HDPE pipe installed to 10.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	6.00	5.40	5.30	5.20	5.10

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1
Dates	21/10/15	BH203
Log	JK	

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 7.70 m UNCASED 7.70 TO 10.00 m	**Hole No.** BH204
	Engineer		**Sheet** 1 of 1
Ground Level 105.30 m.A.O.D.	**Coordinates** 392132 m.E. 310277 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		104.90	0.40										Hand excavated from ground level to 1.20m (60mins)
				Brown slightly silty fine-coarse SAND with much subrounded fine-coarse quartzite gravel (Glaciofluvial Deposits)				0.50	D1								Particle size distribution
								0.60-0.80	B1								
						104.30	1.00	1.00	D2								BRE SD1 chemical suite
				Medium dense red brown silty fine-coarse SAND with some subangular-subrounded fine-medium quartzite gravel and pockets of red brown and light grey soft silty clay (Glaciofluvial Deposits)				1.50-1.95	S1	N=10							
						103.50	1.80	1.50	D3								Particle size distribution and sedimentation
				Medium dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)				1.50-1.95	B2								
								1.50-1.95	D4								
								2.00	D5								
								2.50-2.95	S2	N=21							
								2.50	D6								Particle size distribution
								2.50-2.95	B3								Water added to borehole between 2.50 and 3.60m to assist drilling
								2.50-2.95	D7								
			(1)					3.00	D8								
22/10/15	3.50		▼			101.80	3.50	3.50-3.83	S3	50/175							Groundwater seepage recorded at 3.60m, medium inflow
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)				3.50	D9								
								3.50-3.95	B4								
								3.50-3.95	D10								
								4.00	D11								
								4.50-4.77	S4	50/115							Particle size distribution
								4.50	D12								
								4.50-4.95	B5								
								4.50-4.95	D13								
								5.00	D14								
								5.50	D15								
								6.00-6.24	S5	50/90							
								6.00	D16								
								6.00-6.45	B6								
								6.00-6.45	D17								
								6.50	D18								
								7.00	D19								
								7.00	D20								
								7.50-7.73	S6	50/80							
								7.50-7.95	D21								
								7.50-7.95	B7								
								8.00	D22								
								8.50	D23								On completion groundwater standing at 5.20m
								9.00-9.22	S7	50/70							Borehole complete at 10.00m
								9.00	D24								
								9.00	B8								33mm diameter HDPE pipe installed to 4.00m
								9.00-9.45	D25								Pipework capped and protected with raised lockable cover
22/10/15	7.70	5.20 C						9.50	D26								
						95.30	10.00	10.00	D27								

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	3.60	2.81	2.77	2.76	2.74

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GB	BH204
Dates	22/10/15	Sheet 1 of 1
Log	JK	

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	**Client**	WALDECK CONSULTING	**Boring Methods**	LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 10.00 m
		Engineer			
Ground Level	99.50 m.A.O.D.	**Coordinates**	391443 m.E. 309877 m.N.		

Hole No. BH205
Sheet 1 of 1
Job No 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]				0.40-0.60	B1								Hand excavated from ground level to 1.20m
						98.90	0.60	0.60	D1								
				Dark brown slightly silty clayey sandy subangular-subrounded fine-coarse quartzite GRAVEL (Glaciofluvial Deposits)		98.50	1.00	1.00	D2								BRE SD1 chemical suite
				Medium dense grey brown silty fine-medium SAND with a little subangular-subrounded fine-coarse quartzite gravel (Glaciofluvial Deposits)				1.50-1.95	S1	N=21							Water added to borehole between 1.20 and 3.00m to assist drilling
				- no gravel with depth				1.50-1.95	D3								Particle size distribution
						97.50	2.00	1.50-1.90	B2								
				Dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)				2.00	D4								Particle size distribution
19/10/15	2.60	(1) ▼						2.50-2.95	S2	N=46							
								2.50-2.95	D5								Groundwater seepage recorded at 2.60m, slow inflow
								2.50-2.90	B3								
								3.00	D6								
						96.00	3.50	3.50-3.71	S3	50/60							
				Very dense red brown silty clayey fine-medium SAND (Wildmoor Sandstone Formation)				3.50-3.95	D7								
								3.50-3.90	B4								Particle size distribution and sedimentation
								4.00	D8								
								4.50-4.71	S4	50/57							
								4.50-4.95	D9								
								4.50-4.90	B5								
								5.00	D10								
								5.50-5.71	S5	50/60							
								5.50-5.95	D11								
				- becoming silty with depth				5.50-5.90	B6								Particle size distribution
								6.00	D12								
								7.00-7.21	S6	50/55							
								7.00-7.45	D13								
								7.00-7.40	B7								
								8.00	D14								
								8.50-8.71	S7	50/55							
								8.50-8.95	D15								On completion groundwater standing at 2.60m
								8.50-8.90	B8								Borehole complete at 10.00m
								9.50	D16								50mm diameter HDPE pipe installed to 7.00m
19/10/15	10.00	2.60 C				89.50	10.00	10.00-10.20	S8	50/50							Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	2.60	2.30	2.20	2.10	2.00

WATER
▼ 1 First Strike
▽ 2 Subsequent Strike
N - Overnight Depth
C- Completion Depth
S Seepage not rising

SAMPLE KEY
D Small disturbed sample
B Bulk disturbed sample
W Water sample
U Undisturbed sample
P Piston sample

TEST KEY
S Standard penetration test
C Cone penetration test
K Permeability test
V In situ vane test

BLOWS / STRENGTH
N = N value
26/150 blows, for 150mm, drive after seating
26*, blows for part or whole of seating drive only
(26) U sample blow count
V = Vane Strength - kN/m^2

Fieldwork By	MJ	
Dates	19/10/15 to 20/10/15	Sheet 1 of 1
Log	JK	BH205

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 9.00 m UNCASED 9.00 TO 10.00 m	**Hole No.** BH206
	Engineer		**Sheet** 1 of 1
Ground Level 101.80 m.A.O.D.	**Coordinates** 391618 m.E. 310014 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		101.40	0.40										Hand excavated from ground level to 1.20m
				Dark brown slightly clayey silty fine-coarse SAND with much subangular-subrounded fine-coarse quartzite gravel and occasional rootlets (Glaciofluvial Deposits)				0.50	D1								California bearing ratio - 2.5kg rammer
								0.50-0.80	B1								Particle size distribution
								1.00	D2								
				- gravel becoming fine-medium with depth		100.50	1.30										Water added to borehole between 1.40 and 7.00m to assist drilling
				Medium dense red brown clayey silty fine-medium SAND with some subrounded fine-coarse quartzite gravel and fine gravel size pockets of yellow brown fine sand (Glaciofluvial Deposits)				1.50-1.95	S1	N=21							
								1.50-1.95	D3								Particle size distribution and sedimentation
								1.50-1.95	B2								
								2.00	D4								
								2.50-2.95	S2	N=27							
								2.50-2.95	D5								
						98.80	3.00	2.50-2.95	B3								
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)				3.00	D6								
								3.50-3.88	S3	48/230							
								3.50-3.95	D7								
								3.50-3.95	B4								
23/10/15	4.40	(1) ▼						4.00	D8								Groundwater seepage recorded at 4.40m, slow inflow
								4.50-4.73	S4	50/80							
								4.50-4.95	D9								
								4.50-4.95	B5								
								5.00	D10								
								5.50-5.73	S5	50/79							
								5.50-5.95	D11								
								5.50-5.95	B6								
								6.00	D12								
								6.50	D13								
23/10/15	7.00	5.80															
26/10/15	7.00	1.90 N						7.00-7.22	S6	50/68							
								7.00-7.45	D14								
								7.00-7.40	B7								
								8.00	D15								
								8.50-8.71	S7	50/60							
								8.50-8.95	D16								Particle size distribution
								8.50-8.95	B8								On completion groundwater standing at 3.20m
								9.50	D17								Borehole complete at 10.00m
26/10/15	9.00	3.20 C				91.80	10.00	10.00-10.20	S8	50/45							50mm diameter HDPE pipe installed to 3.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	4.40	4.10	4.00	3.90	3.80

WATER
▼ 1 First Strike
▽ 2 Subsequent Strike
N - Overnight Depth
C- Completion Depth
S Seepage not rising

SAMPLE KEY
D Small disturbed sample
B Bulk disturbed sample
W Water sample
U Undisturbed sample
P Piston sample

TEST KEY
S Standard penetration test
C Cone penetration test
K Permeability test
V In situ vane test

BLOWS / STRENGTH
N = N value
26/150 blows, for 150mm, drive after seating
26*, blows for part or whole of seating drive only
(26) U sample blow count
V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1
Dates	23/10/15 to 26/10/15	BH206
Log	JK	

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES. STAFFORDSHIRE	**Client**	WALDECK CONSULTING
		Engineer	
Ground Level	105.50 m.A.O.D.	**Coordinates**	392076 m.E. 309980 m.N.

Boring Methods: LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 7.50 m UNCASED 7.50 TO 10.00 m

Hole No. BH207
Sheet 1 of 1
Job No 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Grass over Topsoil [Driller's description]													Hand excavated from ground level to 1.20m
						105.00	0.50	0.50	D1								BRE SD1 chemical suite
				Made Ground (Brown silty fine-coarse sand with a little subangular-subrounded fine-coarse quartzite gravel and brick fragments)				0.60-0.80	B1								
						104.50	1.00	1.00	D2								
				Brown silty fine-coarse SAND with a little subangular-subrounded fine-coarse quartzite gravel and occasional pockets of brown silty clay (Glaciofluvial Deposits)		104.10	1.40	1.50-1.95	S1	N=16							
								1.50-1.95	D3								Water added to borehole between 1.50 and 6.00m to assist drilling
						103.60	1.90	1.50-1.95	B2								
				Medium dense red brown slightly silty fine-coarse SAND (Glaciofluvial Deposits)				2.00	D4								
				Medium dense light red brown silty fine-coarse SAND with some subangular-subrounded fine-coarse quartzite gravel and occasional pockets of yellow grey silty sandy clay (Glaciofluvial Deposits)				2.50-2.95	S2	N=19							Particle size distribution
								2.50-2.95	B3								
								3.00	D5								
						102.20	3.30										
				Very dense red brown clayey silty fine-coarse SAND (Wildmoor Sandstone Formation)				3.50-3.87	S3	50/215							Particle size distribution and sedimentation
								3.50-3.95	D6								
								3.50-3.95	B4								
								4.00	D7								
								4.50-4.76	S4	50/110							
								4.50-4.95	D8								
								4.50-4.95	B5								
								5.00	D9								
								5.50	D10								
23/10/15	6.00	(1) ▼															Groundwater seepage recorded at 6.00m, medium inflow
								6.00-6.29	S5	50/135							
								6.00-6.45	D11								
								6.00-6.45	B6								
								6.50	D12								
								7.00	D13								
								7.50-7.76	S6	50/105							
								7.50-7.95	D14								
								7.50-7.95	B7								
								8.00	D15								
								8.50	D16								On completion groundwater standing at 4.40m
								9.00-9.22	S7	50/65							Borehole complete at 9.00m
								9.00-9.45	D17								
								9.00-9.45	B8								
								9.50	D18								33mm diameter HDPE pipe installed to 4.00m
23/10/15	7.50	4.40 C															Pipework capped and protected with raised lockable cover
						95.50	10.00	10.00	D19								

Water Level observations during boring, depths below GL.

Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	6.00	5.15	4.63	4.24	4.07

WATER
▼ 1 First Strike
▽ 2 Subsequent Strike
N - Overnight Depth
C- Completion Depth
S Seepage not rising

SAMPLE KEY
D Small disturbed sample
B Bulk disturbed sample
W Water sample
U Undisturbed sample
P Piston sample

TEST KEY
S Standard penetration test
C Cone penetration test
K Permeability test
V In situ vane test

BLOWS / STRENGTH
N = N value
26/150 blows, for 150mm, drive after seating
26*, blows for part or whole of seating drive only
(26) U sample blow count
V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1
Dates	23/10/15	BH207
Log	JK	

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring** LIGHT CABLE PERCUSSION 150 mm DIAMETER	**Hole No.** **BH208**
	Engineer	**Methods** CASED 150 mm DIAMETER G.L. TO 1.85 m	**Sheet** 1 of 1
Ground Level 107.30 m.A.O.D.	**Coordinates** 392419 m.E. 309924 m.N.		**Job No** **14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		107.00	0.30										Hand excavated from ground level to 1.20m
				Firm red brown slightly sandy silty CLAY with a little subangular-subrounded fine-coarse quartzite gravel (Till)				0.50 0.60-0.80 1.00	D1 B1 D2		79	15.7	16	35			California bearing ratio - 2.5kg rammer
				Very dense light brown slightly silty fine-coarse SAND with some subangular-subrounded fine-coarse quartzite gravel (Glaciofluvial Deposits)		106.20	1.10										Water added to borehole between 1.50 and 1.80m to assist drilling
26/10/15	1.80	DRY C				105.45	1.85	1.50-1.85 1.50-1.95	C1 B2	50/195							Chisel in use at 1.80m (30mins) Borehole terminated at 1.85m due to an obstruction

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1
Dates	26/10/15	BH208
Log	JK	

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 6.00 m UNCASED 6.00 TO 10.00 m	**Hole No.** BH208A **Sheet** 1 of 1 **Job No** 14317GI
Ground Level 107.50 m.A.O.D.	**Coordinates** 392418 m.E. 309921 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		107.10	0.40										Hand excavated from ground level to 1.20m
				Firm dark red brown slightly sandy silty CLAY with a little subangular-subrounded fine-coarse quartzite gravel and occasional rootlets (Till)				0.50 0.60-0.80 1.00	D1 B1 D2								BRE SD1 chemical suite
				Red brown slightly silty fine-coarse SAND (Glaciofluvial Deposits)		106.20 105.90	1.30 1.60	1.50-1.92 1.50-1.95 2.00	C1 B2 D3	50/270							Particle size distribution Water added to borehole between 1.50 and 5.00m to assist drilling
				Dense brown slightly silty sandy subangular-subrounded fine-coarse quartzite GRAVEL (Glaciofluvial Deposits)				2.50-2.95 2.50-2.95 3.00	C2 B3 D4	N=43							
								3.50-3.95 3.50-3.95 4.00	C3 B4 D5	N=30							
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)		103.30	4.20										
26/10/15	5.00	4.80						4.50-4.87 4.50-4.95 5.00	C4 D6 D7	50/215							Particle size distribution
27/10/15	5.00	4.80 N															Water added to borehole between 5.00 and 6.80m to assist drilling
								5.50	D8								
								6.00-6.23 6.00-6.45 6.00-6.45 6.50	S5 D9 B5 D10	50/80							Groundwater seepage recorded at 6.80m, medium inflow
27/10/15	6.00	(1) ▼						7.00	D11								
								7.50-7.75 7.50-7.95 7.50-7.95 8.00	S6 D12 B6 D13	50/100							
								8.50	D14								On completion groundwater standing at 6.30m Borehole complete at 10.00m
								9.00-9.23 9.00-9.45 9.00-9.45 9.50	S7 D15 B7 D16	50/80							
27/10/15	6.00	6.30 C				97.50	10.00	10.00	D17								33mm diameter HDPE pipe installed to 4.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	6.80	4.51	4.54	4.51	4.49

WATER
▼ 1 First Strike
▽ 2 Subsequent Strike
N - Overnight Depth
C- Completion Depth
S Seepage not rising

SAMPLE KEY
D Small disturbed sample
B Bulk disturbed sample
W Water sample
U Undisturbed sample
P Piston sample

TEST KEY
S Standard penetration test
C Cone penetration test
K Permeability test
V In situ vane test

BLOWS / STRENGTH
N = N value
26/150 blows, for 150mm, drive after seating
26*, blows for part or whole of seating drive only
(26) U sample blow count
V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1	BH208A
Dates	26/10/15 to 27/10/15		
Log	JK		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	**Client**	WALDECK CONSULTING
		Engineer	
Ground Level	108.30 m.A.O.D.	**Coordinates**	392594 m.E. 309815 m.N.

Boring Methods: LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 7.50 m UNCASED 7.50 TO 10.00 m

Hole No. BH209
Sheet 1 of 1
Job No 14317GI

WATER

Date/Time at Depth	Depth of Casing m	Depth to Water m
27/10/15	7.50	DRY
28/10/15	7.50	4.06 N
28/10/15	8.00	5.00 C

STRATA

Description	Legend	Level m.A.O.D.	Depth m
Grass over Topsoil [Driller's description]		107.90	0.40
Firm brown clayey very silty SAND and subangular-subrounded fine-coarse quartzite GRAVEL (Glaciofluvial Deposits)		107.60	0.70
Firm-stiff red brown slightly sandy silty CLAY with a little subangular-subrounded fine-coarse quartzite gravel and red brown silty fine-coarse sand pockets (Till)		106.30	2.00
Dense red brown silty very sandy subangular-subrounded fine-coarse quartzite and sandstone GRAVEL (Glaciofluvial Deposits)		103.50	4.80
Very dense red brown silty fine-medium SAND with rare subrounded fine sandstone gravel (Wildmoor Sandstone Formation)		98.30	10.00

SAMPLING/IN SITU TEST

Depth m	Type & No.	Blows/ Strength
0.50	D1	
0.60-0.80	B1	
1.00	D2	
1.50-1.95	S1	N=40
1.50-1.95	D3	
1.50-1.95	B2	
2.00	D4	
2.50-2.95	C2	N=43
2.50	D5	
2.50-2.95	B3	
3.00	D6	
3.50-3.95	C3	N=36
3.50	D7	
3.50-3.95	B4	
4.00	D8	
4.50-4.95	C4	N=28
4.50-4.95	B5	
5.00	D9	
5.50	D10	
6.00-6.37	S5	50/220
6.00-6.45	D11	
6.00-6.45	B6	
6.50	D12	
7.00	D13	
7.50-7.74	S6	50/90
7.50-7.95	D14	
7.50-7.95	B7	
8.00	D15	
8.50	D16	
9.00-9.21	S7	50/60
9.00-9.45	D17	
9.00-9.45	B8	
9.50	D18	
10.00	D19	

LAB TESTING

Depth m	% <425	W %	W_P %	W_L %	ρ Mg/m^3	c_u kN/m^2
1.00		11.7				
1.50-1.95	94	14.4	15	38		

OTHER TESTS AND NOTES

- Hand excavated from ground level to 1.20m
- Particle size distribution and sedimentation
- Water added to borehole between 2.00 and 8.00m to assist drilling
- Particle size distribution
- Particle size distribution
- On completion groundwater standing at 5.00m
- Borehole complete at 10.00m
- 50mm diameter HDPE pipe installed to 8.00m
- Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.

Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1
Dates	27/10/15 to 28/10/15	BH209
Log	JK	

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring** LIGHT CABLE PERCUSSION 150 mm DIAMETER	**Hole No.** **BH210**
	Engineer	**Methods** CASED 150 mm DIAMETER G.L. TO 10.00 m	**Sheet** 1 of 1
Ground Level 103.40 m.A.O.D.	**Coordinates** 391508 m.E. 309555 m.N.		**Job No** **14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	
				Topsoil [Driller's description]		103.00	0.40											Hand excavated from ground level to 1.20m
				Brown silty fine-coarse SAND and subangular-subrounded fine-coarse quartzite GRAVEL with occasional fine-coarse gravel size pockets of brown slightly sandy silty clay (Glaciofluvial Deposits)				0.50 0.50-0.90 1.00	D1 B1 D2									Particle size distribution and California bearing ratio - 2.5kg rammer
				Brown clayey SAND [Driller's description] (Glaciofluvial Deposits)		102.10 101.90	1.30 1.50											
				Medium dense red brown silty fine-coarse SAND with some subrounded fine-coarse quartzite gravel and fine-coarse gravel size pockets of grey and light yellow silty clay (Glaciofluvial Deposits) - becoming dense from approximately 2.50m				1.50-1.95 1.50-1.95 1.50-1.95	S1 D3 B2	N=24								BRE SD1 chemical suite Particle size distribution and sedimentation
				- becoming very dense from approximately 3.50m				2.50-2.95 2.50-2.95 2.50-2.95	S2 D4 B3	N=35								
								3.50-3.93 3.50-3.95 3.50-3.95	S3 D5 B4	50/280								
				Very dense red brown silty fine-medium SAND with some fine-coarse gravel size pockets of grey and light brown silty clay (Wildmoor Sandstone Formation)		98.90	4.50	4.50-4.88 4.50-4.95 4.50-4.95	S4 D6 B5	50/230								Particle size distribution and sedimentation
								5.50-5.81 5.50-5.95 5.50-5.95	S5 D7 B6	50/158								
26/10/15	7.00	6.40						6.50	D8									
27/10/15	7.00	4.00 N (1)						7.00-7.23 7.00-7.45	S6 D9	50/80								Groundwater seepage recorded at 7.10m, slow inflow
27/10/15	6.50	▼				96.00	7.40	7.00-7.45	B7									
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)				8.00	D10									Particle size distribution
								8.50-8.73 8.50-8.95 8.50-8.95	S7 D11 B8	50/75								On completion groundwater standing at 5.40m Borehole complete at 10.00m
								9.50	D12									50mm diameter HDPE pipe installed to 7.00m Pipework capped and protected with raised lockable cover
27/10/15	10.00	5.40 C				93.40	10.00	10.00-10.21	S8	50/60								

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	7.10	6.90	6.70	6.50	6.40

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1
Dates	26/10/15 to 27/10/15	BH210
Log	JK	

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 6.50 m	**Hole No.** BH211 **Sheet** 1 of 1 **Job No** 14317GI
Ground Level 102.70 m.A.O.D.	**Coordinates** 391114 m.E. 309421 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		102.30	0.40										Hand excavated from ground level to 1.20m
				Brown slightly silty fine-coarse SAND with some subangular-subrounded fine-coarse quartzite gravel and rare medium gravel size pockets of fine-medium sand and rootlets (Glaciofluvial Deposits)		101.80	0.90	0.50 0.60-0.80 1.00	D1 B1 D2								California bearing ratio - 2.5kg rammer Particle size distribution (D2) Water added to borehole between 1.20 and 4.00m to assist drilling
				Dense brown silty very sandy subangular-subrounded fine-coarse quartzite GRAVEL (Glaciofluvial Deposits) - becoming slightly silty and sandy between approximately 1.50m and 1.95m - becoming slightly silty very gravelly fine-coarse SAND from approximately 2.50m - becoming very dense from approximately 3.50m				1.50-1.95 1.50 1.50-1.95 2.00 2.50-2.95 2.50 2.50-2.95 3.00 3.50-3.92 3.50 3.50-3.95 4.00	C1 D3 B2 D4 C2 D5 B3 D6 C3 D7 B4 D8	N=36 N=44 50/265 						BRE SD1 chemical suite Particle size distribution
03/11/15 04/11/15	4.50 4.50	3.80 3.60 N		Very dense red brown slightly clayey silty fine-medium SAND with rare partings of light brown slightly clayey silty fine sand (Wildmoor Sandstone Formation) - no partings of fine sand from approximately 5.00m - with rare subangular-subrounded medium sandstone gravel between approximately 6.00m and 6.50m		98.50	4.20	4.50-4.76 4.50-4.95 4.50-4.95 5.00 5.50 6.00-6.22 6.00-6.45 6.00-6.45	S4 D9 B5 D10 D11 S5 D12 B6	50/105 50/70 						On completion groundwater standing at 4.80m Unable to progress beyond 6.50m
04/11/15	6.50	4.80 C				96.20	6.50										Borehole terminated at 6.50m 50mm diameter HDPE pipe installed to 6.50m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1	BH211
Dates	03/11/15 to 04/11/15		
Log	EL		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 7.50 m UNCASED 7.50 TO 10.00 m	**Hole No.** BH212
	Engineer		**Sheet** 1 of 1
Ground Level 106.80 m.A.O.D.	**Coordinates** 392281 m.E. 309566 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Made Ground (Dark grey silty fine-coarse sand with some subangular-subrounded fine-coarse quartzite gravel and fine-coarse gravel size brick fragments)				0.50	D1								Hand excavated from ground level to 1.20m
								0.60-0.80	B1								
								1.00	D2								BRE SD1 chemical suite
								1.50-1.73	C1	50/80							Chisel in use between ground 1.60 and 1.80m (45mins)
				Dense brown slightly silty fine-coarse SAND and subangular-subrounded fine-coarse quartzite and sandstone GRAVEL (Glaciofluvial Deposits)		105.00	1.80	1.50	D3								
								1.50-1.95	B2								
								2.00	D4								
								2.50-2.95	C2	N=42							
								2.50	D5								
								2.50-2.95	B3								Water added to borehole between 2.00 and 6.00m to assist drilling
								3.00	D6								
								3.50-3.95	C3	N=37							
								3.50	D7								
				Very dense red brown silty fine-coarse SAND with rare pockets of grey silt and fine sand (Wildmoor Sandstone Formation)		102.90	3.90	3.50-3.95	B4								
								4.00	D8								
								4.50-4.85	S4	50/200							
								4.50-4.95	D9								
								4.50-4.95	B5								
								5.00	D10								
								5.50	D11								
29/10/15	6.00	(1) ▼						6.00-6.25	S5	50/100							Groundwater seepage recorded at 6.00m, medium inflow
								6.00-6.45	B6								
								6.50	D12								
								7.00	D13								
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)		99.30	7.50	7.50-7.73	S6	50/80							
								7.50-7.95	D14								
								7.50-7.95	B7								
								8.00	D15								
								8.50	D16								On completion groundwater standing at 8.70m Borehole complete at 10.00m
								9.00-9.22	S7	50/70							
								9.00-9.45	D17								
								9.00-9.95	B8								
								9.50	D18								
29/10/15	7.50	8.70 C				96.80	10.00	10.00	D19								50mm diameter HDPE pipe installed to 8.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	6.00	5.30	5.13	4.94	4.82

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1
Dates	29/10/15	BH212
Log	AT	

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 9.50 m UNCASED 9.50 TO 10.00 m	**Hole No.** BH213
	Engineer		**Sheet** 1 of 1
Ground Level 102.80 m.A.O.D.	**Coordinates** 391281 m.E. 309186 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		102.40	0.40										Hand excavated from ground level to 1.20m
				Dense brown silty fine-coarse SAND with much subangular-subrounded fine-coarse quartzite gravel and occasional fine-coarse gravel size pockets of dark grey brown slightly sandy silty clay (Glaciofluvial Deposits)				0.50 0.50-0.90 1.00	D1 B1 D2								BRE SD1 chemical suite California bearing ratio - 2.5kg rammer
								1.50-1.95 1.50-1.95 2.00	C1 B2 D3	N=33							Water added to borehole between 2.00 and 4.00m to assist drilling
								2.50-2.95 2.50-2.95 3.00	C2 B3 D4	N=49							Particle size distribution
03/11/15	4.00	DRY						3.50-3.87	C3	50/215							
04/11/15	4.00	2.90 N		Very dense red brown silty fine-coarse SAND (Wildmoor Sandstone Formation)		99.00	3.80	3.50-3.95 4.00	B4 D5								Particle size distribution
								4.50-4.73 4.50-4.95 4.50-4.95	S4 D6 B5	50/75							
								5.50-5.72 5.50-5.95 5.50-5.95	S5 D7 B6	50/65							
				- sand becoming fine-medium with depth				6.50	D8								
								7.00-7.21 7.00-7.45 7.00-7.45	S6 D9 B7	50/60							
								8.00	D10								
								8.50-8.70 8.50-8.95 8.50-8.95	S7 D11 B8	50/50							On completion groundwater standing at 6.90m Borehole complete at 10.00m
								9.50	D12								50mm diameter HDPE pipe installed to 8.00m Pipework capped and protected with raised lockable cover
04/11/15	9.50	6.90 C				92.80	10.00	10.00-10.21	S8	50/55							

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1	BH213
Dates	03/11/15 to 04/11/15		
Log	JK		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 6.80 m	**Hole No.** BH214
	Engineer		**Sheet** 1 of 1
Ground Level 108.00 m.A.O.D.	**Coordinates** 392802 m.E. 309469 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Grass over Topsoil [Driller's description]		107.70	0.30										Hand excavated from ground level to 1.20m
				Grey brown silty fine-coarse SAND with much subangular-subrounded fine-coarse quartzite gravel, occasional fine-coarse gravel size pockets of clayey silty sand (Glaciofluvial Deposits)				0.50 0.60-0.80 1.00	D1 B1 D2								Particle size distribution BRE SD1 chemical suite
				Dense brown sandy subangular-subrounded fine-coarse quartzite GRAVEL (Glaciofluvial Deposits)		106.20	1.80	1.50-1.95 1.50 1.50-1.95 2.00	C1 D3 B2 D4	N=39							Particle size distribution Water added to borehole between 1.80 and 6.00m to assist drilling Particle size distribution
								2.50-2.95 2.50 2.50-2.95 3.00	C2 D5 B3 D6	N=37							
				Very dense red brown slightly clayey slightly silty fine-medium SAND (Wildmoor Sandstone Formation) - with occasional partings of grey silt and fine sand between approximately 4.50m and 4.95m		104.30	3.70	3.50-3.90 3.50 3.50-3.95 4.00	C3 D7 B4 D8	50/245							
								4.50-4.84 4.50-4.95 4.50-4.95 5.00	S4 D9 B5 D10	50/190							
								5.50	D11								
				Very dense red brown silty clayey fine-medium SAND with occasional partings of grey silt and fine sand (Wildmoor Sandstone Formation)		102.00	6.00	6.00-6.27 6.00-6.45 6.00-6.45 6.50	S5 D12 B6 D13	50/120							
30/10/15	6.80	DRY															
02/11/15	6.80	DRY C				101.20	6.80										Chisel in use at 6.80m (30mins)
				ROCK [Driller's description]		101.20	6.80										Borehole complete at 6.80m
																	33mm diameter HDPE pipe installed to 4.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1	BH214
Dates	30/10/15 to 02/11/15		
Log	EL		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 9.00 m UNCASED 9.00 TO 10.00 m	**Hole No.** BH215 **Sheet** 1 of 1 **Job No** 14317GI
Ground Level 106.40 m.A.O.D.	**Coordinates** 392241 m.E. 309291 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		106.00	0.40										Hand excavated from ground level to 1.20m California bearing ratio - 2.5kg rammer BRE SD1 chemical suite
				Brown silty fine-coarse SAND with some subangular-subrounded fine-medium quartzite gravel and occasional fine-coarse gravel size pockets of yellow grey silt (Glaciofluvial Deposits)				0.50 0.50-0.90 1.00	D1 B1 D2								
				Medium dense red brown silty fine-coarse SAND with some subrounded fine-coarse quartzite and sandstone gravel and occasional fine-coarse gravel size pockets of yellow grey silt (Glaciofluvial Deposits) - becoming dense from approximately 2.50m		104.90	1.50	1.50-1.95 1.50-1.95 1.50-1.95 2.00	S1 D3 B2 D4	N=23							Particle size distribution
								2.50-2.95 2.50-2.95 2.50-2.95 3.00	S2 D5 B3 D6	N=38							
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)		102.90	3.50	3.50-3.79 3.50-3.95 3.50-3.95 4.00	S3 D7 B4 D8	50/135							
27/10/15	4.50	(1) ▼						4.50-4.78 4.50-4.95 4.50-4.95 5.00	S4 D9 B5 D10	50/125							Groundwater seepage recorded at 4.90m, medium inflow
								5.50-5.75 5.50-5.95 5.50-5.95	S5 D11 B6	50/95							
27/10/15 28/10/15	7.00 7.00	4.90 3.40 N						6.50	D12								
								7.00-7.23 7.00-7.45 7.00-7.45	S6 D13 B7	50/79							
								8.00	D14								
								8.50-8.72 8.50-8.95 8.50-8.95	S7 D15 B8	50/65							On completion groundwater standing at 4.60m Borehole complete at 10.00m
28/10/15	9.00	4.60 C						9.50	D16								50mm diameter HDPE pipe installed to 7.00m Pipework capped and protected with raised lockable cover
						96.40	10.00	10.00-10.20	S8	50/50							

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	4.90	4.30	3.95	3.80	3.70

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1
Dates	27/10/15 to 28/10/15	BH215
Log	JK	

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 7.50 m UNCASED 7.50 TO 10.00 m	**Hole No.** BH216
	Engineer		**Sheet** 1 of 1
Ground Level 107.10 m.A.O.D.	**Coordinates** 392468 m.E. 309338 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Grass over Topsoil [Driller's description]													Hand excavated from ground level to 1.20m
				Brown slightly silty fine-coarse SAND with some subangular-subrounded fine gravel to cobble size quartzite, occasional pockets of grey clayey silt and rare rootlets (Glaciofluvial Deposits)		106.80	0.30	0.50	D1								
								0.60-0.80	B1								
								1.00	D2								BRE SD1 chemical suite
				Very dense red brown silty fine-coarse SAND with much subangular-subrounded fine-coarse quartzite and sandstone gravel (Glaciofluvial Deposits) - becoming a silty SAND and GRAVEL with depth		106.00	1.10	1.50-1.94	C1	50/285							Particle size distribution
								1.50	D3								
						105.20	1.90	1.50-1.95	B2								Particle size distribution
				Dense red brown silty fine-coarse SAND (Wildmoor Sandstone Formation)				2.00	D4								
								2.50-2.95	S2	N=41							
								2.50-2.95	D5								
								2.50-2.95	B3								
								3.00	D6								Particle size distribution
28/10/15	3.00	(1) ▼															
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)		103.60	3.50	3.50-3.83	S3	50/180							
								3.50-3.95	D7								Groundwater seepage recorded at 3.50m, medium inflow
								3.50-3.95	B4								
								4.00	D8								
								4.50-4.76	S4	50/105							
								4.50-4.95	D9								
								4.50-4.95	B5								
								5.00	D10								
								5.50	D11								
								6.00-6.27	S5	50/120							
								6.00-6.45	D12								
								6.00-6.45	B6								
								6.50	D13								
								7.00	D14								
								7.50-7.78	S6	50/125							
								7.50-7.95	D15								
								7.50-7.95	B7								
								8.00	D16								
								8.50	D17								On completion groundwater standing at 7.00m
								9.00-9.23	S7	50/80							Borehole complete at 10.00m
								9.00-9.45	D18								
								9.00-9.45	B8								33mm diameter HDPE pipe installed to 4.00m
								9.50	D19								
28/10/15	7.50	7.00 C				97.10	10.00	10.00	D20								Pipework capped and protected with flush lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	3.50	3.18	2.76	2.72	2.71

WATER
▼ 1 First Strike
▽ 2 Subsequent Strike
N - Overnight Depth
C- Completion Depth
S Seepage not rising

SAMPLE KEY
D Small disturbed sample
B Bulk disturbed sample
W Water sample
U Undisturbed sample
P Piston sample

TEST KEY
S Standard penetration test
C Cone penetration test
K Permeability test
V In situ vane test

BLOWS / STRENGTH
N = N value
26/150 blows, for 150mm, drive after seating
26*, blows for part or whole of seating drive only
(26) U sample blow count
V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1
Dates	28/10/15 to 29/10/15	BH216
Log	EL	

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 7.50 m	**Hole No.** BH217
	Engineer		**Sheet** 1 of 1
Ground Level 103.80 m.A.O.D.	**Coordinates** 391530 m.E. 309063 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		103.40	0.40										Hand excavated from ground level to 1.20m
				Brown silty fine-coarse SAND with some subangular-subrounded fine-coarse quartzite gravel and some fine-coarse gravel size pockets of dark grey and black slightly sandy silty clay (Glaciofluvial Deposits)		102.90	0.90	0.50	D1								Particle size distribution and sedimentation (D1)
				- gravel becoming much with depth				0.50-0.90	B1								California bearing ratio - 2.5kg rammer (B1)
								1.00	D2								BRE SD1 chemical suite (D2)
04/11/15	1.50	DRY		Dense red brown silty fine-coarse SAND and subangular-subrounded fine-coarse quartzite GRAVEL (Glaciofluvial Deposits)				1.50-1.95	C1	N=36							Particle size distribution
05/11/15	1.50	DRY N						1.50-1.95	B2								
								2.00	D3								Soakage test carried out at 2.00m
								2.50-2.95	C2	N=42							
								2.50-2.95	B3								
								3.00	D4								
								3.50-3.94	C3	50/285							
								3.50-3.95	B4								
								4.00	D5								
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)		99.30	4.50	4.50-4.73	S4	50/80							
								4.50-4.95	D6								
								4.50-4.95	B5								
								5.50-5.73	S5	49/75							
								5.50-5.95	D7								
05/11/15	7.50	6.10 C						5.50-5.95	B6								
								6.50	D8								
				- hydrocarbon odour detected				7.00-7.23	S6	50/75							On completion groundwater standing at 6.10m
								7.00-7.45	D9								
								7.00-7.45	B7								VOCs detected from approximately 7.00m originating from borehole, up to approximately 100 ppm
						96.30	7.50										Borehole terminated at 7.50m
																	50mm diameter HDPE pipe installed to 7.50m
																	Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1
Dates	04/11/15 to 05/11/15	BH217
Log	JK	

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring** LIGHT CABLE PERCUSSION 150 mm DIAMETER	**Hole No.** **BH218**
	Engineer	**Methods** CASED 150 mm DIAMETER G.L. TO 9.00 m	**Sheet** 1 of 1
Ground Level 103.30 m.A.O.D.	**Coordinates** 391489 m.E. 309027 m.N.		**Job No** **14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		102.90	0.40										Hand excavated from ground level to 1.20m
				Brown and yellow brown silty fine-coarse SAND with much subangular-subrounded fine-coarse quartzite gravel (Glaciofluvial Deposits)		102.60	0.70	0.50 0.60-0.80 1.00	D1 B1 D2								Particle size distribution
				Very dense brown and yellow brown silty fine-coarse SAND with some subangular-subrounded fine-coarse quartzite gravel (Glaciofluvial Deposits) - recovered as a sandy fine-coarse GRAVEL from approximately 1.50m		101.30	2.00	1.50-1.73 1.50 1.50-1.95 2.00	C1 D3 B2 D4	48/75							Water added to borehole between 1.20 and 4.00m to assist drilling Particle size distribution Chisel in use between 1.70 and 1.90m (45mins)
				Dense brown and red brown silty very sandy subangular-subrounded fine-coarse quartzite GRAVEL (Glaciofluvial Deposits)				2.50-2.95 2.50 2.50-2.95 3.00	C2 D5 B3 D6	N=43							Particle size distribution BRE SD1 chemical suite
04/11/15	4.00	3.80						3.50-3.95 3.50	C3 D7	N=48							
05/11/15	4.00	DRY N				99.30	4.00	3.50-3.95 4.00	B4 D8								
				Very dense red brown silty fine-coarse SAND (Wildmoor Sandstone Formation)				4.50-4.93 4.50 4.50-4.95 5.00	C4 D9 B5 D10	50/275							
05/11/15	5.00	(1) ▼						5.50	D11								Groundwater seepage recorded at 5.00m, medium inflow Particle size distribution
				- sand becoming fine-medium with depth				6.00-6.29 6.00-6.45 6.00-6.45 6.50	S5 D12 B6 D13	50/135							
								7.00	D14								
								7.50-7.76 7.50-7.95 7.50-7.95 8.00	S6 D15 B7 D16	50/105							On completion groundwater standing at 7.60m Slight hydrocarbon odour detected at 9.00m
05/11/15	9.00	7.60 C						8.50 8.50-9.00	D17 B8								
						94.30	9.00										Borehole terminated at 9.00m
																	33mm diameter HDPE pipe installed to 4.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	5.00	4.52	4.31	4.17	4.10

WATER
▼ 1 First Strike
▽ 2 Subsequent Strike
N - Overnight Depth
C- Completion Depth
S Seepage not rising

SAMPLE KEY
D Small disturbed sample
B Bulk disturbed sample
W Water sample
U Undisturbed sample
P Piston sample

TEST KEY
S Standard penetration test
C Cone penetration test
K Permeability test
V In situ vane test

BLOWS / STRENGTH
N = N value
26/150 blows, for 150mm, drive after seating
26*, blows for part or whole of seating drive only
(26) U sample blow count
V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1	BH218
Dates	04/11/15 to 05/11/15		
Log	JK		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 7.50 m UNCASED 7.50 TO 10.00 m	**Hole No.** BH219
	Engineer		**Sheet** 1 of 1
Ground Level 99.80 m.A.O.D.	**Coordinates** 391303 m.E. 308637 m.N.		**Job No** 14317GI

WATER

Date/Time at Depth	Depth of Casing m	Depth to Water m
05/11/15	3.50	(1) ▼
05/11/15	5.00	4.40
06/11/15	5.00	2.40 N
06/11/15	7.50	4.30 C

STRATA

Inst.	Description	Legend	Level m.A.O.D.	Depth m
	Grass over Topsoil [Driller's description]		99.40	0.40
	Firm mottled grey and orange brown silty sandy CLAY and grey slightly clayey slightly silty fine-coarse SAND with some subangular-subrounded fine-coarse quartzite gravel (Till)		99.20	0.60
	Firm red brown slightly sandy silty CLAY with frequent partings of grey silt, occasional subangular-subrounded fine-coarse quartzite gravel and rare pockets of black silt (Till)		98.40	1.40
	Grey, red brown and brown clayey sandy SILT with much subangular-subrounded fine-coarse quartzite gravel and occasional partings of yellow brown silt (Till)		98.20	1.60
	Very dense red brown silty fine-coarse SAND and subangular-subrounded fine-coarse quartzite and sandstone GRAVEL (Glaciofluvial Deposits)		96.00	3.80
	Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)		89.80	10.00

SAMPLING/IN SITU TEST

Depth m	Type & No.	Blows/ Strength
0.50	D1	
0.60-0.80	B1	
1.00	D2	
1.50-1.95	C1	N=46
1.50	D3	
1.50-1.95	B2	
2.00	D4	
2.50-2.90	C2	50/250
2.50	D5	
2.50-2.95	B3	
3.00	D6	
3.50-3.90	C3	50/245
3.50	D7	
3.50-3.95	B4	
4.00	D8	
4.50-4.78	S4	50/125
4.50-4.95	D9	
4.50-4.95	B5	
5.00	D10	
5.50	D11	
6.00-6.25	S5	50/95
6.00-6.45	D12	
6.00-6.45	B6	
6.50	D13	
7.00	D14	
7.50-7.75	S6	50/95
7.50-7.95	D15	
7.50-7.95	B7	
8.00	D16	
8.50	D17	
9.00-9.23	S7	48/75
9.00-9.45	D18	
9.00-9.45	B8	
9.50	D19	
10.00	D20	

LAB TESTING

Depth m	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2
1.00	91	18.8	14	24		

OTHER TESTS AND NOTES

- Hand excavated from ground level to 1.20m
- BRE SD1 chemical suite
- Moisture condition value
- Particle size distribution
- Water added to borehole between 2.00 and 3.50m to assist drilling
- Groundwater seepage recorded at 3.50m, medium inflow
- Particle size distribution
- On completion groundwater standing at 4.30m
- Borehole complete at 10.00m
- 50mm diameter HDPE pipe installed to 7.00m
- Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.

Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	3.50	3.31	3.08	2.92	2.81

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1
Dates	05/11/15 to 06/11/15	BH219
Log	AT	

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 9.50 m UNCASED 9.50 TO 10.00 m	**Hole No.** BH220
	Engineer		**Sheet** 1 of 1
Ground Level 103.40 m.A.O.D.	**Coordinates** 391575 m.E. 308760 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		103.00	0.40										Hand excavated from ground level to 1.20m
				Dense brown silty very sandy subangular-subrounded fine-coarse quartzite and sandstone GRAVEL with occasional coarse gravel size pockets of dark grey silty clay (Glaciofluvial Deposits)				0.50 0.50-0.90 1.00	D1 B1 D2								Particle size distribution
								1.50-1.95 1.50-1.95 2.00	C1 B2 D3	N=34							BRE SD1 chemical suite
				Dense orange brown slightly silty sandy subangular-subrounded fine-coarse quartzite GRAVEL (Glaciofluvial Deposits)		100.90	2.50	2.50-2.95 2.50-2.95 3.00	C2 B3 D4	N=42							Particle size distribution
06/11/15	4.00	(1) ▼		Dense red brown silty fine-coarse SAND with occasional subangular-subrounded fine sandstone gravel (Wildmoor Sandstone Formation)		99.90	3.50	3.50-3.95 3.50-3.95 4.00	C3 B4 D5	N=50							Particle size distribution Groundwater seepage recorded at 4.00m, slow inflow
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)		98.90	4.50	4.50-4.78 4.50-4.95 4.50-4.95	S4 D6 B5	50/125							Particle size distribution
								5.50-5.73 5.50-5.95 5.50-5.95	S5 D7 B6	50/83							
								6.50	D8								
								7.00-7.23 7.00-7.45 7.00-7.45	S6 D9 B7	50/75							
								8.00	D10								
								8.50-8.71 8.50-8.95 8.50-8.95	S7 D11 B8	50/60							On completion groundwater standing at 7.60m Borehole complete at 10.00m
								9.50	D12								
06/11/15	9.50	7.60 C				93.40	10.00	10.00-10.21	S8	50/55							50mm diameter HDPE pipe installed to 7.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	4.00	3.80	3.60	3.30	3.20

WATER
▼ 1 First Strike
▽ 2 Subsequent Strike
N - Overnight Depth
C- Completion Depth
S Seepage not rising

SAMPLE KEY
D Small disturbed sample
B Bulk disturbed sample
W Water sample
U Undisturbed sample
P Piston sample

TEST KEY
S Standard penetration test
C Cone penetration test
K Permeability test
V In situ vane test

BLOWS / STRENGTH
N = N value
26/150 blows, for 150mm, drive after seating
26*, blows for part or whole of seating drive only
(26) U sample blow count
V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1	BH220
Dates	06/11/15		
Log	JK		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 9.00 m UNCASED 9.00 TO 10.00 m	**Hole No.** BH221
	Engineer		**Sheet** 1 of 1
Ground Level 105.00 m.A.O.D.	**Coordinates** 392074 m.E. 308952 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		104.60	0.40										Hand excavated from ground level to 1.20m
				Brown silty fine-coarse SAND and subrounded fine-coarse quartzite and sandstone GRAVEL with occasional fine-coarse gravel size pockets of sandy silty clay (Glaciofluvial Deposits)				0.50	D1								Particle size distribution
								0.50-0.90	B1								
								1.00	D2								BRE SD1 chemical suite
				Medium dense red brown silty fine-coarse SAND with some subangular-subrounded fine-medium quartzite gravel and occasional grey and yellow silt partings (Glaciofluvial Deposits)		103.50	1.50	1.50-1.95	C1	N=17							
								1.50-1.95	B2								
								2.00	D3								Particle size distribution
								2.50-2.95	C2	N=26							
								2.50	D4								
								2.50-2.95	B3								
				- becoming dense from approximately 3.50m				3.00	D5								
								3.50-3.95	C3	N=50							
								3.50	D6								
				Very dense red brown silty fine-medium SAND with occasional grey and light brown silt partings (Wildmoor Sandstone Formation)		101.00	4.00	3.50-3.95	B4								
								4.00	D7								
			(1)					4.50-4.88	S4	50/230							Particle size distribution
28/10/15	4.50		▼					4.50-4.95	D8								Groundwater seepage recorded at 4.90m, slow inflow
								4.50-4.95	B5								
								5.00	D9								
								5.50-5.75	S5	50/100							
								5.50-5.95	D10								
								5.50-5.95	B6								
								6.50	D11								Particle size distribution
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)		98.00	7.00	7.00-7.23	S6	50/80							
								7.00-7.45	D12								
								7.00-7.45	B7								
28/10/15	8.00	4.40															
29/10/15	8.00	3.90 N						8.00	D13								
								8.50-8.73	S7	50/75							On completion groundwater standing at 4.30m
								8.50-8.95	D14								Borehole complete at 10.00m
								8.50-8.95	B8								
								9.50	D15								50mm diameter HDPE pipe installed to 8.00m
29/10/15	9.00	4.30 C															Pipework capped and protected with raised lockable cover
						95.00	10.00	10.00-10.21	S8	50/60							

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	4.90	4.60	4.50	4.20	4.10

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1
Dates	28/10/15 to 29/10/15	BH221
Log	JK	

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 9.50 m UNCASED 9.50 TO 10.00 m	**Hole No.** BH222
	Engineer		**Sheet** 1 of 1
Ground Level 106.30 m.A.O.D.	**Coordinates** 392326 m.E. 309021 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		105.90	0.40										Hand excavated from ground level to 1.20m
				Medium dense brown slightly clayey silty fine-coarse SAND and subangular-subrounded fine-coarse quartzite and sandstone GRAVEL with rare rootlets (Glaciofluvial Deposits)				0.50 0.50-0.90 1.00	D1 B1 D2									BRE SD1 chemical suite
								1.50-1.95 1.50-1.95 2.00	C1 B2 D3	N=24								
				- no rootlets with depth				2.50-2.95 2.50-2.95 3.00	C2 B3 D4	N=26								Particle size distribution and California bearing ratio - 2.5kg rammer
						102.50	3.80	3.50-3.95 3.50-3.95 4.00	C3 B4 D5	N=40								Particle size distribution
				Very dense red brown silty fine-coarse SAND with much subangular-subrounded fine-coarse quartzite gravel (Glaciofluvial Deposits)				4.50-4.79 4.50-4.95 4.50-4.95	S4 D6 B5	50/140								
29/10/15	4.50	(1) ▼																Groundwater seepage recorded at 4.90m, slow inflow
29/10/15	5.00	4.00																
30/10/15	5.00	3.60 N						5.50-5.75 5.50-5.95 5.50-5.95	S5 D7 B6	50/95								
						99.80	6.50	6.50	D8									
				Very dense red brown slightly silty fine-medium SAND (Wildmoor Sandstone Formation)				7.00-7.23 7.00-7.45 7.00-7.45	S6 D9 B7	50/75								
								8.00	D10									
								8.50-8.72 8.50-8.95 8.50-8.95	S7 D11 B8	50/65								On completion groundwater standing at 4.80m Borehole complete at 10.00m
								9.50	D12									50mm diameter HDPE pipe installed to 8.00m
30/10/15	9.50	4.80 C				96.30	10.00	10.00-10.20	S8	50/45								Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.

Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	4.90	3.65	3.80	3.90	4.00

WATER
▼ 1 First Strike
▽ 2 Subsequent Strike
N - Overnight Depth
C- Completion Depth
S Seepage not rising

SAMPLE KEY
D Small disturbed sample
B Bulk disturbed sample
W Water sample
U Undisturbed sample
P Piston sample

TEST KEY
S Standard penetration test
C Cone penetration test
K Permeability test
V In situ vane test

BLOWS / STRENGTH
N = N value
26/150 blows, for 150mm, drive after seating
26*, blows for part or whole of seating drive only
(26) U sample blow count
V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1
Dates	29/10/15 to 30/10/15	BH222
Log	AH	

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 9.50 m UNCASED 9.50 TO 10.00 m	**Hole No.** BH223
	Engineer		**Sheet** 1 of 1
Ground Level 107.00 m.A.O.D.	**Coordinates** 392606 m.E. 309054 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil [Driller's description]		106.60	0.40										Hand excavated from ground level to 1.20m
				Medium dense brown slightly silty fine-coarse SAND with some subangular-subrounded fine-medium quartzite gravel (Glaciofluvial Deposits)				0.50	D1								
								0.50-0.90	B1								
								1.00	D2								Particle size distribution
								1.50-1.95	S1	N=29							
								1.50-1.95	D3								
								1.50-1.95	B2								
				Dense red brown silty fine-coarse SAND with much subangular-subrounded fine-coarse quartzite gravel (Glaciofluvial Deposits)		104.40	2.60	2.50-2.95	S2	N=37							Particle size distribution
								2.50-2.95	D4								
								2.50-2.95	B3								
				Very dense red brown silty fine-coarse SAND with a little subangular-subrounded fine-medium sandstone gravel (Wildmoor Sandstone Formation)		103.90	3.10										
								3.50-3.86	S3	50/205							Particle size distribution
								3.50-3.95	D5								
								3.50-3.95	B4								
								4.50-4.79	S4	50/140							
								4.50-4.95	D6								
								4.50-4.95	B5								
								5.50-5.73	S5	50/80							
								5.50-5.95	D7								
								5.50-5.95	B6								
				SANDSTONE [Driller's description] (Recovered as red brown silty fine-medium SAND with occasional subangular-subrounded fine-medium gravel size sandstone fragments) (Wildmoor Sandstone Formation)		100.90	6.10	6.20	D8								Chisel in use between 6.10 and 6.30m (60mins)
02/11/15	6.00	(1) ▼				100.70	6.30										Groundwater seepage recorded at 6.50m, slow inflow
				Very dense red brown silty fine-medium SAND (Wildmoor Sandstone Formation)				7.00-7.22	S6	50/65							Particle size distribution
								7.00-7.45	D9								
								7.00-7.45	B7								
								8.00	D10								
								8.50-8.71	S7	50/55							
								8.50-8.95	D11								On completion groundwater standing at 6.90m
								8.50-8.95	B8								Borehole complete at 10.00m
								9.50	D12								50mm diameter HDPE pipe installed to 9.00m
02/11/15	9.00	6.90 C				97.00	10.00	10.00-10.19	S8	50/40							Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	6.50	5.90	5.70	5.50	5.40

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	MJ	Sheet 1 of 1
Dates	02/11/15	BH223
Log	AT	

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Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Boring Methods	LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 7.50 m UNCASED 7.50 TO 10.00 m	Hole No.	**BH224**
		Engineer				Sheet	1 of 1
Ground Level	102.60 m.A.O.D.	Coordinates	391611 m.E. 308587 m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Grass over Topsoil [Driller's description]		102.20	0.40										Hand excavated from ground level to 1.20m BRE SD1 chemical suite
				Brown slightly silty fine-coarse SAND with some subangular-subrounded fine-coarse quartzite gravel and pockets of red brown and grey silty clay and rare rootlets (Till)		101.90	0.70	0.50 0.60-0.80 1.00	D1 B1 D2		87	15.1	14	30			
				Firm-stiff red brown slightly sandy silty CLAY with occasional partings of grey silt and fine sand, blue grey gleying and subrounded fine-medium quartzite gravel (Till)		101.40	1.20	1.50-1.95 1.50 1.50-1.95 2.00	C1 D3 B2 D4	N=38							Particle size distribution
				Dense red brown silty fine-coarse SAND with some subangular-subrounded fine-coarse quartzite gravel and occasional pockets of red brown silty clay (Glaciofluvial Deposits)		99.90	2.70	2.50-2.95 2.50 2.50-2.95 3.00	C2 D5 B3 D6	N=43							Particle size distribution
				Dense red brown silty fine-medium SAND with rare subrounded fine sandstone gravel (Wildmoor Sandstone Formation)				3.50-3.95 3.50 3.50-3.95 3.50-3.95 4.00	S3 D7 B4 D8 D9	N=48							
02/11/15	4.50	(1) ▼		- becoming very dense from approximately 4.50m				4.50-4.92 4.50-4.95 4.50-4.95 5.00	S4 D10 B5 D11	50/270							Groundwater seepage recorded at 4.50m, slow inflow
02/11/15	6.00	5.80						5.50	D12								
03/11/15	6.00	4.20 N		- with rare subrounded medium sandstone gravel between approximately 6.00m and 6.45m				6.00-6.30 6.00-6.45 6.00-6.45 6.50	S5 D13 B6 D14	50/145							
								7.00	D15								
								7.50-7.75 7.50-7.95 7.50-7.95 8.00	S6 D16 B7 D17	50/95							
								8.50	D18								On completion groundwater standing at 6.30m Borehole complete at 10.00m
								9.00-9.23 9.00-9.45 9.00-9.45	S7 D19 B8	47/75							
03/11/15	7.50	6.30 C				92.60	10.00	10.00	D20								50mm diameter HDPE pipe installed to 8.00m Pipework capped and protected with flush lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	4.50	4.31	4.19	4.11	4.07

WATER
▼ 1 First Strike
▽ 2 Subsequent Strike
N - Overnight Depth
C- Completion Depth
S Seepage not rising

SAMPLE KEY
D Small disturbed sample
B Bulk disturbed sample
W Water sample
U Undisturbed sample
P Piston sample

TEST KEY
S Standard penetration test
C Cone penetration test
K Permeability test
V In situ vane test

BLOWS / STRENGTH
N = N value
26/150 blows, for 150mm, drive after seating
26*, blows for part or whole of seating drive only
(26) U sample blow count
V = Vane Strength - kN/m^2

Fieldwork By	GB	Sheet 1 of 1	BH224
Dates	02/11/15 to 03/11/15		
Log	AH		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS301 **Sheet** 1 of 1 **Job No** 14317GI
Ground Level 102.50 m.A.O.D.	**Coordinates** 391351 m.E. 310513 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil		102.10	0.40										
				Firm brown/orange brown/red brown silty sandy CLAY with occasional subrounded-rounded medium-coarse quartzite gravel (Till)				0.50-0.70	B1								BRE SD1 chemical suite
				- becoming red/brown with occasional light grey medium gravel size pockets				1.00-1.20	B2		91	19.3	16	37			
								1.00	HV1	(HV=48)							
								1.20-2.00	U1								
								1.50	HV2	(HV=45)							
				Red brown slightly clayey silty fine-medium SAND (Till)		100.90	1.60										
				Mottled light grey and red/brown silty very clayey SAND (Till)		100.55	1.95	2.00-3.00	U2								'Damp' at 2.00m
				- becoming firm, light grey/brown and red/brown slightly silty very sandy clay				2.00	D1			18.7					
								2.30	HV=453	(HV=61)							
				Firm/stiff red/brown silty CLAY with occasional light grey pockets and partings, occasionally sandy (Bromsgrove Sandstone Formation)		100.00	2.50										
								2.70	HV4	(HV=70)							
								3.00-4.00	U3								
								3.00	D2		93	23.1	21	40			
				- becoming stronger fissile with depth				3.60	HV5	(HV=120)							
27/10/15						98.50	4.00										Window sample hole complete at 4.00m 33mm pipe was installed to 4.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS301
Dates	27/10/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS302
	Engineer		**Sheet** 1 of 1
Ground Level 103.90 m.A.O.D.	**Coordinates** 391508 m.E. 310352 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil		103.50	0.40										
				Light brown silty clayey fine-coarse SAND with some to much subangular-rounded fine-coarse sandstone, mudstone and occasionally granite gravel (Glaciofluvial Deposits)				0.50-0.70	B1								California bearing ratio - 2.5kg rammer
								1.00-1.20	B2								Particle size distribution and sedimentation
				Stiff-very stiff red/brown occasionally light grey/ brown silty CLAY with a little subrounded medium-coarse sandstone gravel (Till)		102.70	1.20	1.20-2.00	U1								
								1.40	HV1	(HV=>120)							
						102.30	1.60	1.50	D1		87	11.8	17	39			
				Brown/red brown slightly silty SAND with much subangular-subrounded fine-coarse mudstone, sandstone and quartzite gravel, occasionally slightly clayey (Till)				2.00-3.00	U2								
				Stiff red/brown silty CLAY with rare rounded coarse sandstone gravel (Till)		101.80	2.10	2.30	HV2	(HV=>120)							
				Firm light brown and red/brown silty very sandy CLAY (Till)		101.40	2.50	2.50	D2			16.4					
				Firm red/brown slightly silty sandy CLAY (Till)		101.15	2.75	2.80	HV3	(HV=44)							
				Red/brown occasionally brown or light brown slightly silty-silty fine-medium SAND (Wildmoor Sandstone Formation)		100.90	3.00	3.00-4.00	U3								'Damp' at approximately 3.00m
								3.50	D3								Particle size distribution
28/10/15						99.90	4.00										Window sample hole complete at 4.00m 33mm pipe was installed to 4.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL
Dates	27/10/15
Log	NAB

Sheet 1 of 1 | WS302

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS303
	Engineer		**Sheet** 1 of 1
Ground Level 101.90 m.A.O.D.	**Coordinates** 391305 m.E. 310118 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown silty very sandy clay with some subrounded-rounded fine-coarse quartzite, mudstone and siltstone gravel)		101.50	0.40	0.00-0.40	B1								
				Firm mottled red/brown and light brown silty very sandy CLAY with occasional subangular-subrounded medium-coarse quartzite and sandstone gravel, and occasional coarse gravel size silty sand pockets (Till)		101.15	0.75	0.50-0.70	B2								
				Stiff red/brown slightly silty, occasionally sandy CLAY with occasional light grey streaks (Bromsgrove Sandstone Formation)				1.00-1.20	B3								
								1.10	HV1	(HV=118)							
								1.20-2.00	U1								
								1.30	D1		99	19.8	21	46			
								1.90	HV2	(HV=88)							
								2.00-3.00	U2								BRE SD1 chemical suite
								2.00	D2								
				- becoming fissile				2.50	D3		95	15.5	22	40			
								2.50	HV3	(HV=75)							
				- becoming weakly cemented				3.00-3.50	U3								No groundwater encountered
27/10/15		DRY	C			98.50	3.40										Window sample hole complete at 3.40m - unable to progress further 33mm pipe was installed to 3.40m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS303
Dates	27/10/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS304
	Engineer		**Sheet** 1 of 1
Ground Level 101.60 m.A.O.D.	**Coordinates** 391232 m.E. 309587 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown silty sand with occasional sandstone gravel)		101.10	0.50	0.50-0.70	B1								
				Light brown silty clayey fine-coarse SAND with some subrounded-rounded fine-coarse quartzite gravel and coarse gravel size firm red/brown/ grey silty clay pockets (Glaciofluvial Deposits)				1.00-1.20	B2								Particle size distribution
						100.40	1.20	1.20-2.00	U1								
				Light brown silty fine-coarse SAND with much subrounded-rounded fine-coarse sandstone and quartzite gravel (Glaciofluvial Deposits) - becoming orange/brown				1.50-2.00	D1								Particle size distribution
								2.00-3.00	U2								
				Orange/brown slightly silty SAND with much subrounded-angular fine-medium quartzite gravel (Glaciofluvial Deposits)		99.30	2.30	2.50	D2								BRE SD1 chemical suite
27/10/15		(1) ▼															Groundwater seepage recorded at approximately 2.80m
27/10/15								3.00-3.20	U3								
						98.40	3.20										Window sample hole complete at 3.20m - unable to progress further
																	33mm pipe was installed to 3.20m
																	Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	2.80				

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1
Dates	27/10/15	WS304
Log	NAB	

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Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Boring Methods	PERCUSSIVE WINDOW SAMPLER	Hole No.	WS305
		Engineer				Sheet	1 of 1
Ground Level	102.10 m.A.O.D.	Coordinates	391386 m.E. 309713 m.N.			Job No	14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil													
				Firm mottled red/brown light grey orange/brown silty very sandy CLAY with rare rounded medium quartzite and mudstone gravel (Till)		101.75	0.35	0.50-0.70	B1		76	11.3	14	25			
								1.00-1.20	B2								
				Light brown and orange/brown slightly clayey silty SAND (Till)		101.00	1.10	1.20-2.00	U1								
				Red/brown slightly silty fine-medium SAND (Wildmoor Sandstone Formation)		100.70	1.40	2.00-3.00	U2								
				Light brown slightly silty fine-medium SAND (Wildmoor Sandstone Formation)		99.40	2.70										
27/10/15		(1) ▼		Red/brown silty fine-medium SAND (Wildmoor Sandstone Formation)		99.25	2.85	3.00-4.00	U3								Particle size distribution
								3.00	D1								Groundwater seepage recorded at 3.00m
27/10/15						98.10	4.00										Window sample hole complete at 4.00m

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min
(1)	3.00				2.70

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL
Dates	27/10/15
Log	NAB

Sheet 1 of 1

WS305

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** **WS306** **Sheet** 1 of 1 **Job No** **14317GI**
Ground Level 103.60 m.A.O.D.	**Coordinates** 391798 m.E. 309945 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown sand)		103.20	0.40										
				Brown clayey silty fine-coarse SAND with much subangular-rounded fine-coarse quartzite and sandstone gravel (Glaciofluvial Deposits)				0.50-0.70	B1								BRE SD1 chemical suite
								1.00-1.20	B2								Particle size distribution
28/10/15		DRY C				102.40	1.20	1.20-1.40	U1								U1 - No sample recovery
				Orange/brown silty fine-coarse SAND with subrounded-rounded medium-coarse quartzite gravel (Glaciofluvial Deposits)		102.20	1.40	1.20-1.40	B3								No groundwater encountered
																	Window sample hole complete at 1.40m - unable to penetrate through gravel

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS306
Dates	28/10/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS307 **Sheet** 1 of 1 **Job No** 14317GI
Ground Level 106.80 m.A.O.D.	**Coordinates** 392344 m.E. 309972 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown slightly silty sand with rare subrounded-rounded fine-medium quartzite gravel and rootlets)		106.40	0.40	0.20	B1								
				Brown/orange slightly silty fine-medium SAND with some subrounded-rounded medium quartzite and mudstone gravel (Glaciofluvial Deposits)				0.50	B2								
								1.20-2.00	U1								
				- becoming silty very sandy fine-coarse GRAVEL at approximately 1.50m				1.50	D1								Particle size distribution
								2.00-2.90	U2								
04/11/15						103.90	2.90										'Damp' at 2.80m Window sample hole complete at 2.90m - unable to penetrate further

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS307
Dates	04/11/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS308
	Engineer		**Sheet** 1 of 1
Ground Level 103.00 m.A.O.D.	**Coordinates** 391286 m.E. 309370 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown slightly clayey silty sand with rare subrounded fine-medium quartzite gravel and rootlets)		102.70	0.30	0.20	B1								
				Light brown/orangey brown/brown silty fine-coarse SAND with much subrounded-rounded fine-coarse mudstone, sandstone and quartzite gravel (Glaciofluvial Deposits)				0.50	B2								Particle size distribution
								1.20-2.00	U1								
				Red/brown silty fine-coarse SAND with much subrounded-rounded fine-coarse quartzite gravel (Glaciofluvial Deposits)		101.70	1.30										
				- becoming light brown/grey				2.00-3.00	U2								
								2.10	D1								Particle size distribution
																	'Damp' from approximately 2.50m
				Light brown very sandy rounded fine-coarse sandstone and quartzite GRAVEL (Glaciofluvial Deposits)		100.40	2.60										
04/11/15						100.25	2.75										
				Brown/orange medium-coarse SAND (Glaciofluvial Deposits)		100.00	3.00										Window sample hole complete at 3.00m - unable to penetrate further due to gravel content 33mm pipe was installed to 2.80m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS308
Dates	04/11/15		
Log	NAB		

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Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Boring Methods	PERCUSSIVE WINDOW SAMPLER	Hole No.	**WS309**
		Engineer				Sheet	1 of 1
Ground Level	105.30 m.A.O.D.	Coordinates	m.E. m.N.			Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Brown silty fine sand with occasional medium-coarse quartzite, mudstone and sandstone gravel and roots)													
						104.70	0.60	0.50-0.70	B1								
				Brown/orange silty fine-coarse SAND with much subangular-subrounded fine-coarse quartzite, sandstone and mudstone gravel (Glaciofluvial Deposits)				1.00-1.20	B2								Particle size distribution
				- becoming red/brown with depth				1.20-2.00	U1								
								1.50	D1								BRE SD1 chemical suite
28/10/15		DRY C				103.30	2.00										No groundwater encountered
																	Window sample hole complete at 2.00m
																	Unable to sample beyond 2.00m
																	33mm pipe was installed to 1.80m
																	Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS309
Dates	28/10/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS310
	Engineer		**Sheet** 1 of 1
Ground Level 105.70 m.A.O.D.	**Coordinates** 392212 m.E. 309757 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown slightly silty sand with much subrounded-rounded medium-coarse quartzite and sandstone gravel)		105.35	0.35										
				Stiff, mottled red/brown, brown, light grey slightly sandy silty CLAY with some subangular-subrounded fine-medium quartzite, mudstone and sandstone gravel (Till)				0.50-0.70	B1								BRE SD1 chemical suite
								1.00-1.20	B2		61	8.7	12	23			
						104.40	1.30	1.20-2.00	U1								
				Brown/orange slightly silty fine-coarse SAND (Glaciofluvial Deposits)				1.50	D1								Particle size distribution
				- some subrounded-rounded fine-medium quartzite and sandstone gravel from approximately 1.50m													
				Light orange/brown slightly silty SAND/subrounded-rounded medium-coarse quartzite and sandstone GRAVEL (Glaciofluvial Deposits)		103.70	2.00	2.00-3.00	U2								
				Orange/brown slightly silty fine-medium SAND (Glaciofluvial Deposits)		103.10	2.60										
				- occasionally red/brown				3.00-3.60	U3								
				- becoming silty very sandy fine-coarse quartzite and sandstone GRAVEL at approximately 3.10m				3.10	D2								Particle size distribution
29/10/15		2.60 C				102.10	3.60										On completion groundwater standing at 2.60m
																	Window sample hole complete at 3.60m
																	33mm pipe was installed to 3.60m
																	Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS310
Dates	29/10/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS311 **Sheet** 1 of 1 **Job No** 14317GI
Ground Level 106.30 m.A.O.D.	**Coordinates** 392375 m.E. 309706 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Black/dark brown silty sand with roots)													
				Brown/orange slightly silty fine-medium SAND with much subangular-rounded fine-coarse quartzite, sandstone gravel (Glaciofluvial Deposits)		105.80	0.50	0.50-0.70	B1								California bearing ratio - 2.5kg rammer
								1.00-1.20	B2								BRE SD1 chemical suite
				Grey very sandy subangular-rounded fine-coarse mudstone GRAVEL (Glaciofluvial Deposits)		105.10	1.20	1.20-1.70	U1								
				Red/brown slightly silty SAND with some to much subangular-subrounded fine-medium quartzite and occasional mudstone gravel (Glaciofluvial Deposits)		104.95	1.35										
				Light brown, grey/brown sandy-very sandy subangular-rounded fine-coarse sandstone and quartzite GRAVEL (Glaciofluvial Deposits)		104.60	1.70	1.70-2.00	U2								
29/10/15								2.00-2.15	U3								'Damp' from approximately 2.00m
						104.15	2.15										Window sample hole complete at 2.15m, unable to progress further
																	33mm pipe was installed to 2.10m
																	Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS311
Dates	29/10/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project	FOUR ASHES, STAFFORDSHIRE	Client	WALDECK CONSULTING	Boring Methods	PERCUSSIVE WINDOW SAMPLER	Hole No.	**WS312**
		Engineer				Sheet	1 of 1
Ground Level	107.40 m.A.O.D.	Coordinates	393023 m.E.	309720 m.N.		Job No	**14317GI**

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown silty fine sand with occasional subrounded-rounded fine-medium sandstone and quartzite gravel)				0.10-0.30	B1								
								0.40-0.60	B2								
						106.90	0.50										
				Brown and orange/brown silty fine-coarse SAND with much subrounded-rounded fine-coarse quartzite gravel (Glaciofluvial Deposits)				0.80-1.00	B3								Particle size distribution
				- becoming red/brown with occasional quartzite gravel				1.20-2.70	U1								
						106.10	1.30										
				Red/brown occasionally yellow/brown clayey silty fine-medium SAND (Wildmoor Sandstone Formation)													
								2.00	D1								Particle size distribution and sedimentation 'Damp' from approximately 2.00m
								2.70-3.75	U2								
03/11/15																	
						103.65	3.75										Window sample hole complete at 3.75m - unable to progress further

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS312
Dates	03/11/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS313
	Engineer		**Sheet** 1 of 1
Ground Level 105.90 m.A.O.D.	**Coordinates** 392251 m.E. 309526 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Brown slightly silty sand)		105.50	0.40										
				Orange/brown silty fine-coarse SAND with much subrounded-rounded fine-coarse mudstone, sandstone and quartzite gravel (Glaciofluvial Deposits)				0.50-0.70	B1								Particle size distribution
								1.00-1.20	B2								
								1.20-2.00	U1								
				Stiff orange/brown silty CLAY with some subangular fine-coarse sandstone and quartzite gravel (Till)		104.65	1.25										
								1.50	D1		52	6.5	13	23			
				Orange/brown slightly silty clayey fine-medium SAND with some subangular-rounded fine-medium quartzite and mudstone gravel and much angular-subangular medium-coarse sandstone gravel between appproximately 1.80 and 1.90m (Glaciofluvial Deposits)		104.30	1.60										
				Light brown and orange/brown slightly silty fine-coarse SAND with some subrounded-rounded fine-medium quartzite and sandstone gravel (Glaciofluvial Deposits)		104.00	1.90	2.00-3.00	U2								
				Red/brown slightly silty fine-medium SAND (Wildmoor Sandstone Formation)		103.00	2.90	3.00-3.50	U3								
29/10/15		DRY C				102.40	3.50										No groundwater encountered Window sample hole complete at 3.50m 33mm pipe was installed to 3.50m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS313
Dates	29/10/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS314
	Engineer		**Sheet** 1 of 1
Ground Level 106.20 m.A.O.D.	**Coordinates** 392394 m.E. 309436 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Brown silty sand with much subangular-rounded fine-coarse sandstone gravel)													
				Brown/light brown slightly silty fine-coarse SAND and subangular-subrounded fine-coarse sandstone and quartzite GRAVEL (Glaciofluvial Deposits)		105.75	0.45	0.50-0.70	B1								BRE SD1 chemical suite
				Light orange/brown silty fine-coarse SAND with much subrounded-rounded fine-coarse quartzite and sandstone gravel (Glaciofluvial Deposits)		105.40	0.80	0.90-1.00	B2								
				Stiff/very stiff red/brown silty CLAY with occasional subrounded medium quartzite gravel (Till)		105.20	1.00	1.00-2.00	U1								Particle size distribution
				Brown/orange fine-coarse SAND with some subangular-rounded fine-medium sandstone, quartzite and mudstone gravel (Glaciofluvial Deposits)		105.05	1.15	1.10	HV1	(HV=>120)							
								2.00-3.00	U2								
				Red/brown slightly silty SAND (Wildmoor Sandstone Formation) - light brown sand between 2.85 and 2.90m		103.65	2.55										
								3.00-3.60	U3								
30/10/15		DRY C				102.60	3.60										No groundwater encountered
																	Window sample hole complete at 3.60m - unable to progress further
																	33mm pipe was installed to 3.50m
																	Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS314
Dates	30/10/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS315
	Engineer		**Sheet** 1 of 1
Ground Level 107.10 m.A.O.D.	**Coordinates** 393171 m.E. 309580 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown/black silty fine-medium sand with some subangular-rounded fine-medium quartzite gravel)				0.10-0.30	B1								
						106.60	0.50	0.50-0.60	B2								California bearing ratio - 2.5kg rammer
				Brown silty fine-coarse SAND with much subrounded-rounded fine-coarse quartzite gravel (Glaciofluvial Deposits) - becoming light brown				0.80-1.00	B3								Particle size distribution
						105.90	1.20	1.20-2.70	U1								
				Brown/orange brown slightly silty medium-coarse SAND with much subangular-rounded fine-medium occasionally coarse quartzite gravel and occasional sandstone gravel (Glaciofluvial Deposits) - becoming red/brown with depth and less gravel													
						105.20	1.90										
				Red/brown occasional light brown silty fine-medium SAND (Wildmoor Sandstone Formation)													
								2.70-4.05	U2								
				- becoming weakly cemented													'Damp' from approximately 3.00m
03/11/15																	
						103.05	4.05										Window sample hole complete at 4.05m

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1
Dates	03/11/15	WS315
Log	NAB	

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS316 **Sheet** 1 of 1 **Job No** 14317GI
Ground Level 107.90 m.A.O.D.	**Coordinates** 393014 m.E. 309464 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown/black silty fine sand with occasional subangular fine-medium sandstone gravel)		107.60	0.30	0.10-0.30	B1								
				Stiff/very stiff red/brown and mottled red/brown/ grey slightly sandy silty CLAY with rare subrounded-rounded fine-coarse quartzite gravel (Till)				0.40-0.50	B2								
								0.80-0.90	B3		91	12.4	14	25			California bearing ratio - 2.5kg rammer
								1.20-2.70	U1								
								1.25	HV1	(HV=112)							
				Brown/light brown clayey silty fine-coarse SAND and subangular-rounded fine-coarse quartzite and sandstone GRAVEL (Glaciofluvial Deposits)		106.45	1.45										
								2.00	D1								Particle size distribution and sedimentation
				Red/brown orange/brown silty fine-coarse SAND with much subangular-subrounded fine-coarse quartzite gravel (Glaciofluvial Deposits)		105.70	2.20										
				- slightly clayey and gravel occasionally rounded				2.70-3.95	U2								
								3.00	D2								Particle size distribution
				Red/brown occasionally light brown slightly silty fine-medium SAND (Wildmoor Sandstone Formation)		104.75	3.15										'Damp' at approximately 3.00m
03/11/15		DRY C				103.95	3.95										Window sample hole complete at 3.95m

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS316
Dates	03/11/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS317
	Engineer		**Sheet** 1 of 1
Ground Level 103.10 m.A.O.D.	**Coordinates** 391358 m.E. 309228 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown/black slightly clayey silty fine-medium sand with occasional subrounded fine-medium quartzite and sandstone gravel)				0.20	B1								
						102.70	0.40										
				Brown medium-coarse SAND with much subangular-rounded fine-coarse quartzite, sandstone and mudstone gravel (Glaciofluvial Deposits)				0.50	B2								
								1.20-2.00	U1								BRE SD1 chemical suite
						101.80	1.30	1.20	D1								
				Light brown and orange/brown silty fine-coarse SAND with much subangular-rounded fine-coarse quartzite and rare sandstone gravel (Glaciofluvial Deposits) - becoming orange/brown				2.00-2.70	U2								Particle size distribution
								2.00	D2								
04/11/15		DRY C				100.40	2.70										No groundwater encountered
																	Window sample hole complete at 2.70m - unable to penetrate further due to gravel
																	33mm pipe was installed to 2.50m
																	Pipework capped and protected with raised lockable cover On completion sides of window sample hole collapsed to 2.20m

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1
Dates	04/11/15	WS317
Log	NAB	

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS318
	Engineer		**Sheet** 1 of 1
Ground Level 106.40 m.A.O.D.	**Coordinates** 392249 m.E. 309091 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING						
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown/black silty fine-medium sand with some subrounded-rounded fine-medium quartzite and sandstone gravel)				0.20	B1								
						105.80	0.60										
				Red/brown silty fine-medium SAND (Wildmoor Sandstone Formation)				0.80	B2								Particle size distribution and California bearing ratio - 2.5kg rammer
								1.20-2.00	U1								BRE SD1 chemical suite
								1.20	D1								
				- slightly cemented from approximately 1.50m													
				- occasionally light brown				2.00-2.80	U2								
																	'Damp' from approximately 2.40m
03/11/15																	
						103.60	2.80										Window sample hole complete at 2.80m - unable to penetrate further
																	33mm pipe was installed to 2.80m
																	Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS318
Dates	03/11/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS319
	Engineer		**Sheet** 1 of 1
Ground Level 107.30 m.A.O.D.	**Coordinates** 392683 m.E. 309120 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown/black silty sand with occasional subangular fine-medium sandstone gravel)		107.10	0.20	0.20	B1								
				Firm mottled light brown/grey/brown, occasionally red/brown slightly sandy-sandy silty CLAY with occasional subangular fine-medium sandstone gravel (Till)				0.60	B2								
								1.20-2.00	U1								
								1.30	D1		89	20.8	19	43			
								1.35	HV1	(HV=78)							
				Light brown silty fine SAND (Wildmoor Sandstone Formation)		105.80	1.50										
				Red/brown occasionally mottled light grey/brown clayey silty fine-medium SAND (Wildmoor Sandstone Formation)		105.70	1.60										
								2.00-3.00	U2								
								2.10	D2								Particle size distribution and sedimentation
				- becoming weakly cemented													
03/11/15		DRY	C			104.30	3.00										No groundwater encountered
																	Window sample hole complete at 3.00m - unable to penetrate further 33mm pipe was installed to 3.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS319
Dates	03/11/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS320
	Engineer		**Sheet** 1 of 1
Ground Level 106.90 m.A.O.D.	**Coordinates** 392589 m.E. 309037 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown/black silty sand with occasional subrounded-rounded fine-medium quartzite and sandstone gravel)		106.70	0.20	0.20	B1								
				Brown dark brown silty fine-coarse SAND with much subrounded fine-coarse quartzite gravel (Glaciofluvial Deposits)				0.60	B2								Particle size distribution and BRE SD1 chemical suite
								1.20-2.00	U1								
				Light brown and orange-brown silty fine-coarse SAND and subrounded-rounded fine-coarse quartzite and mudstone GRAVEL (Glaciofluvial Deposits) - becoming orange/brown from approximately 1.80m		105.65	1.25										
								1.70	D1								Particle size distribution
				Brown/orange medium-coarse SAND with rare subrounded-rounded fine-medium quartzite gravel (Glaciofluvial Deposits)		105.00	1.90	2.00-2.80	U2								
03/11/15																	'Damp' from approximately 2.40m
						104.10	2.80										Window sample hole complete at 2.80m - unable to penetrate further 33mm pipe was installed to 2.80m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS320
Dates	03/11/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS321 **Sheet** 1 of 1 **Job No** 14317GI
Ground Level 106.30 m.A.O.D.	**Coordinates** 392491 m.E. 308958 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown slightly clayey silty sand with much subangular-rounded fine-coarse quartzite and occasional sandstone gravel)													
				Stiff red/brown, occasionally light brown/orange-brown/brown silty CLAY with a little subrounded-rounded fine-coarse quartzite gravel (Till)		105.80	0.50	0.50-0.70	B1								California bearing ratio - 2.5kg rammer
								1.00-1.20	B2		68	10.3	17	31			
				Brown silty fine-coarse SAND with some to much subangular-subrounded fine-coarse quartzite gravel and occasional sandstone gravel (Glaciofluvial Deposits) - becoming coarse sand		105.10	1.20	1.20-2.00	U1								
								1.50	D1								Particle size distribution
				Stiff red/brown very silty CLAY with a single subangular coarse sandstone gravel (Till)		104.40	1.90	2.00-3.00	U2								
				Orange/brown, occasionally brown slightly silty fine-coarse SAND with some subangular-rounded fine-medium quartzite gravel (Glaciofluvial Deposits)		104.20	2.10										
				Red/brown slightly silty-silty fine-medium SAND (Wildmoor Sandstone Formation) - becoming cemented		103.40	2.90	3.00-3.50	U3								
								3.50-4.00	U4								'Damp' at approximately 3.50m
30/11/15						102.30	4.00										Window sample hole complete at 4.00m 33mm pipe was installed to 4.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS321
Dates	30/11/15		
Log	NAB		

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Project FOUR ASHES, STAFFORDSHIRE	Client WALDECK CONSULTING Engineer	Boring Methods PERCUSSIVE WINDOW SAMPLER	Hole No. **WS322** Sheet 1 of 1 Job No **14317GI**
Ground Level 105.90 m.A.O.D.	Coordinates 392228 m.E. 308937 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	w %	w_P %	w_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown/black silty fine-medium sand with some subrounded fine-medium quartzite and sandstone gravel)		105.50	0.40	0.20	B1								
				Brown silty fine-coarse SAND with much subangular-rounded fine-coarse quartzite gravel (Glaciofluvial Deposits)				0.60	B2								Particle size distribution and BRE SD1 chemical suite
				- becoming very stiff brown silty very sandy clay				1.00-2.00 1.00	U1 HV1	(HV=>120)							
				Light brown/brown slightly silty fine-coarse SAND with some subangular-rounded quartzite and sandstone gravel and occasional mudstone (Glaciofluvial Deposits)		104.75	1.15										
				Very stiff brown silty CLAY with occasional subrounded fine-medium quartzite gravel (Glaciofluvial Deposits)		103.95	1.95	2.00-3.00 2.00	U2 HV2	(HV=>120)							
				Brown and grey/brown slightly clayey slightly silty SAND with subangular fine-medium quartzite and sandstone gravel (Glaciofluvial Deposits)		103.70	2.20										
				Orange/brown silty SAND with much subangular-rounded fine-coarse quartzite and sandstone gravel (Glaciofluvial Deposits)		103.30	2.60										
03/11/15		DRY C				102.90	3.00										No groundwater encountered Window sample hole complete at 3.00m - unable to progress further 33mm pipe was installed to 3.00m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N=N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1
Dates	03/11/15	WS322
Log	NAB	

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Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS323
	Engineer		**Sheet** 1 of 1
Ground Level 102.90 m.A.O.D.	**Coordinates** 391460 m.E. 308815 m.N.		**Job No** 14317GI

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	C_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown silty very clayey sand with occasional subrounded fine-coarse quartzite, mudstone and sandstone gravel)		102.60	0.30	0.20	B1								
				Brown/orange slightly silty fine-coarse SAND with much subrounded-rounded fine-coarse quartzite and sandstone gravel (Glaciofluvial Deposits)				0.50	B2								
								1.20-2.00	U1								BRE SD1 chemical suite
								1.20	D1								
																	Particle size distribution
				- becoming silty at approximately 1.90m				1.90	D2								
								2.00-2.50	U2								Particle size distribution
								2.00-2.50	D3								'Damp' from approximately 2.00m
04/11/15						100.50	2.40										
				Brown/orange slightly silty coarse SAND and subangular medium-coarse sandstone GRAVEL (Glaciofluvial Deposits)		100.40	2.50										Window sample hole complete at 2.50m - unable to progress further

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS323
Dates	04/11/15		
Log	NAB		

RSA GEOTECHNICS LTD

(01449) 723723

Project FOUR ASHES, STAFFORDSHIRE	**Client** WALDECK CONSULTING **Engineer**	**Boring Methods** PERCUSSIVE WINDOW SAMPLER	**Hole No.** WS324 **Sheet** 1 of 1 **Job No** 14317GI
Ground Level 102.90 m.A.O.D.	**Coordinates** 391517 m.E. 308715 m.N.		

WATER				STRATA				SAMPLING/IN SITU TEST			LAB TESTING							
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level m.A.O.D.	Depth m	Depth m	Type & No.	Blows/ Strength	% <425	W %	W_P %	W_L %	ρ Mg/m^3	c_u kN/m^2	OTHER TESTS AND NOTES
				Topsoil (Dark brown/black silty very sandy clay with occasional subangular-subrounded medium quartzite gravel)		102.50	0.40	0.20	B1								
				Brown/orange silty fine-medium SAND with some subrounded-rounded fine-medium quartzite and sandstone gravel (Glaciofluvial Deposits) - occasional mudstone gravel				0.50	B2								
								1.20-1.80	U1								
								1.50	D1								Particle size distribution
04/11/15		DRY C				101.10	1.80										No groundwater encountered Window sample hole complete at 1.80m - unable to penetrate further 33mm pipe was installed to 1.80m Pipework capped and protected with raised lockable cover

Water Level observations during boring, depths below GL.					
Strike	Depth Obs.	Depth after 5min	10 min	15 min	20 min

WATER
- ▼ 1 First Strike
- ▽ 2 Subsequent Strike
- N - Overnight Depth
- C- Completion Depth
- S Seepage not rising

SAMPLE KEY
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- U Undisturbed sample
- P Piston sample

TEST KEY
- S Standard penetration test
- C Cone penetration test
- K Permeability test
- V In situ vane test

BLOWS / STRENGTH
- N = N value
- 26/150 blows, for 150mm, drive after seating
- 26*, blows for part or whole of seating drive only
- (26) U sample blow count
- V = Vane Strength - kN/m^2

Fieldwork By	GEL	Sheet 1 of 1	WS324
Dates	04/11/15		
Log	NAB		

RSA GEOTECHNICS LTD (01449) 723723

APPENDIX 3
LABORATORY SOIL ANALYTICAL DATA

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781

Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	2nd November, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 4
Location :	Four Ashes
Date samples received :	27th October, 2015
Status :	Final report
Issue :	1

Twelve samples were received for analysis on 27th October, 2015 of which nine were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Paul Lee-Boden BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	66-67	69-72	73-76	77-79	82-83	84-85	86-87				LOD/LOR	Units	Method No.
Sample ID	BH208A	BH210	BH102	TP401	TP413	WS304	WS304						
Depth	0.30-.040	0.40-0.60	6.00-6.30	0.40-0.50	0.40	0.80-.090	2.80-2.90						
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	26/10/2015	26/10/2015	26/10/2015	26/10/2015	26/10/2015	26/10/2015	26/10/2015						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	4	4	4	4	4	4	4						
Date of Receipt	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015						
Arsenic #	4.9	4.1	2.6	3.0	7.4	3.5	1.5				<0.5	mg/kg	TM30/PM15
Beryllium	0.6	0.5	0.9	<0.5	1.0	<0.5	<0.5				<0.5	mg/kg	TM30/PM15
Cadmium #	0.2	<0.1	<0.1	<0.1	0.3	<0.1	<0.1				<0.1	mg/kg	TM30/PM15
Chromium #	35.6	70.1	47.7	37.9	51.1	46.1	110.2				<0.5	mg/kg	TM30/PM15
Copper #	13	13	5	8	30	7	7				<1	mg/kg	TM30/PM15
Lead #	30	12	<5	16	60	9	<5				<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1				<0.1	mg/kg	TM30/PM15
Nickel #	12.8	11.8	8.9	4.3	15.7	7.7	11.6				<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	<1	<1	<1	<1				<1	mg/kg	TM30/PM15
Vanadium	22	16	15	9	20	16	9				<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.3	0.3	0.5	0.3	0.6	0.2	0.5				<0.1	mg/kg	TM74/PM32
Zinc #	58	30	13	12	84	14	14				<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05				<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	<0.03				<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	<0.03				<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06				<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02				<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07				<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04				<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6				<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05				<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02				<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	118	108	104	118	114	120	102				<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	<2	<2	<2	<2	-	-				<2	ug/kg	TM15/PM10
Benzene #	-	<3	<3	<3	<3	-	-				<3	ug/kg	TM15/PM10
Toluene #	-	<3	<3	<3	<3	-	-				<3	ug/kg	TM15/PM10
Ethylbenzene #	-	<3	<3	<3	<3	-	-				<3	ug/kg	TM15/PM10
p/m-Xylene #	-	<5	<5	<5	<5	-	-				<5	ug/kg	TM15/PM10
o-Xylene #	-	<3	<3	<3	<3	-	-				<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	107	109	94	101	-	-				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	117	139	95	101	-	-				<0	%	TM15/PM10
2,3,6 - TBA	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	66-67	69-72	73-76	77-79	82-83	84-85	86-87				LOD/LOR	Units	Method No.
Sample ID	BH208A	BH210	BH102	TP401	TP413	WS304	WS304						
Depth	0.30-.040	0.40-0.60	6.00-6.30	0.40-0.50	0.40	0.80-.090	2.80-2.90						
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	26/10/2015	26/10/2015	26/10/2015	26/10/2015	26/10/2015	26/10/2015	26/10/2015						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	4	4	4	4	4	4	4						
Date of Receipt	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015						
2,4 - D	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
2,4 - DB	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
2,4,5 - T	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
4 - CPA	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Benazolin	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Bentazone	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Bromoxynil	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Clopyralid	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Dicamba	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Dichloroprop	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Diclofop	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Fenoprop	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Flamprop	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Flamprop – isopropyl	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Ioxynil	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
MCPA	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
MCPB	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Mecoprop	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Pentachlorophenol	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Picloram	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
Triclopyr	-	<0.1	-	-	-	-	-				<0.1	mg/kg	TM42/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	0.2	<0.1	<0.1	0.2	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4	<4				<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM16
>C21-C35 #	<7	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19	<19	<19				<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4	<4	<4	<4	<4				<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM16
>EC21-EC35	<7	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	<19	<19	<19	<19	<19	<19				<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38	<38	<38				<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	-	-	-	-	<5	<5				<5	ug/kg	TM31/PM12

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	66-67	69-72	73-76	77-79	82-83	84-85	86-87				LOD/LOR	Units	Method No.
Sample ID	BH208A	BH210	BH102	TP401	TP413	WS304	WS304						
Depth	0.30-.040	0.40-0.60	6.00-6.30	0.40-0.50	0.40	0.80-.090	2.80-2.90						
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	26/10/2015	26/10/2015	26/10/2015	26/10/2015	26/10/2015	26/10/2015	26/10/2015						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	4	4	4	4	4	4	4						
Date of Receipt	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015						
Benzene #	<5	-	-	-	-	<5	<5				<5	ug/kg	TM31/PM12
Toluene #	<5	-	-	-	-	<5	<5				<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	-	-	-	-	<5	<5				<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	-	-	-	-	<5	<5				<5	ug/kg	TM31/PM12
o-Xylene #	<5	-	-	-	-	<5	<5				<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	0.16	<0.15	<0.15				<0.15	mg/kg	TM26/PM21
Natural Moisture Content	14.2	7.2	14.8	13.1	20.3	7.7	6.8				<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3				<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0107	0.0189	0.0078	<0.0015	<0.0015	0.0087	0.0059				<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	<0.5	<0.5	0.7	0.6	<0.5	<0.5				<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	-	-	-	-	-	0.09				<0.02	%	TM21/PM24
Pesticide Scan MS	-	ND	-	-	-	-	-					None	TM111/PM8
pH #	5.32	6.31	5.00	5.98	5.68	7.23	6.64				<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

SVOC Report : **Solid**

J E Sample No.	69-72	73-76											
Sample ID	BH210	BH102											
Depth	0.40-0.60	6.00-6.30									Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J	V J											
Sample Date	26/10/2015	26/10/2015											
Sample Type	Soil	Soil											
Batch Number	4	4											
Date of Receipt	27/10/2015	27/10/2015									LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10	<10									<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10									<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10									<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10									<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10									<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10									<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10									<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10									<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10									<10	ug/kg	TM16/PM8
Phenol #	<10	<10									<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10	<10									<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	<10	<10									<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100	<100									<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100	<100									<100	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10	<10									<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10									<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10									<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10	<10									<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10									<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10									<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
Azobenzene	<10	<10									<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10									<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10									<10	ug/kg	TM16/PM8
Carbazole	<10	<10									<10	ug/kg	TM16/PM8
Dibenzofuran #	<10	<10									<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10	<10									<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10									<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10									<10	ug/kg	TM16/PM8
Isophorone #	<10	<10									<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10	<10									<10	ug/kg	TM16/PM8
Nitrobenzene #	<10	<10									<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	104	126									<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	110	114									<0	%	TM16/PM8

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Solid**

J E Sample No.	69-72	73-76	77-79	82-83								
Sample ID	BH210	BH102	TP401	TP413								
Depth	0.40-0.60	6.00-6.30	0.40-0.50	0.40								
COC No / misc												
Containers	V J	V J	V J	V J								
Sample Date	26/10/2015	26/10/2015	26/10/2015	26/10/2015								
Sample Type	Soil	Soil	Soil	Soil								
Batch Number	4	4	4	4								
Date of Receipt	27/10/2015	27/10/2015	27/10/2015	27/10/2015								
VOC MS												
Dichlorodifluoromethane	<2	<2	<2	<2							<2	ug/kg
Methyl Tertiary Butyl Ether #	<2	<2	<2	<2							<2	ug/kg
Chloromethane #	<3	<3	<3	<3							<3	ug/kg
Vinyl Chloride	<2	<2	<2	<2							<2	ug/kg
Bromomethane	<1	<1	<1	<1							<1	ug/kg
Chloroethane #	<2	<2	<2	<2							<2	ug/kg
Trichlorofluoromethane #	<2	<2	<2	<2							<2	ug/kg
1,1-Dichloroethene (1,1 DCE) #	<6	<6	<6	<6							<6	ug/kg
Dichloromethane (DCM) #	<7	<7	<7	<7							<7	ug/kg
trans-1-2-Dichloroethene #	<3	<3	<3	<3							<3	ug/kg
1,1-Dichloroethane #	<3	<3	<3	<3							<3	ug/kg
cis-1-2-Dichloroethene #	<3	<3	<3	<3							<3	ug/kg
2,2-Dichloropropane	<4	<4	<4	<4							<4	ug/kg
Bromochloromethane #	<3	<3	<3	<3							<3	ug/kg
Chloroform #	<3	<3	<3	<3							<3	ug/kg
1,1,1-Trichloroethane #	<3	<3	<3	<3							<3	ug/kg
1,1-Dichloropropene #	<3	<3	<3	<3							<3	ug/kg
Carbon tetrachloride #	<4	<4	<4	<4							<4	ug/kg
1,2-Dichloroethane #	<4	<4	<4	<4							<4	ug/kg
Benzene #	<3	<3	<3	<3							<3	ug/kg
Trichloroethene (TCE) #	<3	<3	<3	<3							<3	ug/kg
1,2-Dichloropropane #	<6	<6	<6	<6							<6	ug/kg
Dibromomethane #	<3	<3	<3	<3							<3	ug/kg
Bromodichloromethane #	<3	<3	<3	<3							<3	ug/kg
cis-1-3-Dichloropropene	<4	<4	<4	<4							<4	ug/kg
Toluene #	<3	<3	<3	<3							<3	ug/kg
trans-1-3-Dichloropropene	<3	<3	<3	<3							<3	ug/kg
1,1,2-Trichloroethane #	<3	<3	<3	<3							<3	ug/kg
Tetrachloroethene (PCE) #	<3	<3	<3	<3							<3	ug/kg
1,3-Dichloropropane #	<3	<3	<3	<3							<3	ug/kg
Dibromochloromethane #	<3	<3	<3	<3							<3	ug/kg
1,2-Dibromoethane #	<3	<3	<3	<3							<3	ug/kg
Chlorobenzene #	<3	<3	<3	<3							<3	ug/kg
1,1,1,2-Tetrachloroethane	<3	<3	<3	<3							<3	ug/kg
Ethylbenzene #	<3	<3	<3	<3							<3	ug/kg
p/m-Xylene #	<5	<5	<5	<5							<5	ug/kg
o-Xylene #	<3	<3	<3	<3							<3	ug/kg
Styrene	<3	<3	<3	<3							<3	ug/kg
Bromoform	<3	<3	<3	<3							<3	ug/kg
Isopropylbenzene #	<3	<3	<3	<3							<3	ug/kg
1,1,2,2-Tetrachloroethane #	<3	<3	<3	<3							<3	ug/kg
Bromobenzene	<2	<2	<2	<2							<2	ug/kg
1,2,3-Trichloropropane #	<4	<4	<4	<4							<4	ug/kg
Propylbenzene #	<4	<4	<4	<4							<4	ug/kg
2-Chlorotoluene	<3	<3	<3	<3							<3	ug/kg
1,3,5-Trimethylbenzene #	<3	<3	<3	<3							<3	ug/kg
4-Chlorotoluene	<3	<3	<3	<3							<3	ug/kg
tert-Butylbenzene #	<5	<5	<5	<5							<5	ug/kg
1,2,4-Trimethylbenzene #	<6	<6	<6	<6							<6	ug/kg
sec-Butylbenzene #	<4	<4	<4	<4							<4	ug/kg
4-Isopropyltoluene #	<4	<4	<4	<4							<4	ug/kg
1,3-Dichlorobenzene #	<4	<4	<4	<4							<4	ug/kg
1,4-Dichlorobenzene #	<4	<4	<4	<4							<4	ug/kg
n-Butylbenzene #	<4	<4	<4	<4							<4	ug/kg
1,2-Dichlorobenzene #	<4	<4	<4	<4							<4	ug/kg
1,2-Dibromo-3-chloropropane #	<4	<4	<4	<4							<4	ug/kg
1,2,4-Trichlorobenzene #	<7	<7	<7	<7							<7	ug/kg
Hexachlorobutadiene	<4	<4	<4	<4							<4	ug/kg
Naphthalene	<27	<27	<27	<27							<27	ug/kg
1,2,3-Trichlorobenzene #	<7	<7	<7	<7							<7	ug/kg
Surrogate Recovery Toluene D8	107	109	94	101							<0	%
Surrogate Recovery 4-Bromofluorobenzene	117	139	95	101							<0	%

Please see attached notes for all abbreviations and acronyms

LOD/LOR	Units	Method No.

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

Note:

Analysis was carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Any questionable sample will automatically be assumed to have breached the Waste Limit and further testing may be required.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	4	BH208A	0.30-.040	67	27/10/2015	**Mass of Dry Sample**	47.6 (g)
					29/10/2015	**General Description (Bulk Analysis)**	soil/stones
					29/10/2015	**Asbestos Containing Material**	None
					29/10/2015	**Asbestos Containing Material (2)**	None
					29/10/2015	**Asbestos Screen**	NAD
					29/10/2015	**Asbestos Screen (2)**	NAD
					29/10/2015	**Asbestos Level**	NAD
					29/10/2015	**Waste Limit**	<0.1%
15/15000	4	BH210	0.20-.030	68	27/10/2015	**Mass of Dry Sample**	46.1 (g)
					29/10/2015	**General Description (Bulk Analysis)**	soil/stones
					29/10/2015	**Asbestos Containing Material**	None
					29/10/2015	**Asbestos Containing Material (2)**	None
					29/10/2015	**Asbestos Screen**	NAD
					29/10/2015	**Asbestos Screen (2)**	NAD
					29/10/2015	**Asbestos Level**	NAD
					29/10/2015	**Waste Limit**	<0.1%
15/15000	4	TP401	0.40-0.50	79	27/10/2015	**Mass of Dry Sample**	48.0 (g)
					29/10/2015	**General Description (Bulk Analysis)**	soil/stones
					29/10/2015	**Asbestos Containing Material**	None
					29/10/2015	**Asbestos Containing Material (2)**	None
					29/10/2015	**Asbestos Screen**	NAD
					29/10/2015	**Asbestos Screen (2)**	NAD
					29/10/2015	**Asbestos Level**	NAD
					29/10/2015	**Waste Limit**	<0.1%
15/15000	4	TP413	0.20-0.30	81	27/10/2015	**Mass of Dry Sample**	44.7 (g)
					29/10/2015	**General Description (Bulk Analysis)**	soil/stones
					29/10/2015	**Asbestos Containing Material**	None
					29/10/2015	**Asbestos Containing Material (2)**	None
					29/10/2015	**Asbestos Screen**	NAD
					29/10/2015	**Asbestos Screen (2)**	NAD
					29/10/2015	**Asbestos Level**	NAD
					29/10/2015	**Waste Limit**	<0.1%
15/15000	4	WS304	0.80-.090	85	27/10/2015	**Mass of Dry Sample**	51.5 (g)
					29/10/2015	**General Description (Bulk Analysis)**	soil/stones
					29/10/2015	**Asbestos Containing Material**	None

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	4	WS304	0.80-.090	85	29/10/2015	**Asbestos Containing Material (2)**	None
					29/10/2015	**Asbestos Screen**	NAD
					29/10/2015	**Asbestos Screen (2)**	NAD
					29/10/2015	**Asbestos Level**	NAD
					29/10/2015	**Waste Limit**	<0.1%

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes
TM42	Modified US EPA method 8270. Pesticides and herbicdes by GC-MS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes
TM111	SVOC GC-MS with Retention Locking Software using an MS library of over 1000 compounds.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	5th January, 2016
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 5 Schedule C
Location :	Four Ashes
Date samples received :	28th October, 2015
Status :	Final report
Issue :	1

Thirteen samples were received for analysis on 28th October, 2015 of which one were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Simon Gomery BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	91-93												
Sample ID	BH112_1.10-1.20												
Depth	1.10-1.20												
COC No / misc													
Containers	V J												
Sample Date	27/10/2015												
Sample Type	Soil												
Batch Number	5												
Date of Receipt	28/10/2015												
Asbestos PCOM Quantification*	0.008											<0.001	mass %	Subcontracted

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 15/15000						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
Subcontracted	Subcontracted analysis, sent to an ISO 17025 accredited laboratory where possible.					AR	

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	3rd November, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 5
Location :	Four Ashes
Date samples received :	28th October, 2015
Status :	Final report
Issue :	1

Thirteen samples were received for analysis on 28th October, 2015 of which nine were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Paul Lee-Boden BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	98-99	100-102	103-104	105-106	107	108-109	112-113	114-115			LOD/LOR	Units	Method No.
Sample ID	BH112	BH112	BH210	BH215	BH215	WS301	WS303	BH209					
Depth	8.10-8.20	2.50-2.60	2.50-3.00	0.50-0.90	0.10-0.20	0.40-0.70	0.50	0.50					
COC No / misc													
Containers	V J	V J	V J	V J	J	V J	V J	V J					
Sample Date	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	5	5	5	5	5	5	5	5					
Date of Receipt	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015					
Arsenic #	0.7	9.5	3.1	1.6	5.1	15.6	12.3	4.5			<0.5	mg/kg	TM30/PM15
Beryllium	1.0	1.2	0.6	<0.5	<0.5	0.5	0.8	<0.5			<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	2.3	<0.1	<0.1	0.2	<0.1	<0.1	0.3			<0.1	mg/kg	TM30/PM15
Chromium #	56.3	42.2	65.6	48.9	43.4	52.2	59.2	61.8			<0.5	mg/kg	TM30/PM15
Copper #	5	66$_{AA}$	4	5	13	8	5	11			<1	mg/kg	TM30/PM15
Lead #	<5	191	16	8	72	8	17	34			<5	mg/kg	TM30/PM15
Mercury #	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM30/PM15
Nickel #	9.3	24.9	6.6	7.4	10.9	8.8	11.9	13.9			<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	<1	<1	<1	<1	<1			<1	mg/kg	TM30/PM15
Vanadium	11	23	14	12	19	24	28	24			<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.5	4.2	0.3	0.4	0.8	<0.1	0.6	0.7			<0.1	mg/kg	TM74/PM32
Zinc #	10	408	10	14	56	18	34	73			<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	0.08	<0.03	<0.03	0.15	<0.03	<0.03	0.03			<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	0.22	<0.03	<0.03	0.29	<0.03	<0.03	0.09			<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	0.19	<0.03	<0.03	0.25	<0.03	<0.03	0.08			<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	0.14	<0.06	<0.06	0.18	<0.06	<0.06	0.07			<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	0.13	<0.02	<0.02	0.23	<0.02	<0.02	0.06			<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	0.23	<0.07	<0.07	0.44	<0.07	<0.07	0.09			<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	0.13	<0.04	<0.04	0.20	<0.04	<0.04	0.06			<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	0.10	<0.04	<0.04	0.18	<0.04	<0.04	0.05			<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	0.08	<0.04	<0.04	0.15	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	1.3	<0.6	<0.6	2.1	<0.6	<0.6	<0.6			<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	0.17	<0.05	<0.05	0.32	<0.05	<0.05	0.06			<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	0.06	<0.02	<0.02	0.12	<0.02	<0.02	0.03			<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	104	101	96	100	108	99	99	105			<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	<2	-	-	-	-	-	-			<2	ug/kg	TM15/PM10
Benzene #	-	<3	-	-	-	-	-	-			<3	ug/kg	TM15/PM10
Toluene #	-	<3	-	-	-	-	-	-			<3	ug/kg	TM15/PM10
Ethylbenzene #	-	<3	-	-	-	-	-	-			<3	ug/kg	TM15/PM10
p/m-Xylene #	-	<5	-	-	-	-	-	-			<5	ug/kg	TM15/PM10
o-Xylene #	-	<3	-	-	-	-	-	-			<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	74	-	-	-	-	-	-			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	70	-	-	-	-	-	-			<0	%	TM15/PM10
2,3,6 - TBA	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	98-99	100-102	103-104	105-106	107	108-109	112-113	114-115			LOD/LOR	Units	Method No.
Sample ID	BH112	BH112	BH210	BH215	BH215	WS301	WS303	BH209					
Depth	8.10-8.20	2.50-2.60	2.50-3.00	0.50-0.90	0.10-0.20	0.40-0.70	0.50	0.50					
COC No / misc													
Containers	V J	V J	V J	V J	J	V J	V J	V J					
Sample Date	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	5	5	5	5	5	5	5	5					
Date of Receipt	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015					
2,4 - D	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
2,4 - DB	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
2,4,5 - T	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
4 - CPA	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Benazolin	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Bentazone	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Bromoxynil	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Clopyralid	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Dicamba	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Dichloroprop	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Diclofop	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Fenoprop	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Flamprop	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Flamprop – isopropyl	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Ioxynil	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
MCPA	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
MCPB	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Mecoprop	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Pentachlorophenol	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Picloram	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
Triclopyr	-	-	-	-	-	-	<0.1	-			<0.1	mg/kg	TM42/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	0.7	<0.1	0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	18.1	0.8	0.6	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4	<4	<4			<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM16
>C21-C35 #	<7	20	<7	<7	12	<7	<7	<7			<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	20	19	<19	<19	<19	<19	<19			<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4	<4	<4	<4	<4	<4			<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM16
>EC21-EC35	<7	56	<7	<7	37	<7	<7	<7			<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	56	<19	<19	37	<19	<19	<19			<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	76	<38	<38	<38	<38	<38	<38			<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	-	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	98-99	100-102	103-104	105-106	107	108-109	112-113	114-115			LOD/LOR	Units	Method No.
Sample ID	BH112	BH112	BH210	BH215	BH215	WS301	WS303	BH209					
Depth	8.10-8.20	2.50-2.60	2.50-3.00	0.50-0.90	0.10-0.20	0.40-0.70	0.50	0.50					
COC No / misc													
Containers	V J	V J	V J	V J	J	V J	V J	V J					
Sample Date	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015	27/10/2015					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	5	5	5	5	5	5	5	5					
Date of Receipt	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015					
Benzene #	<5	-	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
Toluene #	<5	-	<5	6	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	-	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	-	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
o-Xylene #	<5	-	251	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
PCB 28 #	-	<5	-	-	-	-	-	-			<5	ug/kg	TM17/PM8
PCB 52 #	-	<5	-	-	-	-	-	-			<5	ug/kg	TM17/PM8
PCB 101 #	-	<5	-	-	-	-	-	-			<5	ug/kg	TM17/PM8
PCB 118 #	-	<5	-	-	-	-	-	-			<5	ug/kg	TM17/PM8
PCB 138 #	-	<5	-	-	-	-	-	-			<5	ug/kg	TM17/PM8
PCB 153 #	-	<5	-	-	-	-	-	-			<5	ug/kg	TM17/PM8
PCB 180 #	-	<5	-	-	-	-	-	-			<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	<35	-	-	-	-	-	-			<35	ug/kg	TM17/PM8
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15			<0.15	mg/kg	TM26/PM21
Natural Moisture Content	10.1	26.7	8.9	13.2	20.3	10.0	12.0	11.3			<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0052	0.0495	0.0057	0.0107	<0.0015	0.0054	<0.0015	<0.0015			<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	-	-	-	-	-	-	1.49			<0.02	%	TM21/PM24
Pesticide Scan MS	-	-	-	-	-	-	ND	-				None	TM111/PM8
pH #	8.21	7.35	7.18	4.95	5.47	7.12	6.86	6.76			<0.01	pH units	TM73/PM11

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

SVOC Report : **Solid**

J E Sample No.	100-102												
Sample ID	BH112												
Depth	2.50-2.60										Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J												
Sample Date	27/10/2015												
Sample Type	Soil												
Batch Number	5												
Date of Receipt	28/10/2015										LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10										<10	ug/kg	TM16/PM8
2-Methylphenol	<10										<10	ug/kg	TM16/PM8
2-Nitrophenol	<10										<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10										<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10										<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10										<10	ug/kg	TM16/PM8
4-Methylphenol	<10										<10	ug/kg	TM16/PM8
4-Nitrophenol	<10										<10	ug/kg	TM16/PM8
Pentachlorophenol	<10										<10	ug/kg	TM16/PM8
Phenol #	<10										<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10										<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	<10										<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	232										<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100										<100	ug/kg	TM16/PM8
Diethyl phthalate	<100										<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100										<100	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10										<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
2-Nitroaniline	<10										<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
3-Nitroaniline	<10										<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10										<10	ug/kg	TM16/PM8
4-Chloroaniline	<10										<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10										<10	ug/kg	TM16/PM8
4-Nitroaniline	<10										<10	ug/kg	TM16/PM8
Azobenzene	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10										<10	ug/kg	TM16/PM8
Carbazole	16										<10	ug/kg	TM16/PM8
Dibenzofuran #	<10										<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10										<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10										<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10										<10	ug/kg	TM16/PM8
Hexachloroethane	<10										<10	ug/kg	TM16/PM8
Isophorone #	<10										<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10										<10	ug/kg	TM16/PM8
Nitrobenzene #	<10										<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	78										<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	101										<0	%	TM16/PM8

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Solid**

J E Sample No.	100-102												
Sample ID	BH112												
Depth	2.50-2.60												
COC No / misc													
Containers	V J												
Sample Date	27/10/2015												
Sample Type	Soil												
Batch Number	5												
Date of Receipt	28/10/2015												

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2										<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2										<2	ug/kg	TM15/PM10
Chloromethane #	<3										<3	ug/kg	TM15/PM10
Vinyl Chloride	<2										<2	ug/kg	TM15/PM10
Bromomethane	<1										<1	ug/kg	TM15/PM10
Chloroethane #	<2										<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2										<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6										<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7										<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3										<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3										<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3										<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4										<4	ug/kg	TM15/PM10
Bromochloromethane #	<3										<3	ug/kg	TM15/PM10
Chloroform #	<3										<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3										<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3										<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4										<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4										<4	ug/kg	TM15/PM10
Benzene #	<3										<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3										<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6										<6	ug/kg	TM15/PM10
Dibromomethane #	<3										<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3										<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4										<4	ug/kg	TM15/PM10
Toluene #	<3										<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3										<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3										<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3										<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3										<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3										<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3										<3	ug/kg	TM15/PM10
Chlorobenzene #	<3										<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3										<3	ug/kg	TM15/PM10
Ethylbenzene #	<3										<3	ug/kg	TM15/PM10
p/m-Xylene #	<5										<5	ug/kg	TM15/PM10
o-Xylene #	<3										<3	ug/kg	TM15/PM10
Styrene	<3										<3	ug/kg	TM15/PM10
Bromoform	<3										<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3										<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3										<3	ug/kg	TM15/PM10
Bromobenzene	<2										<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4										<4	ug/kg	TM15/PM10
Propylbenzene #	<4										<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	47										<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5										<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	129										<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4										<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4										<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4										<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4										<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7										<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4										<4	ug/kg	TM15/PM10
Naphthalene	<27										<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7										<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	74										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	70										<0	%	TM15/PM10

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

Note:

Analysis was carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Any questionable sample will automatically be assumed to have breached the Waste Limit and further testing may be required.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	5	BH112	1.10-1.20	92	29/10/2015	**Mass of Dry Sample**	45.0 (g)
					30/10/2015	**General Description (Bulk Analysis)**	Soil/Stone
					30/10/2015	**Asbestos Containing Material**	Fibre Bundles
					30/10/2015	**Asbestos Screen**	Amosite
					30/10/2015	**Asbestos Level**	Quantifiable
					30/10/2015	**Waste Limit**	<0.1%
15/15000	5	BH210	2.50-3.00	104	29/10/2015	**Mass of Dry Sample**	47.4 (g)
					30/10/2015	**General Description (Bulk Analysis)**	Sand/Stone
					30/10/2015	**Asbestos Containing Material**	None
					30/10/2015	**Asbestos Containing Material (2)**	None
					30/10/2015	**Asbestos Screen**	NAD
					30/10/2015	**Asbestos Screen (2)**	NAD
					30/10/2015	**Asbestos Level**	NAD
					30/10/2015	**Waste Limit**	<0.1%
15/15000	5	BH215	0.10-0.20	107	29/10/2015	**Mass of Dry Sample**	41.5 (g)
					30/10/2015	**General Description (Bulk Analysis)**	Soil/Stone
					30/10/2015	**Asbestos Containing Material**	None
					30/10/2015	**Asbestos Containing Material (2)**	None
					30/10/2015	**Asbestos Screen**	NAD
					30/10/2015	**Asbestos Screen (2)**	NAD
					30/10/2015	**Asbestos Level**	NAD
					30/10/2015	**Waste Limit**	<0.1%
15/15000	5	WS301	0.40-0.70	109	29/10/2015	**Mass of Dry Sample**	49.6 (g)
					30/10/2015	**General Description (Bulk Analysis)**	soil-stones
					30/10/2015	**Asbestos Containing Material**	None
					30/10/2015	**Asbestos Containing Material (2)**	None
					30/10/2015	**Asbestos Screen**	NAD
					30/10/2015	**Asbestos Screen (2)**	NAD
					30/10/2015	**Asbestos Level**	NAD
					30/10/2015	**Waste Limit**	<0.1%
15/15000	5	WS303	0.50	113	29/10/2015	**Mass of Dry Sample**	52.9 (g)
					30/10/2015	**General Description (Bulk Analysis)**	soil-stones
					30/10/2015	**Asbestos Containing Material**	None
					30/10/2015	**Asbestos Containing Material (2)**	None
					30/10/2015	**Asbestos Screen**	NAD

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	5	WS303	0.50	113	30/10/2015	**Asbestos Screen (2)**	NAD
					30/10/2015	**Asbestos Level**	NAD
					30/10/2015	**Waste Limit**	<0.1%
15/15000	5	BH209	0.50	115	29/10/2015	**Mass of Dry Sample**	51.8 (g)
					30/10/2015	**General Description (Bulk Analysis)**	soil-stones
					30/10/2015	**Asbestos Containing Material**	None
					30/10/2015	**Asbestos Containing Material (2)**	None
					30/10/2015	**Asbestos Screen**	NAD
					30/10/2015	**Asbestos Screen (2)**	NAD
					30/10/2015	**Asbestos Level**	NAD
					30/10/2015	**Waste Limit**	<0.1%

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 15/15000						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes
TM42	Modified US EPA method 8270. Pesticides and herbicdes by GC-MS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes
TM111	SVOC GC-MS with Retention Locking Software using an MS library of over 1000 compounds.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	5th November, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 7
Location :	Four Ashes
Date samples received :	30th October, 2015
Status :	Final report
Issue :	1

Nineteen samples were received for analysis on 30th October, 2015 of which eighteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Paul Lee-Boden BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	144-145	146-147	148-149	150-151	152-153	155-156	157-158	159-160	161	164-165	LOD/LOR	Units	Method No.
Sample ID	TP415	TP412	TP412	TP407	BH221	TP416	TP419	TP419	BH108	BH215			
Depth	0.1-0.3	0.1-0.3	2.7-3.0	0.6-1.0	0.6-.0.7	0.6-0.8	0.1-0.2	1.3-1.5	1.1-1.2	6.9-7.0			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	J	V J			
Sample Date	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	7	7	7	7	7	7	7	7	7	7			
Date of Receipt	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015			
Arsenic #	4.6	5.6	1.3	5.8	4.6	1.8	7.7	1.5	4.2	1.3	<0.5	mg/kg	TM30/PM15
Beryllium	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	0.8	<0.5	0.8	0.5	<0.5	mg/kg	TM30/PM15
Cadmium #	0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Chromium #	72.1	52.5	37.4	67.7	75.0	35.5	75.4	59.2	61.6	41.4	<0.5	mg/kg	TM30/PM15
Copper #	11	12	5	19	8	5	33	5	15	3	<1	mg/kg	TM30/PM15
Lead #	22	29	<5	5	7	<5	98	6	25	<5	<5	mg/kg	TM30/PM15
Mercury #	<0.1	0.1	<0.1	0.1	0.2	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Nickel #	12.1	11.8	7.2	36.8	15.7	8.9	14.8	6.5	21.9	6.0	<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	1	<1	<1	<1	<1	1	<1	<1	mg/kg	TM30/PM15
Vanadium	17	21	14	34	25	12	23	11	30	11	<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.4	0.6	0.3	0.4	0.3	0.1	0.6	0.4	0.6	0.3	<0.1	mg/kg	TM74/PM32
Zinc #	47	60	13	46	28	12	76	11	45	19	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	0.07	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.03	0.13	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	0.04	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	0.05	0.12	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	0.04	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	0.11	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	0.03	0.12	<0.02	0.02	<0.02	<0.02	0.05	<0.02	0.05	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.08	0.16	<0.07	<0.07	<0.07	<0.07	0.10	<0.07	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	0.09	<0.04	<0.04	<0.04	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	0.11	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	0.12	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	0.09	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.05	<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	1.2	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.06	0.12	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.02	0.04	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	102	108	91	96	104	114	104	108	101	106	<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	-	-	-	-	-	-	-	5	-	<2	ug/kg	TM15/PM10
Benzene #	-	-	-	-	-	-	-	-	4	-	<3	ug/kg	TM15/PM10
Toluene #	-	-	-	-	-	-	-	-	<3	-	<3	ug/kg	TM15/PM10
Ethylbenzene #	-	-	-	-	-	-	-	-	<3	-	<3	ug/kg	TM15/PM10
p/m-Xylene #	-	-	-	-	-	-	-	-	<5	-	<5	ug/kg	TM15/PM10
o-Xylene #	-	-	-	-	-	-	-	-	<3	-	<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	-	-	-	-	-	-	-	107	-	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	-	-	-	-	-	-	-	106	-	<0	%	TM15/PM10
2,3,6 - TBA	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	144-145	146-147	148-149	150-151	152-153	155-156	157-158	159-160	161	164-165	LOD/LOR	Units	Method No.
Sample ID	TP415	TP412	TP412	TP407	BH221	TP416	TP419	TP419	BH108	BH215			
Depth	0.1-0.3	0.1-0.3	2.7-3.0	0.6-1.0	0.6-.0.7	0.6-0.8	0.1-0.2	1.3-1.5	1.1-1.2	6.9-7.0			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	J	V J			
Sample Date	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	7	7	7	7	7	7	7	7	7	7			
Date of Receipt	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015			
2,4 - D	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
2,4 - DB	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
2,4,5 - T	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
4 - CPA	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Benazolin	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Bentazone	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Bromoxynil	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Clopyralid	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Dicamba	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Dichloroprop	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Diclofop	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Fenoprop	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Flamprop	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Flamprop – isopropyl	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Ioxynil	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
MCPA	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
MCPB	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Mecoprop	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Pentachlorophenol	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Picloram	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
Triclopyr	-	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM42/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
>C21-C35 #	11	<7	<7	<7	<7	<7	10	<7	13	<7	<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
>EC21-EC35	<7	<7	<7	<7	<7	<7	<7	<7	33	<7	<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	<19	<19	<19	<19	<19	<19	<19	33	<19	<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38	<38	<38	<38	<38	<38	<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	ug/kg	TM31/PM12

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	144-145	146-147	148-149	150-151	152-153	155-156	157-158	159-160	161	164-165	LOD/LOR	Units	Method No.
Sample ID	TP415	TP412	TP412	TP407	BH221	TP416	TP419	TP419	BH108	BH215			
Depth	0.1-0.3	0.1-0.3	2.7-3.0	0.6-1.0	0.6-.0.7	0.6-0.8	0.1-0.2	1.3-1.5	1.1-1.2	6.9-7.0			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	J	V J			
Sample Date	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	7	7	7	7	7	7	7	7	7	7			
Date of Receipt	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015			
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5	-	13	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	-	21	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	ug/kg	TM31/PM12
PCB 28 #	-	-	-	-	<5	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	-	-	-	-	<5	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	-	-	-	-	<5	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	-	-	-	-	<5	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	-	-	-	-	<5	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	-	-	-	-	<5	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	-	-	-	-	<5	-	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	-	-	-	<35	-	-	-	-	-	<35	ug/kg	TM17/PM8
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.18	<0.15	<0.15	mg/kg	TM26/PM21
Natural Moisture Content	8.2	15.9	14.3	14.6	9.2	8.1	18.6	4.1	17.8	29.6	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0015	<0.0015	<0.0015	0.0168	0.0015	0.0059	<0.0015	0.0052	0.0135	0.0111	<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	-	-	-	0.26	-	-	-	2.12	-	<0.02	%	TM21/PM24
Pesticide Scan MS	-	-	-	ND	-	-	-	-	-	-		None	TM111/PM8
pH #	6.46	7.03	7.58	7.34	6.94	5.74	6.64	6.88	3.88	5.56	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	166-167	169-170	171-172	173-174	175-176						LOD/LOR	Units	Method No.
Sample ID	BH216	WS302	WS302	WS309	WS309								
Depth	0.4-0.5	0.5-0.6	2.8-3.0	0.5-0.6	1.8-2.0								
COC No / misc													
Containers	V J	V J	V J	V J	V J								
Sample Date	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	7	7	7	7	7								
Date of Receipt	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015								
Arsenic #	2.9	8.7	9.6	6.3	2.0						<0.5	mg/kg	TM30/PM15
Beryllium	<0.5	0.6	5.2	<0.5	<0.5						<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	<0.1	0.1	0.1	<0.1						<0.1	mg/kg	TM30/PM15
Chromium #	42.3	61.6	58.8	67.9	38.8						<0.5	mg/kg	TM30/PM15
Copper #	5	6	27	8	6						<1	mg/kg	TM30/PM15
Lead #	8	9	<5	25	5						<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM30/PM15
Nickel #	8.6	10.8	40.5	12.1	7.6						<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	1	<1						<1	mg/kg	TM30/PM15
Vanadium	16	19	48	24	15						<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.2	0.3	0.6	0.3	0.2						<0.1	mg/kg	TM74/PM32
Zinc #	18	32	58	42	15						<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05						<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06						<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	0.04	<0.02						<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07						<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	<0.6	<0.6	<0.6						<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05						<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02						<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	122	101	108	104	100						<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	-	-	-	-						<2	ug/kg	TM15/PM10
Benzene #	-	-	-	-	-						<3	ug/kg	TM15/PM10
Toluene #	-	-	-	-	-						<3	ug/kg	TM15/PM10
Ethylbenzene #	-	-	-	-	-						<3	ug/kg	TM15/PM10
p/m-Xylene #	-	-	-	-	-						<5	ug/kg	TM15/PM10
o-Xylene #	-	-	-	-	-						<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	-	-	-	-						<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	-	-	-	-						<0	%	TM15/PM10
2,3,6 - TBA	-	-	-	-	-						<0.1	mg/kg	TM42/PM8

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	166-167	169-170	171-172	173-174	175-176						LOD/LOR	Units	Method No.
Sample ID	BH216	WS302	WS302	WS309	WS309								
Depth	0.4-0.5	0.5-0.6	2.8-3.0	0.5-0.6	1.8-2.0								
COC No / misc													
Containers	V J	V J	V J	V J	V J								
Sample Date	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	7	7	7	7	7								
Date of Receipt	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015								
2,4 - D	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
2,4 - DB	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
2,4,5 - T	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
4 - CPA	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Benazolin	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Bentazone	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Bromoxynil	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Clopyralid	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Dicamba	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Dichloroprop	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Diclofop	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Fenoprop	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Flamprop	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Flamprop – isopropyl	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Ioxynil	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
MCPA	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
MCPB	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Mecoprop	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Pentachlorophenol	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Picloram	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Triclopyr	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
>C21-C35 #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19						<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
>EC21-EC35	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	<19	<19	<19	<19						<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38						<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	166-167	169-170	171-172	173-174	175-176						LOD/LOR	Units	Method No.
Sample ID	BH216	WS302	WS302	WS309	WS309								
Depth	0.4-0.5	0.5-0.6	2.8-3.0	0.5-0.6	1.8-2.0								
COC No / misc													
Containers	V J	V J	V J	V J	V J								
Sample Date	28/10/2015	28/10/2015	28/10/2015	28/10/2015	28/10/2015								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	7	7	7	7	7								
Date of Receipt	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015								
Benzene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
PCB 28 #	-	-	-	-	-						<5	ug/kg	TM17/PM8
PCB 52 #	-	-	-	-	-						<5	ug/kg	TM17/PM8
PCB 101 #	-	-	-	-	-						<5	ug/kg	TM17/PM8
PCB 118 #	-	-	-	-	-						<5	ug/kg	TM17/PM8
PCB 138 #	-	-	-	-	-						<5	ug/kg	TM17/PM8
PCB 153 #	-	-	-	-	-						<5	ug/kg	TM17/PM8
PCB 180 #	-	-	-	-	-						<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	-	-	-	-						<35	ug/kg	TM17/PM8
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15						<0.15	mg/kg	TM26/PM21
Natural Moisture Content	9.4	5.2	18.1	7.3	5.7						<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3						<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	<0.0015	0.0124	0.0424	0.0138	0.0094						<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	-	-	-	-						<0.02	%	TM21/PM24
Pesticide Scan MS	-	-	-	-	-							None	TM111/PM8
pH #	6.71	5.53	5.24	6.02	5.34						<0.01	pH units	TM73/PM11

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

SVOC Report : **Solid**

J E Sample No.	146-147												
Sample ID	TP412												
Depth	0.1-0.3												
COC No / misc													
Containers	V J												
Sample Date	28/10/2015												
Sample Type	Soil												
Batch Number	7												
Date of Receipt	30/10/2015												

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10										<10	ug/kg	TM16/PM8
2-Methylphenol	<10										<10	ug/kg	TM16/PM8
2-Nitrophenol	<10										<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10										<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10										<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10										<10	ug/kg	TM16/PM8
4-Methylphenol	<10										<10	ug/kg	TM16/PM8
4-Nitrophenol	<10										<10	ug/kg	TM16/PM8
Pentachlorophenol	<10										<10	ug/kg	TM16/PM8
Phenol #	<10										<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10										<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	<10										<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100										<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100										<100	ug/kg	TM16/PM8
Diethyl phthalate	<100										<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100										<100	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10										<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
2-Nitroaniline	<10										<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
3-Nitroaniline	<10										<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10										<10	ug/kg	TM16/PM8
4-Chloroaniline	<10										<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10										<10	ug/kg	TM16/PM8
4-Nitroaniline	<10										<10	ug/kg	TM16/PM8
Azobenzene	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10										<10	ug/kg	TM16/PM8
Carbazole	<10										<10	ug/kg	TM16/PM8
Dibenzofuran #	<10										<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10										<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10										<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10										<10	ug/kg	TM16/PM8
Hexachloroethane	<10										<10	ug/kg	TM16/PM8
Isophorone #	<10										<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10										<10	ug/kg	TM16/PM8
Nitrobenzene #	<10										<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	78										<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	104										<0	%	TM16/PM8

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Solid**

J E Sample No.	161										LOD/LOR	Units	Method No.
Sample ID	BH108												
Depth	1.1-1.2												
COC No / misc													
Containers	J												
Sample Date	28/10/2015												
Sample Type	Soil												
Batch Number	7												
Date of Receipt	30/10/2015												
VOC MS													
Dichlorodifluoromethane	<2										<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	5										<2	ug/kg	TM15/PM10
Chloromethane #	<3										<3	ug/kg	TM15/PM10
Vinyl Chloride	<2										<2	ug/kg	TM15/PM10
Bromomethane	<1										<1	ug/kg	TM15/PM10
Chloroethane #	<2										<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2										<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6										<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7										<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3										<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3										<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3										<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4										<4	ug/kg	TM15/PM10
Bromochloromethane #	<3										<3	ug/kg	TM15/PM10
Chloroform #	<3										<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3										<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3										<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4										<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4										<4	ug/kg	TM15/PM10
Benzene #	4										<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3										<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6										<6	ug/kg	TM15/PM10
Dibromomethane #	<3										<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3										<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4										<4	ug/kg	TM15/PM10
Toluene #	<3										<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3										<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3										<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3										<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3										<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3										<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3										<3	ug/kg	TM15/PM10
Chlorobenzene #	<3										<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3										<3	ug/kg	TM15/PM10
Ethylbenzene #	<3										<3	ug/kg	TM15/PM10
p/m-Xylene #	<5										<5	ug/kg	TM15/PM10
o-Xylene #	<3										<3	ug/kg	TM15/PM10
Styrene	<3										<3	ug/kg	TM15/PM10
Bromoform	<3										<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3										<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3										<3	ug/kg	TM15/PM10
Bromobenzene	<2										<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4										<4	ug/kg	TM15/PM10
Propylbenzene #	<4										<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3										<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5										<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6										<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4										<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4										<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4										<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4										<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7										<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4										<4	ug/kg	TM15/PM10
Naphthalene	<27										<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7										<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	107										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	106										<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

Note:

Analysis was carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Any questionable sample will automatically be assumed to have breached the Waste Limit and further testing may be required.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	7	TP415	0.1-0.3	145	02/11/2015	**Mass of Dry Sample**	51.8 (g)
					03/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	7	TP412	0.1-0.3	147	02/11/2015	**Mass of Dry Sample**	50.9 (g)
					03/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	7	TP407	0.6-1.0	151	02/11/2015	**Mass of Dry Sample**	47.5 (g)
					03/11/2015	**General Description (Bulk Analysis)**	soil/stones
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	7	BH221	0.6-.0.7	153	02/11/2015	**Mass of Dry Sample**	48.3 (g)
					03/11/2015	**General Description (Bulk Analysis)**	soil/stones
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	7	TP416	0.2-0.4	154	02/11/2015	**Mass of Dry Sample**	46.4 (g)
					03/11/2015	**General Description (Bulk Analysis)**	soil/stones
					03/11/2015	**Asbestos Containing Material**	None

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	7	TP416	0.2-0.4	154	03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	7	TP419	0.1-0.2	158	02/11/2015	**Mass of Dry Sample**	45.1 (g)
					03/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	7	BH108	0.1-0.3	163	02/11/2015	**Mass of Dry Sample**	47.6 (g)
					03/11/2015	**General Description (Bulk Analysis)**	Soil/Stone/Silt
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	7	BH216	0.15	168	02/11/2015	**Mass of Dry Sample**	45.0 (g)
					03/11/2015	**General Description (Bulk Analysis)**	Soil-Silt/Clay/Brick/Stone
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	7	WS302	0.5-0.6	170	02/11/2015	**Mass of Dry Sample**	59.4 (g)
					03/11/2015	**General Description (Bulk Analysis)**	Soil-Sand/Brick/Stone
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	7	WS309	0.5-0.6	174	02/11/2015	**Mass of Dry Sample**	49.7 (g)
					03/11/2015	**General Description (Bulk Analysis)**	Soil-Silt/Clay/Brick/Stone
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes
TM42	Modified US EPA method 8270. Pesticides and herbicdes by GC-MS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes
TM111	SVOC GC-MS with Retention Locking Software using an MS library of over 1000 compounds.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

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Zone 3
Deeside Industrial Park
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CH5 2UA

Tel: +44 (0) 1244 833780
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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	17th November, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 11
Location :	Four Ashes
Date samples received :	6th November, 2015
Status :	Final report
Issue :	1

Five samples were received for analysis on 6th November, 2015 of which four were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Paul Lee-Boden BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	265-267	268	269-271								LOD/LOR	Units	Method No.
Sample ID	BH219_0.8-0.9	BH113_0.3-0.5	BH217_6.9-7.0										
Depth	0.8-0.9	0.3-0.5	6.9-7.0										
COC No / misc													
Containers	V	J	V										
Sample Date	05/11/2015	05/11/2015	05/11/2015										
Sample Type	Soil	Soil	Soil										
Batch Number	11	11	11										
Date of Receipt	06/11/2015	06/11/2015	06/11/2015										
Arsenic #	6.6	6.2	1.6								<0.5	mg/kg	TM30/PM15
Beryllium	1.4	0.5	0.6								<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM30/PM15
Chromium #	56.5	112.0	33.4								<0.5	mg/kg	TM30/PM15
Copper #	11	18	2								<1	mg/kg	TM30/PM15
Lead #	9	21	<5								<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM30/PM15
Nickel #	36.8	12.7	5.4								<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1								<1	mg/kg	TM30/PM15
Vanadium	34	23	13								<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.5	0.4	0.3								<0.1	mg/kg	TM74/PM32
Zinc #	45	47	11								<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03								<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05								<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	0.08	<0.03								<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	0.14	<0.03								<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	0.13	<0.03								<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	0.15	<0.06								<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	0.12	<0.02								<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	0.18	<0.07								<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	0.11	<0.04								<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	0.06	<0.04								<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	0.06	<0.04								<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	1.0	<0.6								<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	0.13	<0.05								<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	0.05	<0.02								<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	94	103	112								<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	-	<2								<2	ug/kg	TM15/PM10
Benzene #	-	-	963								<3	ug/kg	TM15/PM10
Toluene #	-	-	303								<3	ug/kg	TM15/PM10
Ethylbenzene #	-	-	16								<3	ug/kg	TM15/PM10
p/m-Xylene #	-	-	55								<5	ug/kg	TM15/PM10
o-Xylene #	-	-	35								<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	-	114								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	-	143								<0	%	TM15/PM10

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	265-267	268	269-271									
Sample ID	BH219_0.8-0.9	BH113_0.3-0.5	BH217_6.9-7.0									
Depth	0.8-0.9	0.3-0.5	6.9-7.0									
COC No / misc												
Containers	V	J	V									
Sample Date	05/11/2015	05/11/2015	05/11/2015									
Sample Type	Soil	Soil	Soil									
Batch Number	11	11	11									
Date of Receipt	06/11/2015	06/11/2015	06/11/2015									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	0.1								<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	1.7								<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2								<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4								<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7								<7	mg/kg	TM5/PM16
>C21-C35 #	<7	<7	<7								<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19								<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	1.0								<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	0.4								<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	0.3								<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2								<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4								<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7								<7	mg/kg	TM5/PM16
>EC21-EC35	<7	<7	<7								<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	<19	<19								<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38								<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	<5	-								<5	ug/kg	TM31/PM12
Benzene #	<5	<5	-								<5	ug/kg	TM31/PM12
Toluene #	<5	<5	-								<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	-								<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	-								<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	-								<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15	0.39	<0.15								<0.15	mg/kg	TM26/PM21
Natural Moisture Content	13.6	6.6	31.0								<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3								<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0078	0.0030	0.0093								<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	<0.5	<0.5								<0.5	mg/kg	TM89/PM45
pH #	7.92	6.49	7.48								<0.01	pH units	TM73/PM11

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

SVOC Report : **Solid**

J E Sample No.	269-271												
Sample ID	BH217_6.9-7.0												
Depth	6.9-7.0										Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V												
Sample Date	05/11/2015												
Sample Type	Soil												
Batch Number	11												
Date of Receipt	06/11/2015										LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10										<10	ug/kg	TM16/PM8
2-Methylphenol	<10										<10	ug/kg	TM16/PM8
2-Nitrophenol	<10										<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10										<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10										<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10										<10	ug/kg	TM16/PM8
4-Methylphenol	<10										<10	ug/kg	TM16/PM8
4-Nitrophenol	<10										<10	ug/kg	TM16/PM8
Pentachlorophenol	<10										<10	ug/kg	TM16/PM8
Phenol #	<10										<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10										<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	<10										<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100										<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100										<100	ug/kg	TM16/PM8
Diethyl phthalate	<100										<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100										<100	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10										<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
2-Nitroaniline	<10										<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
3-Nitroaniline	<10										<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10										<10	ug/kg	TM16/PM8
4-Chloroaniline	<10										<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10										<10	ug/kg	TM16/PM8
4-Nitroaniline	<10										<10	ug/kg	TM16/PM8
Azobenzene	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10										<10	ug/kg	TM16/PM8
Carbazole	<10										<10	ug/kg	TM16/PM8
Dibenzofuran #	<10										<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10										<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10										<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10										<10	ug/kg	TM16/PM8
Hexachloroethane	<10										<10	ug/kg	TM16/PM8
Isophorone #	<10										<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10										<10	ug/kg	TM16/PM8
Nitrobenzene #	<10										<10	ug/kg	TM16/PM8

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Solid**

J E Sample No.	269-271										LOD/LOR	Units	Method No.
Sample ID	BH217_6.9-7.0												
Depth	6.9-7.0												
COC No / misc													
Containers	V												
Sample Date	05/11/2015												
Sample Type	Soil												
Batch Number	11												
Date of Receipt	06/11/2015												
VOC MS													
Dichlorodifluoromethane	<2										<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2										<2	ug/kg	TM15/PM10
Chloromethane #	<3										<3	ug/kg	TM15/PM10
Vinyl Chloride	<2										<2	ug/kg	TM15/PM10
Bromomethane	<1										<1	ug/kg	TM15/PM10
Chloroethane #	<2										<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2										<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6										<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7										<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3										<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3										<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3										<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4										<4	ug/kg	TM15/PM10
Bromochloromethane #	<3										<3	ug/kg	TM15/PM10
Chloroform #	<3										<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3										<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3										<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4										<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4										<4	ug/kg	TM15/PM10
Benzene #	963										<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3										<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6										<6	ug/kg	TM15/PM10
Dibromomethane #	<3										<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3										<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4										<4	ug/kg	TM15/PM10
Toluene #	303										<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3										<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3										<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3										<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3										<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3										<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3										<3	ug/kg	TM15/PM10
Chlorobenzene #	<3										<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3										<3	ug/kg	TM15/PM10
Ethylbenzene #	16										<3	ug/kg	TM15/PM10
p/m-Xylene #	55										<5	ug/kg	TM15/PM10
o-Xylene #	35										<3	ug/kg	TM15/PM10
Styrene	<3										<3	ug/kg	TM15/PM10
Bromoform	<3										<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3										<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3										<3	ug/kg	TM15/PM10
Bromobenzene	<2										<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4										<4	ug/kg	TM15/PM10
Propylbenzene #	<4										<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	9										<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5										<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	29										<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4										<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4										<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4										<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4										<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7										<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4										<4	ug/kg	TM15/PM10
Naphthalene	<27										<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7										<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	114										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	143										<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

Note:

Analysis was carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Any questionable sample will automatically be assumed to have breached the Waste Limit and further testing may be required.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	11	BH219_0.1-0.3	0.1-0.3	264	09/11/2015	**Mass of Dry Sample**	51.2 (g)
					10/11/2015	**General Description (Bulk Analysis)**	Soil-Silt/Clay/Brick/Stone
					10/11/2015	**Asbestos Containing Material**	None
					10/11/2015	**Asbestos Containing Material (2)**	None
					10/11/2015	**Asbestos Screen**	NAD
					10/11/2015	**Asbestos Screen (2)**	NAD
					10/11/2015	**Asbestos Level**	NAD
					10/11/2015	**Waste Limit**	<0.1%
15/15000	11	BH113_0.3-0.5	0.3-0.5	268	09/11/2015	**Mass of Dry Sample**	49.0 (g)
					10/11/2015	**General Description (Bulk Analysis)**	Soil-Silt/Clay/Brick/Stone
					10/11/2015	**Asbestos Containing Material**	None
					10/11/2015	**Asbestos Containing Material (2)**	None
					10/11/2015	**Asbestos Screen**	NAD
					10/11/2015	**Asbestos Screen (2)**	NAD
					10/11/2015	**Asbestos Level**	NAD
					10/11/2015	**Waste Limit**	<0.1%

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes

Jones Environmental Laboratory

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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	30th October, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 1 Schedule B
Location :	Four Ashes
Date samples received :	20th October, 2015
Status :	Final report
Issue :	1

Three samples were received for analysis on 20th October, 2015 of which one were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Simon Gomery BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

SVOC Report : **Solid**

J E Sample No.	3-6												
Sample ID	BH103												
Depth	0.20-0.40										Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J												
Sample Date	19/10/2015												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	20/10/2015										LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10										<10	ug/kg	TM16/PM8
2-Methylphenol	<10										<10	ug/kg	TM16/PM8
2-Nitrophenol	<10										<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10										<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10										<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10										<10	ug/kg	TM16/PM8
4-Methylphenol	<10										<10	ug/kg	TM16/PM8
4-Nitrophenol	<10										<10	ug/kg	TM16/PM8
Pentachlorophenol	<10										<10	ug/kg	TM16/PM8
Phenol #	<10										<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10										<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	<10										<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100										<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100										<100	ug/kg	TM16/PM8
Diethyl phthalate	<100										<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100										<100	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10										<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
2-Nitroaniline	<10										<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
3-Nitroaniline	<10										<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10										<10	ug/kg	TM16/PM8
4-Chloroaniline	<10										<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10										<10	ug/kg	TM16/PM8
4-Nitroaniline	<10										<10	ug/kg	TM16/PM8
Azobenzene	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10										<10	ug/kg	TM16/PM8
Carbazole	<10										<10	ug/kg	TM16/PM8
Dibenzofuran #	<10										<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10										<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10										<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10										<10	ug/kg	TM16/PM8
Hexachloroethane	<10										<10	ug/kg	TM16/PM8
Isophorone #	<10										<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10										<10	ug/kg	TM16/PM8
Nitrobenzene #	<10										<10	ug/kg	TM16/PM8

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 15/15000						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

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If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
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CH5 2UA

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781

Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	28th October, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 2 Schedule A
Location :	
Date samples received :	22nd October, 2015
Status :	Final report
Issue :	1

Six samples were received for analysis on 22nd October, 2015 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Simon Gomery BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location:
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	11-12	13-14	17-18	19-20	21-22							
Sample ID	BH103A	BH103A	BH202	BH203	BH203							
Depth	1.4-1.6	0.2-0.4	0.4-0.7	0.2-0.4	0.5-0.6							
COC No / misc												
Containers	V J	V J	V J	V J	V J							
Sample Date	20/10/2015	20/10/2015	20/10/2015	20/10/2015	20/10/2015							
Sample Type	Soil	Soil	Soil	Soil	Soil							
Batch Number	2	2	2	2	2							
Date of Receipt	22/10/2015	22/10/2015	22/10/2015	22/10/2015	22/10/2015							

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Arsenic #	0.5	39.1	7.0	8.9	5.2						<0.5	mg/kg	TM30/PM15
Beryllium	<0.5	1.2	1.4	0.8	0.8						<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	0.2	<0.1	0.3	<0.1						<0.1	mg/kg	TM30/PM15
Chromium #	46.9	57.8	58.2	37.2	45.1						<0.5	mg/kg	TM30/PM15
Copper #	15	16	20	29	14						<1	mg/kg	TM30/PM15
Lead #	<5	32	6	36	10						<5	mg/kg	TM30/PM15
Mercury #	<0.1	0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM30/PM15
Nickel #	8.2	20.0	36.0	12.0	18.1						<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	<1	1	<1						<1	mg/kg	TM30/PM15
Vanadium	12	34	41	18	28						<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.2	1.4	1.0	0.7	0.3						<0.1	mg/kg	TM74/PM32
Zinc #	15	82	58	79	36						<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05						<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	0.03	<0.03						<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	0.04	<0.03						<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	0.04	<0.03						<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06						<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	0.03	<0.02	0.04	<0.02						<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07						<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	<0.6	<0.6	<0.6						<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05						<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02						<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	102	98	101	100	92						<0	%	TM4/PM8

Client Name: Environ
Reference: Four Ashes
Location:
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	11-12	13-14	17-18	19-20	21-22						LOD/LOR	Units	Method No.
Sample ID	BH103A	BH103A	BH202	BH203	BH203								
Depth	1.4-1.6	0.2-0.4	0.4-0.7	0.2-0.4	0.5-0.6								
COC No / misc													
Containers	V J	V J	V J	V J	V J								
Sample Date	20/10/2015	20/10/2015	20/10/2015	20/10/2015	20/10/2015								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	2	2	2	2	2								
Date of Receipt	22/10/2015	22/10/2015	22/10/2015	22/10/2015	22/10/2015								
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C8-C10	0.1	0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
>C21-C35 #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19						<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
>EC21-EC35	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	<19	<19	<19	<19						<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38						<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15						<0.15	mg/kg	TM26/PM21
Natural Moisture Content	16.4	41.2	13.0	15.1	13.3						<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3						<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0117	0.0019	0.0111	<0.0015	0.0017						<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	1.0	<0.5	<0.5	<0.5						<0.5	mg/kg	TM89/PM45
pH #	8.79	6.47	7.62	6.86	7.16						<0.01	pH units	TM73/PM11

Client Name: Environ
Reference: Four Ashes
Location:
Contact: Alison Huggins

Note:

Analysis was carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Any questionable sample will automatically be assumed to have breached the Waste Limit and further testing may be required.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	2	BH103A	0.2-0.4	14	26/10/2015	**Mass of Dry Sample**	41.3 (g)
					26/10/2015	**General Description (Bulk Analysis)**	soil-stones
					26/10/2015	**Asbestos Containing Material**	None
					26/10/2015	**Asbestos Containing Material (2)**	None
					26/10/2015	**Asbestos Screen**	NAD
					26/10/2015	**Asbestos Screen (2)**	NAD
					26/10/2015	**Asbestos Level**	NAD
					26/10/2015	**Waste Limit**	<0.1%
15/15000	2	BH202	0.4-0.7	18	24/10/2015	**Mass of Dry Sample**	60.0 (g)
					26/10/2015	**General Description (Bulk Analysis)**	Soil-Clay/Brick/Stone
					26/10/2015	**Asbestos Containing Material**	None
					26/10/2015	**Asbestos Containing Material (2)**	None
					26/10/2015	**Asbestos Screen**	NAD
					26/10/2015	**Asbestos Screen (2)**	NAD
					26/10/2015	**Asbestos Level**	NAD
					26/10/2015	**Waste Limit**	<0.1%
15/15000	2	BH203	0.2-0.4	20	24/10/2015	**Mass of Dry Sample**	50.4 (g)
					26/10/2015	**General Description (Bulk Analysis)**	Soil-Silt/Clay/Brick/Stone
					26/10/2015	**Asbestos Containing Material**	None
					26/10/2015	**Asbestos Containing Material (2)**	None
					26/10/2015	**Asbestos Screen**	NAD
					26/10/2015	**Asbestos Screen (2)**	NAD
					26/10/2015	**Asbestos Level**	NAD
					26/10/2015	**Waste Limit**	<0.1%

Client Name: Environ
Reference: Four Ashes
Location:
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 15/15000						

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Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	30th October, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 2 Schedule B
Location :	Four Ashes
Date samples received :	22nd October, 2015
Status :	Final report
Issue :	1

Six samples were received for analysis on 22nd October, 2015 of which one were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Simon Gomery BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	21-22												
Sample ID	BH203												
Depth	0.5-0.6												
COC No / misc													
Containers	V J												
Sample Date	20/10/2015												
Sample Type	Soil												
Batch Number	2												
Date of Receipt	22/10/2015												

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
2,3,6 - TBA	<0.1										<0.1	mg/kg	TM42/PM8
2,4 - D	<0.1										<0.1	mg/kg	TM42/PM8
2,4 - DB	<0.1										<0.1	mg/kg	TM42/PM8
2,4,5 - T	<0.1										<0.1	mg/kg	TM42/PM8
4 - CPA	<0.1										<0.1	mg/kg	TM42/PM8
Benazolin	<0.1										<0.1	mg/kg	TM42/PM8
Bentazone	<0.1										<0.1	mg/kg	TM42/PM8
Bromoxynil	<0.1										<0.1	mg/kg	TM42/PM8
Clopyralid	<0.1										<0.1	mg/kg	TM42/PM8
Dicamba	<0.1										<0.1	mg/kg	TM42/PM8
Dichloroprop	<0.1										<0.1	mg/kg	TM42/PM8
Diclofop	<0.1										<0.1	mg/kg	TM42/PM8
Fenoprop	<0.1										<0.1	mg/kg	TM42/PM8
Flamprop	<0.1										<0.1	mg/kg	TM42/PM8
Flamprop – isopropyl	<0.1										<0.1	mg/kg	TM42/PM8
Ioxynil	<0.1										<0.1	mg/kg	TM42/PM8
MCPA	<0.1										<0.1	mg/kg	TM42/PM8
MCPB	<0.1										<0.1	mg/kg	TM42/PM8
Mecoprop	<0.1										<0.1	mg/kg	TM42/PM8
Pentachlorophenol	<0.1										<0.1	mg/kg	TM42/PM8
Picloram	<0.1										<0.1	mg/kg	TM42/PM8
Triclopyr	<0.1										<0.1	mg/kg	TM42/PM8
Pesticide Scan MS	ND											None	TM111/PM8

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 15/15000						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM42	Modified US EPA method 8270. Pesticides and herbicdes by GC-MS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM111	SVOC GC-MS with Retention Locking Software using an MS library of over 1000 compounds.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

Jones Environmental Laboratory

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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	30th October, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 3
Location :	Four Ashes
Date samples received :	24th October, 2015
Status :	Final report
Issue :	1

Twenty samples were received for analysis on 24th October, 2015 of which seven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Simon Gomery BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	23-24	27-29	32-33	50-51	54-55	62-63					LOD/LOR	Units	Method No.
Sample ID	BH101	BH101	BH201	BH206	BH102	BH102							
Depth	0.20-0.30	9.20-9.40	0.40-0.60	1.00-1.50	0.10-0.30	2.50-2.70							
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J							
Sample Date	22/10/2015	22/10/2015	22/10/2015	23/10/2015	23/10/2015	23/10/2015							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	3	3	3	3	3	3							
Date of Receipt	24/10/2015	24/10/2015	24/10/2015	24/10/2015	24/10/2015	24/10/2015							
Arsenic #	6.4	12.5	15.5	1.9	4.7	6.3					<0.5	mg/kg	TM30/PM15
Beryllium	0.6	0.6	1.5	<0.5	<0.5	<0.5					<0.5	mg/kg	TM30/PM15
Cadmium #	0.1	<0.1	<0.1	<0.1	0.1	<0.1					<0.1	mg/kg	TM30/PM15
Chromium #	88.3	28.5	72.3	38.3	114.7	44.9					<0.5	mg/kg	TM30/PM15
Copper #	11	18	13	4	11	5					<1	mg/kg	TM30/PM15
Lead #	16	<5	8	<5	26	<5					<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM30/PM15
Nickel #	12.7	5.1	19.5	6.6	9.7	7.0					<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	<1	<1	<1					<1	mg/kg	TM30/PM15
Vanadium	16	12	38	10	15	13					<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.9	0.2	0.3	0.2	0.5	<0.1					<0.1	mg/kg	TM74/PM32
Zinc #	36	9	36	12	41	11					<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	0.03	<0.03					<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	0.07	<0.05					<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	0.05	<0.04					<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.05	<0.03	<0.03	<0.03	0.79	<0.03					<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	0.26	<0.04					<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.07	<0.03	<0.03	<0.03	1.83	<0.03					<0.03	mg/kg	TM4/PM8
Pyrene #	0.06	<0.03	<0.03	<0.03	1.44	<0.03					<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.08	<0.06	<0.06	<0.06	0.73	<0.06					<0.06	mg/kg	TM4/PM8
Chrysene #	0.06	<0.02	<0.02	<0.02	0.82	<0.02					<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.11	<0.07	<0.07	<0.07	1.17	<0.07					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.06	<0.04	<0.04	<0.04	0.72	<0.04					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.06	<0.04	<0.04	<0.04	0.49	<0.04					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	0.10	<0.04					<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.05	<0.04	<0.04	<0.04	0.41	<0.04					<0.04	mg/kg	TM4/PM8
PAH 16 Total	0.6	<0.6	<0.6	<0.6	8.9	<0.6					<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.08	<0.05	<0.05	<0.05	0.84	<0.05					<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.03	<0.02	<0.02	<0.02	0.33	<0.02					<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	108	101	100	106	106	107					<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	-	-	-	<2	<2					<2	ug/kg	TM15/PM10
Benzene #	-	-	-	-	<3	<3					<3	ug/kg	TM15/PM10
Toluene #	-	-	-	-	<3	<3					<3	ug/kg	TM15/PM10
Ethylbenzene #	-	-	-	-	<3	<3					<3	ug/kg	TM15/PM10
p/m-Xylene #	-	-	-	-	<5	<5					<5	ug/kg	TM15/PM10
o-Xylene #	-	-	-	-	<3	<3					<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	-	-	-	101	110					<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	-	-	-	102	142					<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	23-24	27-29	32-33	50-51	54-55	62-63					LOD/LOR	Units	Method No.
Sample ID	BH101	BH101	BH201	BH206	BH102	BH102							
Depth	0.20-0.30	9.20-9.40	0.40-0.60	1.00-1.50	0.10-0.30	2.50-2.70							
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J							
Sample Date	22/10/2015	22/10/2015	22/10/2015	23/10/2015	23/10/2015	23/10/2015							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	3	3	3	3	3	3							
Date of Receipt	24/10/2015	24/10/2015	24/10/2015	24/10/2015	24/10/2015	24/10/2015							
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	0.9	0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2					<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4					<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM16
>C21-C35 #	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19	<19					<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2					<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4	<4	<4	<4					<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7	<7	<7	<7					<7	mg/kg	TM5/PM16
>EC21-EC35	<7	<7	<7	11	<7	<7					<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	<19	<19	<19	<19	<19					<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38	<38					<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	<5	<5	<5	-	-					<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	-	-					<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	-	-					<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	-	-					<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	-	-					<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	-	-					<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15					<0.15	mg/kg	TM26/PM21
Natural Moisture Content	11.6	12.5	24.8	13.1	10.0	10.9					<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3					<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	<0.0015	0.0299	<0.0015	<0.0015	<0.0015	0.0024					<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	<0.5	<0.5	<0.5	0.9	<0.5					<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	-	0.26	-	-	-					<0.02	%	TM21/PM24
pH #	7.43	8.93	5.92	7.66	6.31	6.10					<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

SVOC Report : **Solid**

J E Sample No.	23-24	54-55	62-63									
Sample ID	BH101	BH102	BH102									
Depth	0.20-0.30	0.10-0.30	2.50-2.70							Please see attached notes for all abbreviations and acronyms		
COC No / misc												
Containers	V J	V J	V J									
Sample Date	22/10/2015	23/10/2015	23/10/2015									
Sample Type	Soil	Soil	Soil									
Batch Number	3	3	3									
Date of Receipt	24/10/2015	24/10/2015	24/10/2015							LOD/LOR	Units	Method No.
SVOC MS												
Phenols												
2-Chlorophenol #	<10	<10	<10							<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10	<10							<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10							<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10							<10	ug/kg	TM16/PM8
Phenol #	<10	<10	<10							<10	ug/kg	TM16/PM8
PAHs												
2-Chloronaphthalene #	<10	<10	<10							<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	<10	<10	<10							<10	ug/kg	TM16/PM8
Phthalates												
Bis(2-ethylhexyl) phthalate	<100	<100	<100							<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100	<100							<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100	<100							<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100	<100							<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100	<100							<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100	<100	<100							<100	ug/kg	TM16/PM8
Other SVOCs												
1,2-Dichlorobenzene	<10	<10	<10							<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10	<10	<10							<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10	<10							<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10	<10							<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10	<10							<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10	<10							<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10	<10							<10	ug/kg	TM16/PM8
Azobenzene	<10	<10	<10							<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10	<10							<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10	<10							<10	ug/kg	TM16/PM8
Carbazole	<10	<10	<10							<10	ug/kg	TM16/PM8
Dibenzofuran #	<10	<10	<10							<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10	<10							<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10	<10	<10							<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10	<10							<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10	<10							<10	ug/kg	TM16/PM8
Isophorone #	<10	<10	<10							<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10	<10	<10							<10	ug/kg	TM16/PM8
Nitrobenzene #	<10	<10	<10							<10	ug/kg	TM16/PM8

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Solid**

J E Sample No.	54-55	62-63											
Sample ID	BH102	BH102											
Depth	0.10-0.30	2.50-2.70									Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J	V J											
Sample Date	23/10/2015	23/10/2015											
Sample Type	Soil	Soil											
Batch Number	3	3											
Date of Receipt	24/10/2015	24/10/2015									LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2									<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2									<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3									<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2									<2	ug/kg	TM15/PM10
Bromomethane	<1	<1									<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2									<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2									<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6									<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7	<7									<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3									<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3									<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4									<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3									<3	ug/kg	TM15/PM10
Chloroform #	<3	<3									<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3									<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4									<4	ug/kg	TM15/PM10
Benzene #	<3	<3									<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	13	12									<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6									<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3									<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3									<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4									<4	ug/kg	TM15/PM10
Toluene #	<3	<3									<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3									<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3									<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3									<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3									<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3									<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3									<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3	<3									<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
p/m-Xylene #	<5	<5									<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3									<3	ug/kg	TM15/PM10
Styrene	<3	<3									<3	ug/kg	TM15/PM10
Bromoform	<3	<3									<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3									<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2									<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4									<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3									<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3									<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5									<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6									<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4	<4									<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4									<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7									<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4									<4	ug/kg	TM15/PM10
Naphthalene	<27	<27									<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7									<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	101	110									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102	142									<0	%	TM15/PM10

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

Note:

Analysis was carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Any questionable sample will automatically be assumed to have breached the Waste Limit and further testing may be required.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	3	BH101	0.20-0.30	24	27/10/2015	**Mass of Dry Sample**	47.1 (g)
					28/10/2015	**General Description (Bulk Analysis)**	Soil/Stone/Veg
					28/10/2015	**Asbestos Containing Material**	None
					28/10/2015	**Asbestos Containing Material (2)**	None
					28/10/2015	**Asbestos Screen**	NAD
					28/10/2015	**Asbestos Screen (2)**	NAD
					28/10/2015	**Asbestos Level**	NAD
					28/10/2015	**Waste Limit**	<0.1%
15/15000	3	BH201	0.40-0.60	33	27/10/2015	**Mass of Dry Sample**	45.1 (g)
					28/10/2015	**General Description (Bulk Analysis)**	Soil/Clay
					28/10/2015	**Asbestos Containing Material**	None
					28/10/2015	**Asbestos Containing Material (2)**	None
					28/10/2015	**Asbestos Screen**	NAD
					28/10/2015	**Asbestos Screen (2)**	NAD
					28/10/2015	**Asbestos Level**	NAD
					28/10/2015	**Waste Limit**	<0.1%
15/15000	3	BH206	0.50-1.00	49	27/10/2015	**Mass of Dry Sample**	50.3 (g)
					28/10/2015	**General Description (Bulk Analysis)**	Soil/Stone
					28/10/2015	**Asbestos Containing Material**	None
					28/10/2015	**Asbestos Containing Material (2)**	None
					28/10/2015	**Asbestos Screen**	NAD
					28/10/2015	**Asbestos Screen (2)**	NAD
					28/10/2015	**Asbestos Level**	NAD
					28/10/2015	**Waste Limit**	<0.1%
15/15000	3	BH102	0.10-0.30	55	27/10/2015	**Mass of Dry Sample**	48.9 (g)
					28/10/2015	**General Description (Bulk Analysis)**	Soil/Stone/Veg
					28/10/2015	**Asbestos Containing Material**	None
					28/10/2015	**Asbestos Containing Material (2)**	None
					28/10/2015	**Asbestos Screen**	NAD
					28/10/2015	**Asbestos Screen (2)**	NAD
					28/10/2015	**Asbestos Level**	NAD
					28/10/2015	**Waste Limit**	<0.1%

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 15/15000						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes

Jones Environmental Laboratory

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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	5th November, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 6
Location :	Four Ashes
Date samples received :	30th October, 2015
Status :	Final report
Issue :	1

Twelve samples were received for analysis on 30th October, 2015 of which twelve were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Simon Gomery BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	118-119	120-121	122	123-124	125-126	129	130-131	132-134	135-136	137-138	LOD/LOR	Units	Method No.
Sample ID	BH212	BH212	BH108	BH221	TP424	BH222	BH222	WS310	WS310	WS311			
Depth	0.8-1.1	4.2-4.5	18.7-18.8	3.5-4.0	2.6-2.7	0.2-0.3	0.45-0.55	0.4-0.65	2.5-2.6	0.6-0.7			
COC No / misc													
Containers	V J	V J	J	V J	V J	J	V J	V J	V J	V J			
Sample Date	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	6	6	6	6	6	6	6	6	6	6			
Date of Receipt	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015			
Arsenic #	1.8	<0.5	1.2	0.7	1.6	-	4.4	2.7	<0.5	2.4	<0.5	mg/kg	TM30/PM15
Beryllium	1.3	<0.5	0.7	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	TM30/PM15
Cadmium #	0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Chromium #	56.5	42.2	36.3	42.4	47.5	-	51.6	66.3	61.2	100.6	<0.5	mg/kg	TM30/PM15
Copper #	24	7	3	3	4	-	4	5	4	4	<1	mg/kg	TM30/PM15
Lead #	12	<5	<5	<5	<5	-	7	6	5	8	<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Nickel #	17.3	7.2	5.1	4.9	4.9	-	9.9	9.8	4.7	9.7	<0.7	mg/kg	TM30/PM15
Selenium #	2	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	mg/kg	TM30/PM15
Vanadium	57	13	6	12	9	-	22	12	7	14	<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.7	0.3	0.2	0.2	0.1	-	0.1	0.2	0.2	0.2	<0.1	mg/kg	TM74/PM32
Zinc #	62	18	6	8	7	-	25	14	6	14	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	1.88	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.48	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	5.10	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	5.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	22.07	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	0.06	<0.03	mg/kg	TM4/PM8
Anthracene #	7.99	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	22.73	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	16.48	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	6.26	<0.06	<0.06	<0.06	<0.06	-	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	6.67	<0.02	<0.02	<0.02	<0.02	-	<0.02	0.03	<0.02	0.05	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	11.06	<0.07	<0.07	<0.07	<0.07	-	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	6.91	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	4.91	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.93	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	3.90	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
PAH 16 Total	122.4	<0.6	<0.6	<0.6	<0.6	-	<0.6	<0.6	<0.6	<0.6	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	7.96	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	3.10	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	102	94	95	107	97	-	94	101	94	103	<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	-	-	-	-	-	-	-	-	-	<2	ug/kg	TM15/PM10
Benzene #	-	-	-	-	-	-	-	-	-	-	<3	ug/kg	TM15/PM10
Toluene #	-	-	-	-	-	-	-	-	-	-	<3	ug/kg	TM15/PM10
Ethylbenzene #	-	-	-	-	-	-	-	-	-	-	<3	ug/kg	TM15/PM10
p/m-Xylene #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM15/PM10
o-Xylene #	-	-	-	-	-	-	-	-	-	-	<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	-	-	-	-	-	-	-	-	-	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	-	-	-	-	-	-	-	-	-	<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	118-119	120-121	122	123-124	125-126	129	130-131	132-134	135-136	137-138	LOD/LOR	Units	Method No.
Sample ID	BH212	BH212	BH108	BH221	TP424	BH222	BH222	WS310	WS310	WS311			
Depth	0.8-1.1	4.2-4.5	18.7-18.8	3.5-4.0	2.6-2.7	0.2-0.3	0.45-0.55	0.4-0.65	2.5-2.6	0.6-0.7			
COC No / misc													
Containers	V J	V J	J	V J	V J	J	V J	V J	V J	V J			
Sample Date	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	6	6	6	6	6	6	6	6	6	6			
Date of Receipt	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015			
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4	-	<4	<4	<4	<4	<4	mg/kg	TM5/PM16
>C16-C21 #	9	<7	<7	<7	<7	-	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
>C21-C35 #	65	<7	<7	<7	<7	-	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
Total aliphatics C5-35	74	<19	<19	<19	<19	-	<19	<19	<19	<19	<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>EC12-EC16	31	<4	<4	<4	<4	-	<4	<4	<4	<4	<4	mg/kg	TM5/PM16
>EC16-EC21	238	<7	<7	<7	<7	-	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
>EC21-EC35	557	<7	<7	<7	<7	-	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
Total aromatics C5-35	826	<19	<19	<19	<19	-	<19	<19	<19	<19	<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	900	<38	<38	<38	<38	-	<38	<38	<38	<38	<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Total Phenols HPLC	0.63	<0.15	<0.15	<0.15	<0.15	-	<0.15	<0.15	<0.15	<0.15	<0.15	mg/kg	TM26/PM21
Natural Moisture Content	9.1	27.8	17.1	18.0	7.4	-	8.8	11.6	6.9	2.4	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.1236	0.0132	0.0095	<0.0015	0.0069	-	<0.0015	0.0143	0.0046	0.0393	<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	-	-	-	-	1.54	-	0.36	-	-	<0.02	%	TM21/PM24
pH #	7.99	4.97	6.16	5.68	5.32	-	6.24	6.32	5.52	4.46	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	139-141												
Sample ID	WS313												
Depth	0-0.2												
COC No / misc													
Containers	V J												
Sample Date	29/10/2015												
Sample Type	Soil												
Batch Number	6												
Date of Receipt	30/10/2015												
											LOD/LOR	Units	Method No.
Arsenic #	1.5										<0.5	mg/kg	TM30/PM15
Beryllium	<0.5										<0.5	mg/kg	TM30/PM15
Cadmium #	0.2										<0.1	mg/kg	TM30/PM15
Chromium #	64.9										<0.5	mg/kg	TM30/PM15
Copper #	6										<1	mg/kg	TM30/PM15
Lead #	36										<5	mg/kg	TM30/PM15
Mercury #	<0.1										<0.1	mg/kg	TM30/PM15
Nickel #	3.3										<0.7	mg/kg	TM30/PM15
Selenium #	<1										<1	mg/kg	TM30/PM15
Vanadium	7										<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.7										<0.1	mg/kg	TM74/PM32
Zinc #	13										<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04										<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03										<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05										<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04										<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03										<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04										<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03										<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03										<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06										<0.06	mg/kg	TM4/PM8
Chrysene #	0.03										<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07										<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04										<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04										<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04										<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04										<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6										<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05										<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02										<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	103										<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	<2										<2	ug/kg	TM15/PM10
Benzene #	<3										<3	ug/kg	TM15/PM10
Toluene #	<3										<3	ug/kg	TM15/PM10
Ethylbenzene #	<3										<3	ug/kg	TM15/PM10
p/m-Xylene #	<5										<5	ug/kg	TM15/PM10
o-Xylene #	<3										<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	89										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	84										<0	%	TM15/PM10

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	139-141										LOD/LOR	Units	Method No.
Sample ID	WS313												
Depth	0-0.2												
COC No / misc													
Containers	V J												
Sample Date	29/10/2015												
Sample Type	Soil												
Batch Number	6												
Date of Receipt	30/10/2015												
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1										<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1										<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1										<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2										<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4										<4	mg/kg	TM5/PM16
>C16-C21 #	<7										<7	mg/kg	TM5/PM16
>C21-C35 #	<7										<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19										<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1										<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1										<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1										<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2										<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4										<4	mg/kg	TM5/PM16
>EC16-EC21	<7										<7	mg/kg	TM5/PM16
>EC21-EC35	55										<7	mg/kg	TM5/PM16
Total aromatics C5-35	55										<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	55										<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	-										<5	ug/kg	TM31/PM12
Benzene #	-										<5	ug/kg	TM31/PM12
Toluene #	-										<5	ug/kg	TM31/PM12
Ethylbenzene #	-										<5	ug/kg	TM31/PM12
m/p-Xylene #	-										<5	ug/kg	TM31/PM12
o-Xylene #	-										<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15										<0.15	mg/kg	TM26/PM21
Natural Moisture Content	25.4										<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3										<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	<0.0015										<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5										<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-										<0.02	%	TM21/PM24
pH #	3.73										<0.01	pH units	TM73/PM11

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

SVOC Report : **Solid**

J E Sample No.	139-141												
Sample ID	WS313												
Depth	0-0.2										Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J												
Sample Date	29/10/2015												
Sample Type	Soil												
Batch Number	6												
Date of Receipt	30/10/2015										LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10										<10	ug/kg	TM16/PM8
2-Methylphenol	<10										<10	ug/kg	TM16/PM8
2-Nitrophenol	<10										<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10										<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10										<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10										<10	ug/kg	TM16/PM8
4-Methylphenol	<10										<10	ug/kg	TM16/PM8
4-Nitrophenol	<10										<10	ug/kg	TM16/PM8
Pentachlorophenol	<10										<10	ug/kg	TM16/PM8
Phenol #	<10										<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10										<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	<10										<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100										<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100										<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100										<100	ug/kg	TM16/PM8
Diethyl phthalate	<100										<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100										<100	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10										<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
2-Nitroaniline	<10										<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
3-Nitroaniline	<10										<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10										<10	ug/kg	TM16/PM8
4-Chloroaniline	<10										<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10										<10	ug/kg	TM16/PM8
4-Nitroaniline	<10										<10	ug/kg	TM16/PM8
Azobenzene	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10										<10	ug/kg	TM16/PM8
Carbazole	<10										<10	ug/kg	TM16/PM8
Dibenzofuran #	<10										<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10										<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10										<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10										<10	ug/kg	TM16/PM8
Hexachloroethane	<10										<10	ug/kg	TM16/PM8
Isophorone #	<10										<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10										<10	ug/kg	TM16/PM8
Nitrobenzene #	<10										<10	ug/kg	TM16/PM8

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Solid**

J E Sample No.	139-141												
Sample ID	WS313												
Depth	0-0.2										Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J												
Sample Date	29/10/2015												
Sample Type	Soil												
Batch Number	6												
Date of Receipt	30/10/2015										LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2										<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2										<2	ug/kg	TM15/PM10
Chloromethane #	79										<3	ug/kg	TM15/PM10
Vinyl Chloride	<2										<2	ug/kg	TM15/PM10
Bromomethane	<1										<1	ug/kg	TM15/PM10
Chloroethane #	<2										<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2										<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6										<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7										<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3										<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3										<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3										<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4										<4	ug/kg	TM15/PM10
Bromochloromethane #	<3										<3	ug/kg	TM15/PM10
Chloroform #	<3										<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3										<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3										<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4										<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4										<4	ug/kg	TM15/PM10
Benzene #	<3										<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3										<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6										<6	ug/kg	TM15/PM10
Dibromomethane #	<3										<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3										<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4										<4	ug/kg	TM15/PM10
Toluene #	<3										<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3										<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3										<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3										<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3										<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3										<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3										<3	ug/kg	TM15/PM10
Chlorobenzene #	<3										<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3										<3	ug/kg	TM15/PM10
Ethylbenzene #	<3										<3	ug/kg	TM15/PM10
p/m-Xylene #	<5										<5	ug/kg	TM15/PM10
o-Xylene #	<3										<3	ug/kg	TM15/PM10
Styrene	<3										<3	ug/kg	TM15/PM10
Bromoform	<3										<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3										<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3										<3	ug/kg	TM15/PM10
Bromobenzene	<2										<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4										<4	ug/kg	TM15/PM10
Propylbenzene #	<4										<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3										<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5										<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6										<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4										<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4										<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4										<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4										<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4										<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7										<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4										<4	ug/kg	TM15/PM10
Naphthalene	<27										<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7										<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	89										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	84										<0	%	TM15/PM10

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

Note:

Analysis was carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Any questionable sample will automatically be assumed to have breached the Waste Limit and further testing may be required.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	6	BH212	0.8-1.1	119	02/11/2015	**Mass of Dry Sample**	50.8 (g)
					03/11/2015	**General Description (Bulk Analysis)**	soil-stones
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	6	TP424	0.2-0.3	128	02/11/2015	**Mass of Dry Sample**	44.7 (g)
					03/11/2015	**General Description (Bulk Analysis)**	soil-stones
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	6	BH222	0.2-0.3	129	02/11/2015	**Mass of Dry Sample**	41.3 (g)
					03/11/2015	**General Description (Bulk Analysis)**	soil-stones-vegetation
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	6	WS310	0.4-0.65	133	02/11/2015	**Mass of Dry Sample**	51.7 (g)
					03/11/2015	**General Description (Bulk Analysis)**	soil-stones
					03/11/2015	**Asbestos Containing Material**	None
					03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%
15/15000	6	WS311	0.6-0.7	138	02/11/2015	**Mass of Dry Sample**	51.8 (g)
					03/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					03/11/2015	**Asbestos Containing Material**	None

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	6	WS311	0.6-0.7	138	03/11/2015	**Asbestos Containing Material (2)**	None
					03/11/2015	**Asbestos Screen**	NAD
					03/11/2015	**Asbestos Screen (2)**	NAD
					03/11/2015	**Asbestos Level**	NAD
					03/11/2015	**Waste Limit**	<0.1%

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes

Jones Environmental Laboratory

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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	6th November, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 8
Location :	Four Ashes
Date samples received :	31st October, 2015
Status :	Final report
Issue :	1

Twelve samples were received for analysis on 31st October, 2015 of which eleven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Simon Gomery BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	177-179	182-183	184-187	188-189	191-192	193-194	195-196	197-198	199-200		LOD/LOR	Units	Method No.
Sample ID	WS313	WS314	BH109	BH109	BH214	BH214	BH106	WS321	WS321				
Depth	1.9-2.0	1.4-1.5	0.2-0.3	1.3-1.4	0.7-0.9	6.2-6.3	0.2-0.4	0.5-0.7	0.8-0.9				
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J				
Sample Date	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	8	8	8	8	8	8	8	8	8				
Date of Receipt	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015				
Arsenic #	-	1.9	9.2	3.5	3.7	1.3	5.0	4.5	6.0		<0.5	mg/kg	TM30/PM15
Beryllium	-	<0.5	0.7	<0.5	<0.5	0.8	<0.5	0.6	1.4		<0.5	mg/kg	TM30/PM15
Cadmium #	-	<0.1	0.3	<0.1	<0.1	<0.1	0.1	<0.1	<0.1		<0.1	mg/kg	TM30/PM15
Chromium #	-	77.2	45.2	62.8	60.2	50.9	44.8	60.2	69.5		<0.5	mg/kg	TM30/PM15
Copper #	-	5	18	6	6	5	9	11	17		<1	mg/kg	TM30/PM15
Lead #	-	<5	34	<5	5	<5	19	8	7		<5	mg/kg	TM30/PM15
Mercury #	-	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM30/PM15
Nickel #	-	7.2	12.6	10.2	11.8	11.8	12.5	14.8	35.0		<0.7	mg/kg	TM30/PM15
Selenium #	-	<1	<1	<1	<1	<1	<1	<1	1		<1	mg/kg	TM30/PM15
Vanadium	-	10	21	14	18	17	23	21	36		<1	mg/kg	TM30/PM15
Water Soluble Boron #	-	0.3	0.5	0.3	0.3	0.5	0.4	0.4	0.4		<0.1	mg/kg	TM74/PM32
Zinc #	-	8	72	13	21	24	49	42	45		<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	mg/kg	TM4/PM8
Fluorene #	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Phenanthrene #	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Anthracene #	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	<0.03	0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Pyrene #	-	<0.03	0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06		<0.06	mg/kg	TM4/PM8
Chrysene #	-	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	<0.07	0.08	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
PAH 16 Total	-	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	96	104	106	99	94	96	99	98		<0	%	TM4/PM8
2,3,6 - TBA	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
2,4 - D	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
2,4 - DB	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
2,4,5 - T	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
4 - CPA	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Benazolin	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Bentazone	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Bromoxynil	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Clopyralid	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Dicamba	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	177-179	182-183	184-187	188-189	191-192	193-194	195-196	197-198	199-200		LOD/LOR	Units	Method No.
Sample ID	WS313	WS314	BH109	BH109	BH214	BH214	BH106	WS321	WS321				
Depth	1.9-2.0	1.4-1.5	0.2-0.3	1.3-1.4	0.7-0.9	6.2-6.3	0.2-0.4	0.5-0.7	0.8-0.9				
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J				
Sample Date	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	8	8	8	8	8	8	8	8	8				
Date of Receipt	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015				
Dichloroprop	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Diclofop	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Fenoprop	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Flamprop	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Flamprop – isopropyl	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Ioxynil	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
MCPA	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
MCPB	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Mecoprop	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Pentachlorophenol	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Picloram	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
Triclopyr	<0.1	-	-	-	-	-	-	-	-		<0.1	mg/kg	TM42/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>C6-C8 #	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>C8-C10	-	<0.1	0.2	<0.1	<0.1	0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>C10-C12 #	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	mg/kg	TM5/PM16
>C12-C16 #	-	<4	<4	<4	<4	<4	<4	<4	<4		<4	mg/kg	TM5/PM16
>C16-C21 #	-	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM16
>C21-C35 #	-	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM16
Total aliphatics C5-35	-	<19	<19	<19	<19	<19	<19	<19	<19		<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>EC7-EC8	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM36/PM12
>EC10-EC12	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	mg/kg	TM5/PM16
>EC12-EC16	-	<4	<4	<4	<4	<4	<4	<4	<4		<4	mg/kg	TM5/PM16
>EC16-EC21	-	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM16
>EC21-EC35	-	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM16
Total aromatics C5-35	-	<19	<19	<19	<19	<19	<19	<19	<19		<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	-	<38	<38	<38	<38	<38	<38	<38	<38		<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	-	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM31/PM12
Benzene #	-	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM31/PM12
Toluene #	-	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM31/PM12
Ethylbenzene #	-	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM31/PM12
m/p-Xylene #	-	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM31/PM12
o-Xylene #	-	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM31/PM12
PCB 28 #	-	-	-	-	-	-	-	<5	-		<5	ug/kg	TM17/PM8
PCB 52 #	-	-	-	-	-	-	-	<5	-		<5	ug/kg	TM17/PM8
PCB 101 #	-	-	-	-	-	-	-	<5	-		<5	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	177-179	182-183	184-187	188-189	191-192	193-194	195-196	197-198	199-200		LOD/LOR	Units	Method No.
Sample ID	WS313	WS314	BH109	BH109	BH214	BH214	BH106	WS321	WS321				
Depth	1.9-2.0	1.4-1.5	0.2-0.3	1.3-1.4	0.7-0.9	6.2-6.3	0.2-0.4	0.5-0.7	0.8-0.9				
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J				
Sample Date	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015	30/10/2015				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	8	8	8	8	8	8	8	8	8				
Date of Receipt	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015	31/10/2015				
PCB 118 #	-	-	-	-	-	-	-	<5	-		<5	ug/kg	TM17/PM8
PCB 138 #	-	-	-	-	-	-	-	<5	-		<5	ug/kg	TM17/PM8
PCB 153 #	-	-	-	-	-	-	-	<5	-		<5	ug/kg	TM17/PM8
PCB 180 #	-	-	-	-	-	-	-	<5	-		<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	-	-	-	-	-	-	<35	-		<35	ug/kg	TM17/PM8
Total Phenols HPLC	-	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15		<0.15	mg/kg	TM26/PM21
Natural Moisture Content	3.8	3.5	15.4	10.6	7.2	23.4	15.5	11.1	11.8		<0.1	%	PM4/PM0
Hexavalent Chromium #	-	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	0.0104	<0.0015	<0.0015	<0.0015	0.0077	0.0024	<0.0015	0.0134		<0.0015	g/l	TM38/PM20
Total Cyanide #	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	<0.02	-	-	-	-	-	-	-	-		<0.02	%	TM21/PM24
Pesticide Scan MS	ND	-	-	-	-	-	-	-	-			None	TM111/PM8
pH #	-	5.13	6.29	7.38	7.02	7.30	7.24	6.95	7.01		<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

Note:

Analysis was carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Any questionable sample will automatically be assumed to have breached the Waste Limit and further testing may be required.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	8	WS314	0.2-0.3	181	03/11/2015	**Mass of Dry Sample**	46.0 (g)
					04/11/2015	**General Description (Bulk Analysis)**	soil-stones
					04/11/2015	**Asbestos Containing Material**	None
					04/11/2015	**Asbestos Containing Material (2)**	None
					04/11/2015	**Asbestos Screen**	NAD
					04/11/2015	**Asbestos Screen (2)**	NAD
					04/11/2015	**Asbestos Level**	NAD
					04/11/2015	**Waste Limit**	<0.1%
15/15000	8	BH109	0.2-0.3	186	03/11/2015	**Mass of Dry Sample**	45.0 (g)
					04/11/2015	**General Description (Bulk Analysis)**	soil-stones
					04/11/2015	**Asbestos Containing Material**	None
					04/11/2015	**Asbestos Containing Material (2)**	None
					04/11/2015	**Asbestos Screen**	NAD
					04/11/2015	**Asbestos Screen (2)**	NAD
					04/11/2015	**Asbestos Level**	NAD
					04/11/2015	**Waste Limit**	<0.1%
15/15000	8	BH214	0.1-0.2	190	03/11/2015	**Mass of Dry Sample**	49.1 (g)
					04/11/2015	**General Description (Bulk Analysis)**	soil-stones
					04/11/2015	**Asbestos Containing Material**	None
					04/11/2015	**Asbestos Containing Material (2)**	None
					04/11/2015	**Asbestos Screen**	NAD
					04/11/2015	**Asbestos Screen (2)**	NAD
					04/11/2015	**Asbestos Level**	NAD
					04/11/2015	**Waste Limit**	<0.1%
15/15000	8	BH106	0.2-0.4	196	03/11/2015	**Mass of Dry Sample**	51.3 (g)
					04/11/2015	**General Description (Bulk Analysis)**	soil-stones
					04/11/2015	**Asbestos Containing Material**	None
					04/11/2015	**Asbestos Containing Material (2)**	None
					04/11/2015	**Asbestos Screen**	NAD
					04/11/2015	**Asbestos Screen (2)**	NAD
					04/11/2015	**Asbestos Level**	NAD
					04/11/2015	**Waste Limit**	<0.1%

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes
TM42	Modified US EPA method 8270. Pesticides and herbicdes by GC-MS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes
TM111	SVOC GC-MS with Retention Locking Software using an MS library of over 1000 compounds.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

Jones Environmental Laboratory

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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	10th November, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 9
Location :	Four Ashes
Date samples received :	4th November, 2015
Status :	Final report
Issue :	1

Seventeen samples were received for analysis on 4th November, 2015 of which fifteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Simon Gomery BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	202-205	206-207	208-209	210-212	213-214	215-216	217-218	219-220	221-222	223-224	LOD/LOR	Units	Method No.
Sample ID	WS319	WS319	WS320	WS322	WS322	BH211	BH211	BH213	BH224	BH107			
Depth	0.5-0.6	2.4-2.5	0.3-0.4	0.3-0.4	1.5-1.6	0.5-0.6	0.1-0.3	0.2-0.4	7.9-8.0	0.4-0.6			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	9	9	9	9	9	9	9	9	9	9			
Date of Receipt	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015			
Arsenic #	3.4	2.1	4.5	7.0	3.1	-	10.5	9.9	8.3	4.8	<0.5	mg/kg	TM30/PM15
Beryllium	1.2	0.8	<0.5	0.8	<0.5	-	1.1	1.1	0.7	1.0	<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	<0.1	0.2	0.3	<0.1	-	0.7	0.2	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Chromium #	74.0	37.9	64.9	37.0	61.4	-	66.6	60.7	46.4	65.9	<0.5	mg/kg	TM30/PM15
Copper #	15	4	11	44	7	-	38	23	4	17	<1	mg/kg	TM30/PM15
Lead #	<5	<5	24	39	6	-	70	48	<5	7	<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	0.1	<0.1	-	0.2	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Nickel #	26.2	7.5	22.0	17.0	7.7	-	19.3	18.6	5.9	22.5	<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	mg/kg	TM30/PM15
Vanadium	49	16	22	23	18	-	26	28	12	31	<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.6	0.2	0.4	0.6	0.2	-	0.8	0.7	0.3	0.4	<0.1	mg/kg	TM74/PM32
Zinc #	40	7	55	79	10	-	136	85	22	38	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	0.06	0.05	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	0.17	0.10	<0.03	-	0.06	0.04	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	0.14	0.09	<0.03	-	0.06	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	0.12	0.09	<0.06	-	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	0.11	0.08	<0.02	-	0.05	0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	0.22	0.13	<0.07	-	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	0.14	0.09	<0.04	-	0.05	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	0.10	0.06	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	0.08	0.06	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	1.1	0.8	<0.6	-	<0.6	<0.6	<0.6	<0.6	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	0.16	0.09	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	0.06	0.04	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	101	96	107	102	103	-	100	108	95	98	<0	%	TM4/PM8
2,3,6 - TBA	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
2,4 - D	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
2,4 - DB	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
2,4,5 - T	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
4 - CPA	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Benazolin	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Bentazone	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Bromoxynil	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Clopyralid	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Dicamba	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	202-205	206-207	208-209	210-212	213-214	215-216	217-218	219-220	221-222	223-224	LOD/LOR	Units	Method No.
Sample ID	WS319	WS319	WS320	WS322	WS322	BH211	BH211	BH213	BH224	BH107			
Depth	0.5-0.6	2.4-2.5	0.3-0.4	0.3-0.4	1.5-1.6	0.5-0.6	0.1-0.3	0.2-0.4	7.9-8.0	0.4-0.6			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	9	9	9	9	9	9	9	9	9	9			
Date of Receipt	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015			
Dichloroprop	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Diclofop	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Fenoprop	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Flamprop	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Flamprop – isopropyl	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Ioxynil	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
MCPA	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
MCPB	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Mecoprop	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Pentachlorophenol	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Picloram	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
Triclopyr	<0.1	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	mg/kg	TM42/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4	-	<4	<4	<4	<4	<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7	-	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
>C21-C35 #	<7	<7	<7	<7	<7	-	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19	-	<19	<19	<19	<19	<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4	<4	<4	-	<4	<4	<4	<4	<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7	<7	<7	-	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
>EC21-EC35	<7	<7	28	<7	<7	-	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	<19	28	<19	<19	-	<19	<19	<19	<19	<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38	-	<38	<38	<38	<38	<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	-	<0.15	<0.15	<0.15	<0.15	<0.15	mg/kg	TM26/PM21
Natural Moisture Content	22.8	16.1	14.3	11.6	5.5	11.5	21.8	13.1	80.6	14.3	<0.1	%	PM4/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	202-205	206-207	208-209	210-212	213-214	215-216	217-218	219-220	221-222	223-224	LOD/LOR	Units	Method No.
Sample ID	WS319	WS319	WS320	WS322	WS322	BH211	BH211	BH213	BH224	BH107			
Depth	0.5-0.6	2.4-2.5	0.3-0.4	0.3-0.4	1.5-1.6	0.5-0.6	0.1-0.3	0.2-0.4	7.9-8.0	0.4-0.6			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015	03/11/2015			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	9	9	9	9	9	9	9	9	9	9			
Date of Receipt	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015			
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	0.7	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0128	0.0072	0.0266	0.0120	0.0077	-	0.0018	<0.0015	0.0429	0.0156	<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	-	-	-	-	-	-	1.59	-	-	<0.02	%	TM21/PM24
Pesticide Scan MS	ND	-	-	ND	-	ND	-	-	-	-		None	TM111/PM8
pH #	4.58	4.54	5.32	5.82	4.67	-	5.86	6.11	6.00	5.27	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
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JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	225-226	229-230	231-232	233-234	235-236						LOD/LOR	Units	Method No.
Sample ID	BH223	BH223	BH106	WS318	BH224								
Depth	0.2	6.5	5.55-5.60	0.2-0.3	0.1-0.3								
COC No / misc													
Containers	V J	V J	V J	V J	V J								
Sample Date	02/11/2015	02/11/2015	02/11/2015	02/11/2015	02/11/2015								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	9	9	9	9	9								
Date of Receipt	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015								
Arsenic #	5.4	2.6	1.2	7.6	6.6						<0.5	mg/kg	TM30/PM15
Beryllium	<0.5	1.2	<0.5	0.6	0.8						<0.5	mg/kg	TM30/PM15
Cadmium #	0.2	<0.1	<0.1	0.2	0.2						<0.1	mg/kg	TM30/PM15
Chromium #	29.2	43.1	43.0	40.6	84.2						<0.5	mg/kg	TM30/PM15
Copper #	11	2	3	19	28						<1	mg/kg	TM30/PM15
Lead #	23	<5	<5	43	33						<5	mg/kg	TM30/PM15
Mercury #	<0.1	0.4	<0.1	<0.1	0.1						<0.1	mg/kg	TM30/PM15
Nickel #	7.4	9.3	5.9	13.8	18.2						<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	<1	<1	<1						<1	mg/kg	TM30/PM15
Vanadium	16	18	10	19	41						<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.4	0.2	<0.1	0.4	0.7						<0.1	mg/kg	TM74/PM32
Zinc #	43	11	10	58	82						<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	0.07						<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	0.10						<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	0.06						<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.05	<0.03	<0.03	0.04	0.81						<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	0.22						<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.10	<0.03	<0.03	0.08	1.25						<0.03	mg/kg	TM4/PM8
Pyrene #	0.09	<0.03	<0.03	0.07	0.97						<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.09	<0.06	<0.06	<0.06	0.67						<0.06	mg/kg	TM4/PM8
Chrysene #	0.07	<0.02	<0.02	0.07	0.64						<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.11	<0.07	<0.07	0.09	1.08						<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.07	<0.04	<0.04	0.05	0.72						<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.05	<0.04	<0.04	<0.04	0.45						<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	0.10						<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.05	<0.04	<0.04	<0.04	0.36						<0.04	mg/kg	TM4/PM8
PAH 16 Total	0.7	<0.6	<0.6	<0.6	7.5						<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.08	<0.05	<0.05	0.06	0.78						<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.03	<0.02	<0.02	0.03	0.30						<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	93	104	99	106	108						<0	%	TM4/PM8
2,3,6 - TBA	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
2,4 - D	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
2,4 - DB	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
2,4,5 - T	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
4 - CPA	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Benazolin	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Bentazone	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Bromoxynil	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Clopyralid	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Dicamba	-	-	-	-	-						<0.1	mg/kg	TM42/PM8

Client Name: Environ
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JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	225-226	229-230	231-232	233-234	235-236						LOD/LOR	Units	Method No.
Sample ID	BH223	BH223	BH106	WS318	BH224								
Depth	0.2	6.5	5.55-5.60	0.2-0.3	0.1-0.3								
COC No / misc													
Containers	V J	V J	V J	V J	V J								
Sample Date	02/11/2015	02/11/2015	02/11/2015	02/11/2015	02/11/2015								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	9	9	9	9	9								
Date of Receipt	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015								
Dichloroprop	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Diclofop	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Fenoprop	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Flamprop	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Flamprop – isopropyl	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Ioxynil	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
MCPA	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
MCPB	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Mecoprop	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Pentachlorophenol	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Picloram	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
Triclopyr	-	-	-	-	-						<0.1	mg/kg	TM42/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	0.4	<0.1						<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
>C21-C35 #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19						<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
>EC21-EC35	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	<19	<19	<19	<19						<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38						<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5						<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15						<0.15	mg/kg	TM26/PM21
Natural Moisture Content	15.6	17.0	15.8	21.3	14.7						<0.1	%	PM4/PM0

Client Name: Environ
Reference: Four Ashes
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JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	225-226	229-230	231-232	233-234	235-236							
Sample ID	BH223	BH223	BH106	WS318	BH224							
Depth	0.2	6.5	5.55-5.60	0.2-0.3	0.1-0.3							
COC No / misc												
Containers	V J	V J	V J	V J	V J							
Sample Date	02/11/2015	02/11/2015	02/11/2015	02/11/2015	02/11/2015							
Sample Type	Soil	Soil	Soil	Soil	Soil							
Batch Number	9	9	9	9	9							
Date of Receipt	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015							
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3						<0.3	mg/kg
Sulphate as SO4 (2:1 Ext) #	<0.0015	0.0075	0.0142	<0.0015	0.0039						<0.0015	g/l
Total Cyanide #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	mg/kg
Total Organic Carbon #	-	-	-	-	-						<0.02	%
Pesticide Scan MS	-	-	-	-	-							None
pH #	5.49	4.61	6.08	4.56	5.27						<0.01	pH units

Please see attached notes for all abbreviations and acronyms

LOD/LOR	Units	Method No.
<0.3	mg/kg	TM38/PM20
<0.0015	g/l	TM38/PM20
<0.5	mg/kg	TM89/PM45
<0.02	%	TM21/PM24
	None	TM111/PM8
<0.01	pH units	TM73/PM11

Client Name: Environ
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Note:

Analysis was carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Any questionable sample will automatically be assumed to have breached the Waste Limit and further testing may be required.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	9	WS319	0.5-0.6	204	04/11/2015	**Mass of Dry Sample**	44.9 (g)
					05/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					05/11/2015	**Asbestos Containing Material**	None
					05/11/2015	**Asbestos Containing Material (2)**	None
					05/11/2015	**Asbestos Screen**	NAD
					05/11/2015	**Asbestos Screen (2)**	NAD
					05/11/2015	**Asbestos Level**	NAD
					05/11/2015	**Waste Limit**	<0.1%
15/15000	9	WS320	0.3-0.4	209	04/11/2015	**Mass of Dry Sample**	49.3 (g)
					05/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					05/11/2015	**Asbestos Containing Material**	None
					05/11/2015	**Asbestos Containing Material (2)**	None
					05/11/2015	**Asbestos Screen**	NAD
					05/11/2015	**Asbestos Screen (2)**	NAD
					05/11/2015	**Asbestos Level**	NAD
					05/11/2015	**Waste Limit**	<0.1%
15/15000	9	WS322	0.3-0.4	211	04/11/2015	**Mass of Dry Sample**	48.2 (g)
					05/11/2015	**General Description (Bulk Analysis)**	Soil/Stone/Veg
					05/11/2015	**Asbestos Containing Material**	None
					05/11/2015	**Asbestos Containing Material (2)**	None
					05/11/2015	**Asbestos Screen**	NAD
					05/11/2015	**Asbestos Screen (2)**	NAD
					05/11/2015	**Asbestos Level**	NAD
					05/11/2015	**Waste Limit**	<0.1%
15/15000	9	BH211	0.1-0.3	218	04/11/2015	**Mass of Dry Sample**	44.7 (g)
					05/11/2015	**General Description (Bulk Analysis)**	Soil/Stone/Veg
					05/11/2015	**Asbestos Containing Material**	None
					05/11/2015	**Asbestos Containing Material (2)**	None
					05/11/2015	**Asbestos Screen**	NAD
					05/11/2015	**Asbestos Screen (2)**	NAD
					05/11/2015	**Asbestos Level**	NAD
					05/11/2015	**Waste Limit**	<0.1%
15/15000	9	BH213	0.2-0.4	220	04/11/2015	**Mass of Dry Sample**	50.3 (g)
					05/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					05/11/2015	**Asbestos Containing Material**	None

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	9	BH213	0.2-0.4	220	05/11/2015	**Asbestos Containing Material (2)**	None
					05/11/2015	**Asbestos Screen**	NAD
					05/11/2015	**Asbestos Screen (2)**	NAD
					05/11/2015	**Asbestos Level**	NAD
					05/11/2015	**Waste Limit**	<0.1%
15/15000	9	BH107	0.4-0.6	224	04/11/2015	**Mass of Dry Sample**	48.4 (g)
					05/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					05/11/2015	**Asbestos Containing Material**	None
					05/11/2015	**Asbestos Containing Material (2)**	None
					05/11/2015	**Asbestos Screen**	NAD
					05/11/2015	**Asbestos Screen (2)**	NAD
					05/11/2015	**Asbestos Level**	NAD
					05/11/2015	**Waste Limit**	<0.1%
15/15000	9	BH223	0.2	226	04/11/2015	**Mass of Dry Sample**	45.2 (g)
					05/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					05/11/2015	**Asbestos Containing Material**	None
					05/11/2015	**Asbestos Containing Material (2)**	None
					05/11/2015	**Asbestos Screen**	NAD
					05/11/2015	**Asbestos Screen (2)**	NAD
					05/11/2015	**Asbestos Level**	NAD
					05/11/2015	**Waste Limit**	<0.1%
15/15000	9	WS318	0.2-0.3	234	04/11/2015	**Mass of Dry Sample**	43.3 (g)
					05/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					05/11/2015	**Asbestos Containing Material**	None
					05/11/2015	**Asbestos Containing Material (2)**	None
					05/11/2015	**Asbestos Screen**	NAD
					05/11/2015	**Asbestos Screen (2)**	NAD
					05/11/2015	**Asbestos Level**	NAD
					05/11/2015	**Waste Limit**	<0.1%
15/15000	9	BH224	0.1-0.3	236	04/11/2015	**Mass of Dry Sample**	49.7 (g)
					05/11/2015	**General Description (Bulk Analysis)**	Soil/Stone
					05/11/2015	**Asbestos Containing Material**	None
					05/11/2015	**Asbestos Containing Material (2)**	None
					05/11/2015	**Asbestos Screen**	NAD
					05/11/2015	**Asbestos Screen (2)**	NAD
					05/11/2015	**Asbestos Level**	NAD
					05/11/2015	**Waste Limit**	<0.1%

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes
TM42	Modified US EPA method 8270. Pesticides and herbicdes by GC-MS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes
TM111	SVOC GC-MS with Retention Locking Software using an MS library of over 1000 compounds.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	11th November, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 10
Location :	Four Ashes
Date samples received :	5th November, 2015
Status :	Final report
Issue :	1

Eleven samples were received for analysis on 5th November, 2015 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Simon Gomery BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	238-240	241-243	244-245	246-247	250-251	254-255	256-257	260-261			LOD/LOR	Units	Method No.
Sample ID	BH110	BH110	BH218	WS308	WS324	WS317	WS324	BH217					
Depth	0.80-1.00	3.85	0.20-0.30	0.20-0.30	1.60-1.80	0.20-0.35	0.20-0.40	0.10-0.30					
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J					
Sample Date	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	10	10	10	10	10	10	10	10					
Date of Receipt	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015					
Arsenic #	3.7	0.9	7.4	11.3	1.1	10.1	8.6	7.1			<0.5	mg/kg	TM30/PM15
Beryllium	1.0	0.6	0.5	0.9	<0.5	0.9	0.6	0.6			<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	<0.1	0.1	0.3	<0.1	0.3	0.2	0.3			<0.1	mg/kg	TM30/PM15
Chromium #	63.9	53.0	170.8	46.9	64.2	48.8	68.3	50.9			<0.5	mg/kg	TM30/PM15
Copper #	16	3	18	28	5	20	14	35			<1	mg/kg	TM30/PM15
Lead #	8	<5	26	51	<5	43	25	35			<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	0.2	<0.1	0.1	<0.1	<0.1			<0.1	mg/kg	TM30/PM15
Nickel #	27.6	4.2	14.1	17.0	10.3	16.5	18.3	12.6			<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	<1	<1	<1	<1	<1			<1	mg/kg	TM30/PM15
Vanadium	28	8	14	22	8	22	26	17			<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.5	0.4	0.7	0.9	0.3	0.7	0.7	0.7			<0.1	mg/kg	TM74/PM32
Zinc #	23	5	23	65	13	37	32	47			<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	<0.03			<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	0.04	<0.03	<0.03	0.04	0.05	0.05			<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	0.04	0.04			<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06			<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	0.04	<0.02	<0.02	0.02	0.04	0.04			<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07			<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6			<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02			<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	109	98	110	86	100	95	92	89			<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	<2	-	-	-	-	-	-	<2			<2	ug/kg	TM15/PM10
Benzene #	<3	-	-	-	-	-	-	<3			<3	ug/kg	TM15/PM10
Toluene #	<3	-	-	-	-	-	-	<3			<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	-	-	-	-	-	-	<3			<3	ug/kg	TM15/PM10
p/m-Xylene #	<5	-	-	-	-	-	-	<5			<5	ug/kg	TM15/PM10
o-Xylene #	<3	-	-	-	-	-	-	<3			<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	115	-	-	-	-	-	-	112			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	141	-	-	-	-	-	-	114			<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	238-240	241-243	244-245	246-247	250-251	254-255	256-257	260-261			LOD/LOR	Units	Method No.
Sample ID	BH110	BH110	BH218	WS308	WS324	WS317	WS324	BH217					
Depth	0.80-1.00	3.85	0.20-0.30	0.20-0.30	1.60-1.80	0.20-0.35	0.20-0.40	0.10-0.30					
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J					
Sample Date	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	10	10	10	10	10	10	10	10					
Date of Receipt	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015					
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	0.2			<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4	<4	<4			<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM16
>C21-C35 #	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19	<19	<19	<19			<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC10-EC12	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			<0.2	mg/kg	TM5/PM16
>EC12-EC16	<4	<4	<4	<4	<4	<4	<4	<4			<4	mg/kg	TM5/PM16
>EC16-EC21	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM16
>EC21-EC35	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM16
Total aromatics C5-35	<19	<19	<19	<19	<19	<19	<19	<19			<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38	<38	<38	<38			<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	-	<5	<5	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
Benzene #	-	<5	<5	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
Toluene #	-	<5	<5	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
Ethylbenzene #	-	<5	<5	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
m/p-Xylene #	-	<5	<5	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
o-Xylene #	-	<5	<5	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
PCB 28 #	-	-	-	-	-	-	-	<5			<5	ug/kg	TM17/PM8
PCB 52 #	-	-	-	-	-	-	-	<5			<5	ug/kg	TM17/PM8
PCB 101 #	-	-	-	-	-	-	-	<5			<5	ug/kg	TM17/PM8
PCB 118 #	-	-	-	-	-	-	-	<5			<5	ug/kg	TM17/PM8
PCB 138 #	-	-	-	-	-	-	-	<5			<5	ug/kg	TM17/PM8
PCB 153 #	-	-	-	-	-	-	-	<5			<5	ug/kg	TM17/PM8
PCB 180 #	-	-	-	-	-	-	-	<5			<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	-	-	-	-	-	-	<35			<35	ug/kg	TM17/PM8
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15			<0.15	mg/kg	TM26/PM21
Natural Moisture Content	11.5	16.7	10.4	19.9	8.1	21.0	16.6	16.7			<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0112	0.0042	<0.0015	0.0110	<0.0015	0.0095	<0.0015	<0.0015			<0.0015	g/l	TM38/PM20

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	238-240	241-243	244-245	246-247	250-251	254-255	256-257	260-261			LOD/LOR	Units	Method No.
Sample ID	BH110	BH110	BH218	WS308	WS324	WS317	WS324	BH217					
Depth	0.80-1.00	3.85	0.20-0.30	0.20-0.30	1.60-1.80	0.20-0.35	0.20-0.40	0.10-0.30					
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J					
Sample Date	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015	04/11/2015					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	10	10	10	10	10	10	10	10					
Date of Receipt	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015	05/11/2015					
Total Cyanide #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	-	-	-	-	-	1.34	-			<0.02	%	TM21/PM24
pH #	6.88	6.71	6.10	6.29	6.46	6.32	6.58	6.07			<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

SVOC Report : **Solid**

J E Sample No.	238-240	260-261											
Sample ID	BH110	BH217											
Depth	0.80-1.00	0.10-0.30									Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J	V J											
Sample Date	04/11/2015	04/11/2015											
Sample Type	Soil	Soil											
Batch Number	10	10											
Date of Receipt	05/11/2015	05/11/2015									LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10	<10									<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10									<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10									<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10									<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10									<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10									<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10									<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10									<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10									<10	ug/kg	TM16/PM8
Phenol #	<10	<10									<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10	<10									<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	<10	<10									<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100	<100									<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100	<100									<100	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10	<10									<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10									<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10									<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10	<10									<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10									<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10									<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
Azobenzene	<10	<10									<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10									<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10									<10	ug/kg	TM16/PM8
Carbazole	<10	<10									<10	ug/kg	TM16/PM8
Dibenzofuran #	<10	<10									<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10	<10									<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10									<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10									<10	ug/kg	TM16/PM8
Isophorone #	<10	<10									<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10	<10									<10	ug/kg	TM16/PM8
Nitrobenzene #	<10	<10									<10	ug/kg	TM16/PM8

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Solid**

J E Sample No.	238-240	260-261											
Sample ID	BH110	BH217											
Depth	0.80-1.00	0.10-0.30									Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J	V J											
Sample Date	04/11/2015	04/11/2015											
Sample Type	Soil	Soil											
Batch Number	10	10											
Date of Receipt	05/11/2015	05/11/2015									LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2									<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2									<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3									<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2									<2	ug/kg	TM15/PM10
Bromomethane	<1	<1									<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2									<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2									<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6									<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7	<7									<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3									<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3									<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4									<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3									<3	ug/kg	TM15/PM10
Chloroform #	<3	<3									<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3									<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4									<4	ug/kg	TM15/PM10
Benzene #	<3	<3									<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3									<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6									<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3									<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3									<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4									<4	ug/kg	TM15/PM10
Toluene #	<3	<3									<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3									<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3									<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3									<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3									<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3									<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3									<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3	<3									<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
p/m-Xylene #	<5	<5									<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3									<3	ug/kg	TM15/PM10
Styrene	<3	<3									<3	ug/kg	TM15/PM10
Bromoform	<3	<3									<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3									<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2									<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4									<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3									<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3									<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5									<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6									<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4	<4									<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4									<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7									<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4									<4	ug/kg	TM15/PM10
Naphthalene	<27	<27									<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7									<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	115	112									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	141	114									<0	%	TM15/PM10

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

Note:

Analysis was carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Any questionable sample will automatically be assumed to have breached the Waste Limit and further testing may be required.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	10	BH110	0.80-1.00	240	06/11/2015	**Mass of Dry Sample**	50.8 (g)
					06/11/2015	**General Description (Bulk Analysis)**	Soil-Clay
					06/11/2015	**Asbestos Containing Material**	None
					06/11/2015	**Asbestos Containing Material (2)**	None
					06/11/2015	**Asbestos Screen**	NAD
					06/11/2015	**Asbestos Screen (2)**	NAD
					06/11/2015	**Asbestos Level**	NAD
					06/11/2015	**Waste Limit**	<0.1%
15/15000	10	BH218	0.20-0.30	245	06/11/2015	**Mass of Dry Sample**	48.5 (g)
					06/11/2015	**General Description (Bulk Analysis)**	Soil-Silt/Clay/Brick/Stone
					06/11/2015	**Asbestos Containing Material**	None
					06/11/2015	**Asbestos Containing Material (2)**	None
					06/11/2015	**Asbestos Screen**	NAD
					06/11/2015	**Asbestos Screen (2)**	NAD
					06/11/2015	**Asbestos Level**	NAD
					06/11/2015	**Waste Limit**	<0.1%
15/15000	10	WS308	0.20-0.30	247	06/11/2015	**Mass of Dry Sample**	51.4 (g)
					06/11/2015	**General Description (Bulk Analysis)**	Soil-Silt/Clay/Brick/Stone
					06/11/2015	**Asbestos Containing Material**	None
					06/11/2015	**Asbestos Containing Material (2)**	None
					06/11/2015	**Asbestos Screen**	NAD
					06/11/2015	**Asbestos Screen (2)**	NAD
					06/11/2015	**Asbestos Level**	NAD
					06/11/2015	**Waste Limit**	<0.1%
15/15000	10	WS317	0.20-0.35	255	06/11/2015	**Mass of Dry Sample**	45.0 (g)
					06/11/2015	**General Description (Bulk Analysis)**	Soil-Silt/Clay/Brick/Stone
					06/11/2015	**Asbestos Containing Material**	None
					06/11/2015	**Asbestos Containing Material (2)**	None
					06/11/2015	**Asbestos Screen**	NAD
					06/11/2015	**Asbestos Screen (2)**	NAD
					06/11/2015	**Asbestos Level**	NAD
					06/11/2015	**Waste Limit**	<0.1%
15/15000	10	WS324	0.20-0.40	257	06/11/2015	**Mass of Dry Sample**	50.0 (g)
					06/11/2015	**General Description (Bulk Analysis)**	Soil-Silt/Clay/Brick/Stone
					06/11/2015	**Asbestos Containing Material**	None

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
15/15000	10	WS324	0.20-0.40	257	06/11/2015	**Asbestos Containing Material (2)**	None
					06/11/2015	**Asbestos Screen**	NAD
					06/11/2015	**Asbestos Screen (2)**	NAD
					06/11/2015	**Asbestos Level**	NAD
					06/11/2015	**Waste Limit**	<0.1%
15/15000	10	BH217	0.10-0.30	261	06/11/2015	**Mass of Dry Sample**	47.4 (g)
					06/11/2015	**General Description (Bulk Analysis)**	Soil-Silt/Clay/Brick/StonSoil-Silt/Clay/Brick/Stone
					06/11/2015	**Asbestos Containing Material**	None
					06/11/2015	**Asbestos Containing Material (2)**	None
					06/11/2015	**Asbestos Screen**	NAD
					06/11/2015	**Asbestos Screen (2)**	NAD
					06/11/2015	**Asbestos Level**	NAD
					06/11/2015	**Waste Limit**	<0.1%

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes

APPENDIX 4
LABORATORY WATER ANALYTICAL DATA

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781

Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	15th December, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 13
Location :	Four Ashes
Date samples received :	25th November, 2015
Status :	Final report
Issue :	1

Seventeen samples were received for analysis on 25th November, 2015 of which seventeen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Paul Lee-Boden BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, HN=$HN0_3$

J E Sample No.	289-298	299-307	308-316	317-325	326-334	335-343	344-352	353-361	362-370	371-379	LOD/LOR	Units	Method No.
Sample ID	BH210	BH112	BH221	BH109	BH209	BH106	BH101	BH201	BH203	BH102			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	24/11/2015 08:15	24/11/2015 09:15	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	13	13	13	13	13	13	13	13	13	13			
Date of Receipt	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015			
Dissolved Arsenic #	<2.5	14.5	<2.5	2.9	<2.5	<2.5	4.9	<2.5	<2.5	<2.5	<2.5	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM30/PM14
Dissolved Boron	74	522	74	65	48	47	<12	52	61	38	<12	ug/l	TM30/PM14
Dissolved Cadmium #	0.7	0.6	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	1.2	<0.5	<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM30/PM14
Dissolved Nickel #	19	<2	3	13	<2	<2	6	3	26	4	<2	ug/l	TM30/PM14
Dissolved Selenium #	22	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	1.9	<1.5	<1.5	<1.5	<1.5	ug/l	TM30/PM14
Dissolved Zinc #	51	<3	52	4	7	5	4	223	77	16	<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	125	1151_{AA}	46	127	188	357	1398_{AA}	163	160	155	<1	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Acenaphthene #	<0.013	0.090	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Fluorene #	<0.014	0.050	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	ug/l	TM4/PM30
Phenanthrene #	<0.011	0.020	0.020	<0.011	<0.011	<0.011	<0.011	0.020	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Anthracene #	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Fluoranthene #	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	ug/l	TM4/PM30
Pyrene #	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	ug/l	TM4/PM30
Chrysene #	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
PAH 16 Total #	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	81	82	78	88	86	79	87	90	80	77	<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Toluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Ethylbenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
p/m-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
o-Xylene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	108	109	108	110	110	109	106	106	107	104	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102	103	101	103	103	103	98	99	99	96	<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, HN=$HN0_3$

J E Sample No.	289-298	299-307	308-316	317-325	326-334	335-343	344-352	353-361	362-370	371-379	LOD/LOR	Units	Method No.
Sample ID	BH210	BH112	BH221	BH109	BH209	BH106	BH101	BH201	BH203	BH102			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	24/11/2015 08:15	24/11/2015 09:15	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	13	13	13	13	13	13	13	13	13	13			
Date of Receipt	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015			
Benazolin	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Bentazone	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Bromoxynil	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Clopyralid	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
4 - CPA	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
2,4 - D	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
2,4 - DB	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Dicamba	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Dichloroprop	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Diclofop	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Fenoprop	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Flamprop	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Flamprop – isopropyl	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Ioxynil	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
MCPA	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
MCPB	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Mecoprop	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Picloram	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Pentachlorophenol	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
2,4,5 - T	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
2,3,6 - TBA	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
Triclopyr	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	ug/l	TM42/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>C6-C8 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>C8-C10 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>EC7-EC8 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>EC8-EC10 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/TM36/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

J E Sample No.	289-298	299-307	308-316	317-325	326-334	335-343	344-352	353-361	362-370	371-379	LOD/LOR	Units	Method No.
Sample ID	BH210	BH112	BH221	BH109	BH209	BH106	BH101	BH201	BH203	BH102			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	24/11/2015 08:15	24/11/2015 09:15	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	13	13	13	13	13	13	13	13	13	13			
Date of Receipt	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015			
PCB 28	-	<0.1	<0.1	-	-	<0.1	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 52	-	<0.1	<0.1	-	-	<0.1	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 101	-	<0.1	<0.1	-	-	<0.1	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 118	-	<0.1	<0.1	-	-	<0.1	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 138	-	<0.1	<0.1	-	-	<0.1	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 153	-	<0.1	<0.1	-	-	<0.1	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 180	-	<0.1	<0.1	-	-	<0.1	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
Total 7 PCBs	-	<0.7	<0.7	-	-	<0.7	-	-	-	<0.7	<0.7	ug/l	TM17/PM30
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/l	TM26/PM0
Sulphate #	85.98	5.84	35.21	21.60	21.27	160.61	216.55	27.08	26.35	27.37	<0.05	mg/l	TM38/PM0
Chloride #	34.2	27.3	6.0	7.8	19.0	33.9	4453.3	49.4	40.2	25.7	<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	68.7	<0.2	2.3	30.1	36.9	36.8	59.0	68.7	103.1	111.0	<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	0.52	<0.02	0.19	1.09	<0.02	<0.02	0.19	5.92	<0.02	0.06	<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	<0.03	32.55	0.03	0.69	0.04	0.10	0.09	0.46	0.04	0.09	<0.03	mg/l	TM38/PM0
Hexavalent Chromium #	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	TM38/PM0
Sulphide	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM106/PM0
Pesticide Scan MS	-	-	-	ND	ND	-	ND	ND	-	-		None	TM111/PM30
pH #	6.98	7.20	6.16	6.40	6.48	6.69	7.23	6.97	5.56	5.96	<0.01	pH units	TM73/PM0
Cyclotetramethylene Tetranitramine (HMX)*	<1	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)*	<1	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Ethylene Glycol Dinitrate (EGDN)*	<0.5	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
1,3,5-Trinitrobenzene*	<1	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)*	<0.05	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
1,3-Dinitrobenzene*	<1	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Nitrobenzene*	<5	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Glycerol Trinitrate (NG)*	<0.05	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
4-Amino-2,6-DNT*	<1	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2,4,6-Trinitrotoluene (TNT)*	<0.1	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2-Amino-4,6-DNT*	<1	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2,6-Dinitrotoluene*	<0.1	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2,4-Dinitrotoluene*	<0.1	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2-Nitrotoluene*	<5	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
4-Nitrotoluene*	<5	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Pentaeryhritol Tetranitrate (PETN)*	<1	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
3-Nitrotoluene*	<5	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Nitroguanidine (Picrite)*	<10	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

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COC No / misc													
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Sample Date	24/11/2015 08:15	24/11/2015 09:15	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	13	13	13	13	13	13	13	13	13	13			
Date of Receipt	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015			
2,4,6-Trinitro Phenol (Picric Acid)*	<10	-	-	-	-	-	-	-	-	-		ug/l	Subcontracted

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J E Sample No.	380-388	389-397	398-406	407-415	416-424	425-433	434-442				LOD/LOR	Units	Method No.
Sample ID	BH108	BH212	BH215	BH223	BH222	SW4	SW5						
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	13	13	13	13	13	13	13						
Date of Receipt	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015						
Dissolved Arsenic #	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5				<2.5	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	2.3	0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM30/PM14
Dissolved Boron	56	100	38	34	36	217	115				<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	0.7	0.9	<0.5	0.5	0.5	<0.5				<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	3.8	<1.5	<1.5	<1.5	<1.5	4.4				<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	13	<7	<7	<7	<7	<7				<7	ug/l	TM30/PM14
Dissolved Lead #	7	10	6	<5	<5	<5	6				<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM30/PM14
Dissolved Nickel #	19	16	20	8	5	4	3				<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5				<1.5	ug/l	TM30/PM14
Dissolved Zinc #	13	145	431	142	77	27	5				<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	93	100	139	93	117	241	206				<1	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	0.2	0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013				<0.013	ug/l	TM4/PM30
Acenaphthene #	<0.013	0.370	<0.013	<0.013	<0.013	<0.013	<0.013				<0.013	ug/l	TM4/PM30
Fluorene #	<0.014	0.190	<0.014	<0.014	<0.014	<0.014	<0.014				<0.014	ug/l	TM4/PM30
Phenanthrene #	0.020	0.340	<0.011	<0.011	<0.011	<0.011	<0.011				<0.011	ug/l	TM4/PM30
Anthracene #	<0.013	0.080	<0.013	<0.013	<0.013	<0.013	<0.013				<0.013	ug/l	TM4/PM30
Fluoranthene #	<0.012	0.280	<0.012	<0.012	<0.012	<0.012	<0.012				<0.012	ug/l	TM4/PM30
Pyrene #	0.020	0.210	<0.013	<0.013	<0.013	<0.013	<0.013				<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.015	0.050	<0.015	<0.015	<0.015	<0.015	<0.015				<0.015	ug/l	TM4/PM30
Chrysene #	<0.011	0.060	<0.011	<0.011	<0.011	<0.011	<0.011				<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.018	0.060	<0.018	<0.018	<0.018	<0.018	<0.018				<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.016	0.040	<0.016	<0.016	<0.016	<0.016	<0.016				<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.011	0.020	<0.011	<0.011	<0.011	<0.011	<0.011				<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.011	0.020	<0.011	<0.011	<0.011	<0.011	<0.011				<0.011	ug/l	TM4/PM30
PAH 16 Total #	<0.195	1.920	<0.195	<0.195	<0.195	<0.195	<0.195				<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	86	80	79	83	88	76	77				<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM15/PM10
Toluene #	<0.5	2.5	2.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM15/PM10
Ethylbenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM15/PM10
p/m-Xylene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
o-Xylene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	106	103	106	105	106	105	106				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	97	98	97	98	97	97				<0	%	TM15/PM10

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Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

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$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	380-388	389-397	398-406	407-415	416-424	425-433	434-442				LOD/LOR	Units	Method No.
Sample ID	BH108	BH212	BH215	BH223	BH222	SW4	SW5						
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	13	13	13	13	13	13	13						
Date of Receipt	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015						
Benazolin	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Bentazone	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Bromoxynil	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Clopyralid	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
4 - CPA	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
2,4 - D	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
2,4 - DB	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Dicamba	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Dichloroprop	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Diclofop	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Fenoprop	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Flamprop	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Flamprop – isopropyl	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Ioxynil	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
MCPA	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
MCPB	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Mecoprop	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Picloram	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Pentachlorophenol	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
2,4,5 - T	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
2,3,6 - TBA	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
Triclopyr	<0.1	-	-	<0.1	<0.1	-	-				<0.1	ug/l	TM42/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM36/PM12
>C6-C8 #	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM36/PM12
>C8-C10 #	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM36/PM12
>EC7-EC8 #	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM36/PM12
>EC8-EC10 #	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35) #	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/TM36/PM30

Please see attached notes for all abbreviations and acronyms

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Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

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COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	13	13	13	13	13	13	13						
Date of Receipt	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015						
PCB 28	-	-	-	-	-	-	-				<0.1	ug/l	TM17/PM30
PCB 52	-	-	-	-	-	-	-				<0.1	ug/l	TM17/PM30
PCB 101	-	-	-	-	-	-	-				<0.1	ug/l	TM17/PM30
PCB 118	-	-	-	-	-	-	-				<0.1	ug/l	TM17/PM30
PCB 138	-	-	-	-	-	-	-				<0.1	ug/l	TM17/PM30
PCB 153	-	-	-	-	-	-	-				<0.1	ug/l	TM17/PM30
PCB 180	-	-	-	-	-	-	-				<0.1	ug/l	TM17/PM30
Total 7 PCBs	-	-	-	-	-	-	-				<0.7	ug/l	TM17/PM30
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	mg/l	TM26/PM0
Sulphate #	52.25	96.90	71.91	50.81	50.09	115.22	76.83				<0.05	mg/l	TM38/PM0
Chloride #	31.0	22.2	32.2	44.2	22.5	155.1	131.3				<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	32.1	4.4	56.8	52.8	49.0	28.6	0.6				<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	0.56	0.03	1.77	0.20	0.07	0.03	<0.02				<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	<0.06	<0.06	<0.06	<0.06	<0.06	0.29	1.84				<0.06	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02				<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	0.05	0.05	0.48	0.03	0.12	0.05	0.27				<0.03	mg/l	TM38/PM0
Hexavalent Chromium #	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006				<0.006	mg/l	TM38/PM0
Sulphide	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM106/PM0
Pesticide Scan MS	ND	-	-	ND	ND	-	-					None	TM111/PM30
pH #	6.21	4.47	5.59	5.63	6.39	7.55	7.04				<0.01	pH units	TM73/PM0
Cyclotetramethylene Tetranitramine (HMX)*	-	-	-	-	-	-	-					ug/l	Subcontracted
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)*	-	-	-	-	-	-	-					ug/l	Subcontracted
Ethylene Glycol Dinitrate (EGDN)*	-	-	-	-	-	-	-					ug/l	Subcontracted
1,3,5-Trinitrobenzene*	-	-	-	-	-	-	-					ug/l	Subcontracted
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)*	-	-	-	-	-	-	-					ug/l	Subcontracted
1,3-Dinitrobenzene*	-	-	-	-	-	-	-					ug/l	Subcontracted
Nitrobenzene*	-	-	-	-	-	-	-					ug/l	Subcontracted
Glycerol Trinitrate (NG)*	-	-	-	-	-	-	-					ug/l	Subcontracted
4-Amino-2,6-DNT*	-	-	-	-	-	-	-					ug/l	Subcontracted
2,4,6-Trinitrotoluene (TNT)*	-	-	-	-	-	-	-					ug/l	Subcontracted
2-Amino-4,6-DNT*	-	-	-	-	-	-	-					ug/l	Subcontracted
2,6-Dinitrotoluene*	-	-	-	-	-	-	-					ug/l	Subcontracted
2,4-Dinitrotoluene*	-	-	-	-	-	-	-					ug/l	Subcontracted
2-Nitrotoluene*	-	-	-	-	-	-	-					ug/l	Subcontracted
4-Nitrotoluene*	-	-	-	-	-	-	-					ug/l	Subcontracted
Pentaeryhritol Tetranitrate (PETN)*	-	-	-	-	-	-	-					ug/l	Subcontracted
3-Nitrotoluene*	-	-	-	-	-	-	-					ug/l	Subcontracted
Nitroguanidine (Picrite)*	-	-	-	-	-	-	-					ug/l	Subcontracted

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	380-388	389-397	398-406	407-415	416-424	425-433	434-442						
Sample ID	BH108	BH212	BH215	BH223	BH222	SW4	SW5						
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	13	13	13	13	13	13	13				LOD/LOR	Units	Method No.
Date of Receipt	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015						
2,4,6-Trinitro Phenol (Picric Acid)*	-	-	-	-	-	-	-					ug/l	Subcontracted

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Liquid**

J E Sample No.	289-298	299-307	308-316	317-325	326-334	335-343	344-352	353-361	362-370	371-379	LOD/LOR	Units	Method No.
Sample ID	BH210	BH112	BH221	BH109	BH209	BH106	BH101	BH201	BH203	BH102			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	24/11/2015 08:15	24/11/2015 09:15	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	13	13	13	13	13	13	13	13	13	13			
Date of Receipt	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015			
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Toluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Ethylbenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
p/m-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
o-Xylene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	108	109	108	110	110	109	106	106	107	104	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102	103	101	103	103	103	98	99	99	96	<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Liquid**

J E Sample No.	380-388	389-397	398-406	407-415	416-424	425-433	434-442					
Sample ID	BH108	BH212	BH215	BH223	BH222	SW4	SW5					
Depth												
COC No / misc												
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G					
Sample Date	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015	24/11/2015					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	13	13	13	13	13	13	13					
Date of Receipt	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015					
VOC MS												
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l
Chloromethane #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l
Bromomethane	<1	<1	<1	<1	<1	<1	<1				<1	ug/l
Chloroethane #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
Trichlorofluoromethane #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
Dichloromethane (DCM) #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1				<1	ug/l
Bromochloromethane #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Chloroform #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
Carbon tetrachloride #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
1,2-Dichloroethane #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,2-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Dibromomethane #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
Bromodichloromethane #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Toluene #	<0.5	2.5	2.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,3-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Dibromochloromethane #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
1,2-Dibromoethane #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Chlorobenzene #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Ethylbenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l
p/m-Xylene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l
o-Xylene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l
Styrene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Bromoform #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
Isopropylbenzene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4				<4	ug/l
Bromobenzene #	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
Propylbenzene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
2-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
4-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
tert-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
sec-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
4-Isopropyltoluene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,3-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,4-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
n-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
Naphthalene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l
Surrogate Recovery Toluene D8	106	103	106	105	106	105	106				<0	%
Surrogate Recovery 4-Bromofluorobenzene	99	97	98	97	98	97	97				<0	%

Please see attached notes for all abbreviations and acronyms

LOD/LOR	Units	Method No.
		TM15/PM10

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.	Yes			

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes			
TM42	Modified US EPA method 8270. Pesticides and herbicdes by GC-MS	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM0	No preparation is required.	Yes			
TM106	Determination of Sulphide by Skalar Continuous Flow Analyser	PM0	No preparation is required.				
TM111	SVOC GC-MS with Retention Locking Software using an MS library of over 1000 compounds.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
Subcontracted	Subcontracted analysis, sent to an ISO 17025 accredited laboratory where possible.						

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	15th December, 2015
Your reference :	Four Ashes
Our reference :	Test Report 15/15000 Batch 14
Location :	Four Ashes
Date samples received :	26th November, 2015
Status :	Final report
Issue :	1

Sixteen samples were received for analysis on 26th November, 2015 of which fifteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Paul Lee-Boden BSc
Project Manager

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	443-451	452-461	462-471	472-481	482-491	492-501	502-511	512-521	522-531	532-540	LOD/LOR	Units	Method No.
Sample ID	BH103A	BH205	BH113	BH224	BH219	BH220	BH107	BH110	BH213	BH211			
Depth													
COC No / misc													
Containers	V HN N Z P G	V H N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V HN N Z P G			
Sample Date	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	14	14	14	14	14	14	14	14	14	14			
Date of Receipt	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015			
Dissolved Arsenic #	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM30/PM14
Dissolved Boron	85	<12	106	96	75	77	82	79	80	67	<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	2	2	<2	3	<2	22	5	<2	<2	<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM30/PM14
Dissolved Vanadium #	3.9	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	ug/l	TM30/PM14
Dissolved Zinc #	<3	3	<3	18	6	<3	8	<3	<3	<3	<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	390	345	275	150	180	204	191	253	246	289	<1	mg/l	TM30/PM14
PAH MS													
Naphthalene #	0.1	<0.1	0.1	<0.1	0.1	0.1	<0.1	<0.1	0.1	0.1	<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Acenaphthene #	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Fluorene #	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	ug/l	TM4/PM30
Phenanthrene #	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Anthracene #	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Fluoranthene #	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	ug/l	TM4/PM30
Pyrene #	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	ug/l	TM4/PM30
Chrysene #	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
PAH 16 Total #	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
VOC TICs	-	-	ND	ND	ND	ND	ND	ND	ND	ND		None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Toluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Ethylbenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
p/m-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
o-Xylene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	106	107	106	106	107	105	107	107	105	110	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	98	96	97	98	97	96	97	98	98	104	<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

Please see attached notes for all abbreviations and acronyms

J E Sample No.	443-451	452-461	462-471	472-481	482-491	492-501	502-511	512-521	522-531	532-540	LOD/LOR	Units	Method No.
Sample ID	BH103A	BH205	BH113	BH224	BH219	BH220	BH107	BH110	BH213	BH211			
Depth													
COC No / misc													
Containers	V HN N Z P G	V H N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V HN N Z P G			
Sample Date	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	14	14	14	14	14	14	14	14	14	14			
Date of Receipt	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015			
Benazolin	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Bentazone	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Bromoxynil	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Clopyralid	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
4 - CPA	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
2,4 - D	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
2,4 - DB	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Dicamba	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Dichloroprop	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Diclofop	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Fenoprop	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Flamprop	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Flamprop – isopropyl	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Ioxynil	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
MCPA	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
MCPB	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Mecoprop	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Picloram	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Pentachlorophenol	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
2,4,5 - T	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
2,3,6 - TBA	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
Triclopyr	<0.1	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	ug/l	TM42/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>C6-C8 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>C8-C10 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>EC7-EC8 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>EC8-EC10 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/TM36/PM30

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	443-451	452-461	462-471	472-481	482-491	492-501	502-511	512-521	522-531	532-540	LOD/LOR	Units	Method No.
Sample ID	BH103A	BH205	BH113	BH224	BH219	BH220	BH107	BH110	BH213	BH211			
Depth													
COC No / misc													
Containers	V HN N Z P G	V H N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V HN N Z P G			
Sample Date	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	14	14	14	14	14	14	14	14	14	14			
Date of Receipt	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015			
PCB 28	-	-	-	-	-	<0.1	<0.1	-	-	-	<0.1	ug/l	TM17/PM30
PCB 52	-	-	-	-	-	<0.1	<0.1	-	-	-	<0.1	ug/l	TM17/PM30
PCB 101	-	-	-	-	-	<0.1	<0.1	-	-	-	<0.1	ug/l	TM17/PM30
PCB 118	-	-	-	-	-	<0.1	<0.1	-	-	-	<0.1	ug/l	TM17/PM30
PCB 138	-	-	-	-	-	<0.1	<0.1	-	-	-	<0.1	ug/l	TM17/PM30
PCB 153	-	-	-	-	-	<0.1	<0.1	-	-	-	<0.1	ug/l	TM17/PM30
PCB 180	-	-	-	-	-	<0.1	<0.1	-	-	-	<0.1	ug/l	TM17/PM30
Total 7 PCBs	-	-	-	-	-	<0.7	<0.7	-	-	-	<0.7	ug/l	TM17/PM30
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/l	TM26/PM0
Resorcinol	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Catechol	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol #	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
m/p-cresol	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/l	TM26/PM0
o-cresol	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Total cresols #	-	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/l	TM26/PM0
Xylenols #	-	-	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/l	TM26/PM0
1-naphthol	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
2,3,5-trimethyl phenol	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
2-isopropylphenol	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Total Speciated Phenols HPLC	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/l	TM26/PM0
Sulphate #	50.00	109.89	59.54	21.74	21.29	13.74	84.95	32.73	34.92	42.69	<0.05	mg/l	TM38/PM0
Chloride #	178.7	72.8	22.5	5.4	7.7	19.2	58.6	41.8	40.8	24.5	<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	4.4	0.9	121.0	23.7	14.5	15.9	55.4	71.5	118.3	86.0	<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	0.07	<0.02	0.65	0.09	<0.02	<0.02	0.58	0.46	0.11	<0.02	<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	0.03	0.07	0.27	0.05	0.04	<0.03	0.05	0.16	0.06	<0.03	<0.03	mg/l	TM38/PM0
Hexavalent Chromium #	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	TM38/PM0
Sulphide	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM106/PM0
Pesticide Scan MS	ND	-	-	-	ND	-	-	-	-	ND		None	TM111/PM30
pH #	7.42	7.22	6.90	6.81	6.69	7.04	6.00	7.02	6.76	6.80	<0.01	pH units	TM73/PM0
Cyclotetramethylene Tetranitramine (HMX)*	-	-	<1	<1	-	<1	<1	-	-	-		ug/l	Subcontracted
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)*	-	-	<1	<1	-	<1	<1	-	-	-		ug/l	Subcontracted
Ethylene Glycol Dinitrate (EGDN)*	-	-	<0.5	<0.5	-	<0.5	<0.5	-	-	-		ug/l	Subcontracted
1,3,5-Trinitrobenzene*	-	-	<1	<1	-	<1	<1	-	-	-		ug/l	Subcontracted
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)*	-	-	<0.05	<0.05	-	<0.05	<0.05	-	-	-		ug/l	Subcontracted
1,3-Dinitrobenzene*	-	-	<1	<1	-	<1	<1	-	-	-		ug/l	Subcontracted
Nitrobenzene*	-	-	<5	<5	-	<5	<5	-	-	-		ug/l	Subcontracted

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	443-451	452-461	462-471	472-481	482-491	492-501	502-511	512-521	522-531	532-540			
Sample ID	BH103A	BH205	BH113	BH224	BH219	BH220	BH107	BH110	BH213	BH211			
Depth											Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V HN N Z P G	V H N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V HN N Z P G			
Sample Date	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	14	14	14	14	14	14	14	14	14	14	LOD/LOR	Units	Method No.
Date of Receipt	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015			
Glycerol Trinitrate (NG)*	-	-	<0.5	<0.5	-	<0.5	<0.5	-	-	-		ug/l	Subcontracted
4-Amino-2,6-DNT*	-	-	<1	<1	-	<1	<1	-	-	-		ug/l	Subcontracted
2,4,6-Trinitrotoluene (TNT)*	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-		ug/l	Subcontracted
2-Amino-4,6-DNT*	-	-	<1	<1	-	<1	<1	-	-	-		ug/l	Subcontracted
2,6-Dinitrotoluene*	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-		ug/l	Subcontracted
2,4-Dinitrotoluene*	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-		ug/l	Subcontracted
2-Nitrotoluene*	-	-	<5	<5	-	<5	<5	-	-	-		ug/l	Subcontracted
4-Nitrotoluene*	-	-	<5	<5	-	<5	<5	-	-	-		ug/l	Subcontracted
Pentaeryhritol Tetranitrate (PETN)*	-	-	<1	<1	-	<1	<1	-	-	-		ug/l	Subcontracted
3-Nitrotoluene*	-	-	<5	<5	-	<5	<5	-	-	-		ug/l	Subcontracted
Nitroguanidine (Picrite)*	-	-	<10	<10	-	<10	<10	-	-	-		ug/l	Subcontracted
2,4,6-Trinitro Phenol (Picric Acid)*	-	-	<10	<10	-	<10	<10	-	-	-		ug/l	Subcontracted

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

Please see attached notes for all abbreviations and acronyms

J E Sample No.	541-550	551-559	560-568	569-577	578-586							
Sample ID	BH217	SW3	SW6	SW1	SW2							
Depth												
COC No / misc												
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G							
Sample Date	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	14	14	14	14	14							
Date of Receipt	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015							
											LOD/LOR	Units	Method No.
Dissolved Arsenic #	<2.5	<2.5	4.6	<2.5	<2.5						<2.5	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM30/PM14
Dissolved Boron	51	187	158	66	52						<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	3.2	<1.5	<1.5	<1.5						<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7	<7						<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5	<5						<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1	<1						<1	ug/l	TM30/PM14
Dissolved Nickel #	3	4	3	<2	4						<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3	<3						<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	<1.5	1.6	2.1	<1.5						<1.5	ug/l	TM30/PM14
Dissolved Zinc #	12	26	7	15	33						<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	210	238	198	281	102						<1	mg/l	TM30/PM14
PAH MS													
Naphthalene #	0.5	0.1	<0.1	<0.1	<0.1						<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.080	<0.013	<0.013	<0.013	<0.013						<0.013	ug/l	TM4/PM30
Acenaphthene #	0.020	<0.013	<0.013	<0.013	0.040						<0.013	ug/l	TM4/PM30
Fluorene #	<0.014	<0.014	<0.014	<0.014	0.030						<0.014	ug/l	TM4/PM30
Phenanthrene #	<0.011	<0.011	<0.011	0.020	0.050						<0.011	ug/l	TM4/PM30
Anthracene #	<0.013	<0.013	<0.013	<0.013	0.020						<0.013	ug/l	TM4/PM30
Fluoranthene #	<0.012	<0.012	<0.012	0.030	0.080						<0.012	ug/l	TM4/PM30
Pyrene #	<0.013	<0.013	<0.013	0.030	0.110						<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.015	<0.015	<0.015	<0.015	0.030						<0.015	ug/l	TM4/PM30
Chrysene #	<0.011	<0.011	<0.011	0.020	0.060						<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.018	<0.018	<0.018	0.020	0.080						<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.016	<0.016	<0.016	<0.016	0.040						<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.011	<0.011	<0.011	<0.011	<0.011						<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.011	<0.011	<0.011	<0.011	<0.011						<0.011	ug/l	TM4/PM30
PAH 16 Total #	0.600	<0.195	<0.195	<0.195	0.540						<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	0.01	0.06						<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	0.02						<0.01	ug/l	TM4/PM30
VOC TICs	See Attached	-	-	-	-							None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	ug/l	TM15/PM10
Benzene #	12605.7++	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM15/PM10
Toluene #	7181.9++	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM15/PM10
Ethylbenzene #	485.7	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM15/PM10
p/m-Xylene #	1658	<1	<1	<1	<1						<1	ug/l	TM15/PM10
o-Xylene #	984.3	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	114	110	106	105	107						<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	105	99	98	97						<0	%	TM15/PM10

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
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JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

Please see attached notes for all abbreviations and acronyms

J E Sample No.	541-550	551-559	560-568	569-577	578-586							
Sample ID	BH217	SW3	SW6	SW1	SW2							
Depth												
COC No / misc												
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G							
Sample Date	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	14	14	14	14	14							
Date of Receipt	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015							
											LOD/LOR	Units	Method No.
Benazolin	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Bentazone	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Bromoxynil	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Clopyralid	-	-	-	-	-						<0.1	ug/l	TM42/PM30
4 - CPA	-	-	-	-	-						<0.1	ug/l	TM42/PM30
2,4 - D	-	-	-	-	-						<0.1	ug/l	TM42/PM30
2,4 - DB	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Dicamba	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Dichloroprop	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Diclofop	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Fenoprop	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Flamprop	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Flamprop – isopropyl	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Ioxynil	-	-	-	-	-						<0.1	ug/l	TM42/PM30
MCPA	-	-	-	-	-						<0.1	ug/l	TM42/PM30
MCPB	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Mecoprop	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Picloram	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Pentachlorophenol	-	-	-	-	-						<0.1	ug/l	TM42/PM30
2,4,5 - T	-	-	-	-	-						<0.1	ug/l	TM42/PM30
2,3,6 - TBA	-	-	-	-	-						<0.1	ug/l	TM42/PM30
Triclopyr	-	-	-	-	-						<0.1	ug/l	TM42/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	33	<5	<5	<5	<5						<5	ug/l	TM36/PM12
>C6-C8 #	9592 ++	<5	<5	<5	<5						<5	ug/l	TM36/PM12
>C8-C10 #	11324 ++	<5	<5	<5	<5						<5	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5	<5						<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	20949	<10	<10	<10	<10						<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	34219 ++	<5	<5	<5	<5						<5	ug/l	TM36/PM12
>EC7-EC8 #	9757 ++	<5	<5	<5	<5						<5	ug/l	TM36/PM12
>EC8-EC10 #	2463 ++	<5	<5	<5	<5						<5	ug/l	TM36/PM12
>EC10-EC12 #	3640	<5	<5	<5	<5						<5	ug/l	TM5/PM30
>EC12-EC16 #	1240	<10	<10	<10	<10						<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM30
Total aromatics C5-35 #	51319	<10	<10	<10	<10						<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35) #	72268	<10	<10	<10	<10						<10	ug/l	TM5/TM36/PM30

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

Please see attached notes for all abbreviations and acronyms

J E Sample No.	541-550	551-559	560-568	569-577	578-586						LOD/LOR	Units	Method No.
Sample ID	BH217	SW3	SW6	SW1	SW2								
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G								
Sample Date	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	14	14	14	14	14								
Date of Receipt	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015								
PCB 28	-	-	-	-	-						<0.1	ug/l	TM17/PM30
PCB 52	-	-	-	-	-						<0.1	ug/l	TM17/PM30
PCB 101	-	-	-	-	-						<0.1	ug/l	TM17/PM30
PCB 118	-	-	-	-	-						<0.1	ug/l	TM17/PM30
PCB 138	-	-	-	-	-						<0.1	ug/l	TM17/PM30
PCB 153	-	-	-	-	-						<0.1	ug/l	TM17/PM30
PCB 180	-	-	-	-	-						<0.1	ug/l	TM17/PM30
Total 7 PCBs	-	-	-	-	-						<0.7	ug/l	TM17/PM30
Total Phenols HPLC	20.7	<0.1	<0.1	<0.1	<0.1						<0.1	mg/l	TM26/PM0
Resorcinol	0.02	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
Catechol	0.02	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
Phenol #	0.40	<0.01	<0.01	<0.01	0.02						<0.01	mg/l	TM26/PM0
m/p-cresol	1.52 AA	<0.02	<0.02	<0.02	0.03						<0.02	mg/l	TM26/PM0
o-cresol	1.98 AA	<0.01	<0.01	<0.01	0.02						<0.01	mg/l	TM26/PM0
Total cresols #	3.50 AA	<0.03	<0.03	<0.03	0.05						<0.03	mg/l	TM26/PM0
Xylenols #	12.06 AA	<0.06	<0.06	<0.06	<0.06						<0.06	mg/l	TM26/PM0
1-naphthol	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
2,3,5-trimethyl phenol	0.32	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
2-isopropylphenol	4.36 AA	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
Total Speciated Phenols HPLC	20.7	<0.1	<0.1	<0.1	<0.1						<0.1	mg/l	TM26/PM0
Sulphate #	9.31	88.27	70.08	57.34	19.16						<0.05	mg/l	TM38/PM0
Chloride #	58.4	152.3	104.2	169.9	16.3						<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	28.3	4.3	35.3	<0.2						<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	0.08	0.14	0.07	<0.02						<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	<0.06	0.27	0.13	<0.06	0.08						<0.06	mg/l	TM38/PM0
Total Cyanide #	0.04	<0.01	<0.01	<0.01	0.02						<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	1.86	0.07	0.21	0.09	1.02						<0.03	mg/l	TM38/PM0
Hexavalent Chromium #	<0.006	<0.006	<0.006	<0.006	<0.006						<0.006	mg/l	TM38/PM0
Sulphide	<10	<10	<10	<10	<10						<10	ug/l	TM106/PM0
Pesticide Scan MS	-	-	-	-	-							None	TM111/PM30
pH #	6.95	7.76	8.10	7.48	7.09						<0.01	pH units	TM73/PM0
Cyclotetramethylene Tetranitramine (HMX)*	<5	-	-	-	-							ug/l	Subcontracted
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)*	<5	-	-	-	-							ug/l	Subcontracted
Ethylene Glycol Dinitrate (EGDN)*	<2.5	-	-	-	-							ug/l	Subcontracted
1,3,5-Trinitrobenzene*	<5	-	-	-	-							ug/l	Subcontracted
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)*	<0.25	-	-	-	-							ug/l	Subcontracted
1,3-Dinitrobenzene*	<5	-	-	-	-							ug/l	Subcontracted
Nitrobenzene*	<200	-	-	-	-							ug/l	Subcontracted

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	541-550	551-559	560-568	569-577	578-586								
Sample ID	BH217	SW3	SW6	SW1	SW2								
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G								
Sample Date	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	14	14	14	14	14								
Date of Receipt	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015								

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Glycerol Trinitrate (NG)*	<2.5	-	-	-	-							ug/l	Subcontracted
4-Amino-2,6-DNT*	<5	-	-	-	-							ug/l	Subcontracted
2,4,6-Trinitrotoluene (TNT)*	<0.5	-	-	-	-							ug/l	Subcontracted
2-Amino-4,6-DNT*	<5	-	-	-	-							ug/l	Subcontracted
2,6-Dinitrotoluene*	<2	-	-	-	-							ug/l	Subcontracted
2,4-Dinitrotoluene*	<2	-	-	-	-							ug/l	Subcontracted
2-Nitrotoluene*	<100	-	-	-	-							ug/l	Subcontracted
4-Nitrotoluene*	<100	-	-	-	-							ug/l	Subcontracted
Pentaeryhritol Tetranitrate (PETN)*	<5	-	-	-	-							ug/l	Subcontracted
3-Nitrotoluene*	<100	-	-	-	-							ug/l	Subcontracted
Nitroguanidine (Picrite)*	<10	-	-	-	-							ug/l	Subcontracted
2,4,6-Trinitro Phenol (Picric Acid)*	<10	-	-	-	-							ug/l	Subcontracted

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Liquid**

J E Sample No.	443-451	452-461	462-471	472-481	482-491	492-501	502-511	512-521	522-531	532-540	LOD/LOR	Units	Method No.
Sample ID	BH103A	BH205	BH113	BH224	BH219	BH220	BH107	BH110	BH213	BH211			
Depth													
COC No / misc													
Containers	V H N N Z P G	V H N Z P G	V H N N Z P G	V H N N Z P G	V H N N Z P G	V H N N Z P G	V H N N Z P G	V H N N Z P G	V H N N Z P G	V H N N Z P G			
Sample Date	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	14	14	14	14	14	14	14	14	14	14			
Date of Receipt	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015			
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Toluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Ethylbenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
p/m-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
o-Xylene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	106	107	106	106	107	105	107	107	105	110	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	98	96	97	98	97	96	97	98	98	104	<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Environ
Reference: Four Ashes
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 15/15000

VOC Report : **Liquid**

J E Sample No.	541-550	551-559	560-568	569-577	578-586							
Sample ID	BH217	SW3	SW6	SW1	SW2							
Depth										Please see attached notes for all abbreviations and acronyms		
COC No / misc												
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G							
Sample Date	25/11/2015	25/11/2015	25/11/2015	25/11/2015	25/11/2015							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	14	14	14	14	14							
Date of Receipt	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015							
VOC MS										LOD/LOR	Units	Method No.
Dichlorodifluoromethane	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Vinyl Chloride #	5.4	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1					<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,1-Dichloroethane #	5	<3	<3	<3	<3					<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	116	<3	<3	<3	<3					<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1					<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Benzene #	12605.7++	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Toluene #	7181.9++	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Ethylbenzene #	485.7	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM15/PM10
p/m-Xylene #	1658	<1	<1	<1	<1					<1	ug/l	TM15/PM10
o-Xylene #	984.3	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM15/PM10
Styrene	398	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Isopropylbenzene #	18	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4					<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	103	<3	<3	<3	<3					<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	308	<3	<3	<3	<3					<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Naphthalene	2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	114	110	106	105	107					<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	105	99	98	97					<0	%	TM15/PM10

Job number: 15/15000 **Method:** VOC
Sample number: 541 **Matrix:** Liquid
Sample identity: BH217
Sample depth:
Sample Type: Ground Water
Units: ug/l

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
110-02-1	Thiophene	4.241	91	149
110-86-1	Pyridine	4.920	91	104
123-63-7	Paraldehyde	5.013	87	573
616-44-4	Thiophene, 3-methyl-	5.098	91	120
108-48-5	Pyridine, 2,6-dimethyl-	5.805	96	2118
100-71-0	Pyridine, 2-ethyl-	5.998	97	396
583-58-4	Pyridine, 3,4-dimethyl-	6.195	95	247
611-14-3	Benzene, 1-ethyl-2-methyl-	6.477	93	185
271-89-6	Benzofuran	6.701	91	696
95-63-6	Benzene, 1,2,4-trimethyl-	6.777	92	276
529-21-5	Pyridine, 3-ethyl-4-methyl-	6.806	94	134
496-11-7	Indane	6.887	91	1170
95-13-6	Indene	6.995	97	2061
767-58-8	Indan, 1-methyl-	7.172	93	159
7399-50-0	2-(3-Pentyl)pyridine	7.287	95	586
17059-52-8	Benzofuran, 7-methyl-	7.344	95	332
4265-25-2	Benzofuran, 2-methyl-	7.363 - 7.388	93,95	171
874-35-1	1H-Indene, 2,3-dihydro-5-methyl-	7.477	87	115
103-69-5	Benzenamine, N-ethyl-	7.547	91	184
447-53-0	Naphthalene, 1,2-dihydro-	7.649	95	110

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15000

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x10 Dilution

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.	Yes			
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.				

JE Job No: 15/15000

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes			
TM42	Modified US EPA method 8270. Pesticides and herbicdes by GC-MS	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM0	No preparation is required.	Yes			
TM106	Determination of Sulphide by Skalar Continuous Flow Analyser	PM0	No preparation is required.				
TM111	SVOC GC-MS with Retention Locking Software using an MS library of over 1000 compounds.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
Subcontracted	Subcontracted analysis, sent to an ISO 17025 accredited laboratory where possible.						

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

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Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	25th January, 2016
Your reference :	
Our reference :	Test Report 16/3407 Batch 1
Location :	Four Ashes
Date samples received :	14th January, 2016
Status :	Final report
Issue :	1

Fourteen samples were received for analysis on 14th January, 2016 of which fourteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Paul Lee-Boden BSc
Project Manager

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	1-9	10-19	20-28	29-37	38-46	47-55	56-64	65-73	74-82	83-91	LOD/LOR	Units	Method No.
Sample ID	SW4	BH210	SW1	BH103A	BH205	BH203	BH201	BH221	BH112	BH101			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016			
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016			
Dissolved Arsenic	<2.5	<2.5	3.1	5.7	<2.5	<2.5	<2.5	<2.5	<2.5	7.7	<2.5	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM30/PM14
Dissolved Boron	124	56	56	48	<12	54	51	73	455	13	<12	ug/l	TM30/PM14
Dissolved Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.8	<0.5	ug/l	TM30/PM14
Total Dissolved Chromium	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	ug/l	TM30/PM14
Dissolved Copper	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/l	TM30/PM14
Dissolved Lead	5	<5	7	7	9	<5	<5	<5	<5	<5	<5	ug/l	TM30/PM14
Dissolved Mercury	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM30/PM14
Dissolved Nickel	3	<2	3	<2	2	<2	6	<2	<2	5	<2	ug/l	TM30/PM14
Dissolved Selenium	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM30/PM14
Dissolved Vanadium	<1.5	<1.5	2.2	3.4	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	ug/l	TM30/PM14
Dissolved Zinc	43	<3	24	<3	4	4	27	16	<3	4	<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	211	177	193	368	342	215	180	60	1207	2087	<1	mg/l	TM30/PM14
PAH MS													
Naphthalene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM4/PM30
Acenaphthylene	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Acenaphthene	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.260	<0.013	<0.013	ug/l	TM4/PM30
Fluorene	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	0.050	<0.014	<0.014	ug/l	TM4/PM30
Phenanthrene	<0.011	<0.011	0.050	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Anthracene	<0.013	<0.013	0.020	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Fluoranthene	0.020	<0.012	0.110	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	ug/l	TM4/PM30
Pyrene	0.020	<0.013	0.090	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Benzo(a)anthracene	<0.015	<0.015	0.030	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	ug/l	TM4/PM30
Chrysene	<0.011	<0.011	0.040	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene	<0.018	<0.018	0.050	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	ug/l	TM4/PM30
Benzo(a)pyrene	<0.016	<0.016	0.030	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
PAH 16 Total	<0.195	<0.195	0.420	<0.195	<0.195	<0.195	<0.195	<0.195	0.310	<0.195	<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	76	73	72	77	73	79	71	142	71	74	<0	%	TM4/PM30
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Toluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
p/m-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
o-Xylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	104	102	104	105	105	105	105	107	104	106	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	115	113	117	115	116	115	117	118	115	118	<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

J E Sample No.	1-9	10-19	20-28	29-37	38-46	47-55	56-64	65-73	74-82	83-91	LOD/LOR	Units	Method No.
Sample ID	SW4	BH210	SW1	BH103A	BH205	BH203	BH201	BH221	BH112	BH101			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016			
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016			
Benazolin	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Bentazone	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Bromoxynil	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Clopyralid	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
4 - CPA	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
2,4 - D	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
2,4 - DB	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Dicamba	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Dichloroprop	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Diclofop	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Fenoprop	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Flamprop	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Flamprop – isopropyl	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Ioxynil	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
MCPA	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
MCPB	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Mecoprop	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Picloram	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Pentachlorophenol	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
2,4,5 - T	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
2,3,6 - TBA	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
Triclopyr	-	-	-	-	<0.1	<0.1	-	<0.1	-	-	<0.1	ug/l	TM42/PM30
TPH CWG													
Aliphatics													
>C5-C6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>C6-C8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>C8-C10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>C10-C12	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM30
>C12-C16	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>C16-C21	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>C21-C35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aliphatics C5-35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>EC7-EC8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>EC8-EC10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>EC10-EC12	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM30
>EC12-EC16	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>EC16-EC21	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>EC21-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aromatics C5-35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/TM36/PM30

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

J E Sample No.	1-9	10-19	20-28	29-37	38-46	47-55	56-64	65-73	74-82	83-91	LOD/LOR	Units	Method No.
Sample ID	SW4	BH210	SW1	BH103A	BH205	BH203	BH201	BH221	BH112	BH101			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016			
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016			
PCB 28	-	<0.1	-	-	-	-	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 52	-	<0.1	-	-	-	-	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 101	-	<0.1	-	-	-	-	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 118	-	<0.1	-	-	-	-	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 138	-	<0.1	-	-	-	-	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 153	-	<0.1	-	-	-	-	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
PCB 180	-	<0.1	-	-	-	-	-	-	-	<0.1	<0.1	ug/l	TM17/PM30
Total 7 PCBs	-	<0.7	-	-	-	-	-	-	-	<0.7	<0.7	ug/l	TM17/PM30
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/l	TM26/PM0
Sulphate	62.65	15.70	33.64	54.76	116.73	18.00	20.51	32.22	<0.05	226.88	<0.05	mg/l	TM38/PM0
Chloride	69.1	19.9	58.3	114.1	76.6	43.6	52.1	8.2	33.6	4634.8	<0.3	mg/l	TM38/PM0
Nitrate as NO3	5.8	11.9	9.7	0.6	0.5	41.2	56.4	1.4	<0.2	33.5	<0.2	mg/l	TM38/PM0
Nitrite as NO2	0.09	<0.02	<0.02	0.23	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	0.12	<0.06	<0.06	0.54	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/l	TM38/PM0
Total Cyanide	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	0.09	<0.03	0.04	0.03	0.05	0.03	<0.03	<0.03	27.88	0.05	<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	TM38/PM0
Sulphide	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM106/PM0
Pesticide Scan MS	-	-	-	-	ND	ND	-	ND	-	-		None	TM111/PM30
pH	7.15	6.76	7.17	7.27	7.00	6.87	6.12	5.71	7.24	7.16	<0.01	pH units	TM73/PM0
Cyclotetramethylene Tetranitramine (HMX)*	-	<1	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)*	-	<1	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Ethylene Glycol Dinitrate (EGDN)*	-	<0.5	-	-	-	-	-	-	-	-		ug/l	Subcontracted
1,3,5-Trinitrobenzene*	-	<1	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)*	-	<0.05	-	-	-	-	-	-	-	-		ug/l	Subcontracted
1,3-Dinitrobenzene*	-	<1	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Nitrobenzene*	-	<5	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Glycerol Trinitrate (NG)*	-	<0.5	-	-	-	-	-	-	-	-		ug/l	Subcontracted
4-Amino-2,6-DNT*	-	<1	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2,4,6-Trinitrotoluene (TNT)*	-	<0.1	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2-Amino-4,6-DNT*	-	<1	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2,6-Dinitrotoluene*	-	<0.1	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2,4-Dinitrotoluene*	-	<0.1	-	-	-	-	-	-	-	-		ug/l	Subcontracted
2-Nitrotoluene*	-	<5	-	-	-	-	-	-	-	-		ug/l	Subcontracted
4-Nitrotoluene*	-	<5	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Pentaeryhritol Tetranitrate (PETN)*	-	<1	-	-	-	-	-	-	-	-		ug/l	Subcontracted
3-Nitrotoluene*	-	<5	-	-	-	-	-	-	-	-		ug/l	Subcontracted
Nitroguanidine (Picrite)*	-	<10	-	-	-	-	-	-	-	-		ug/l	Subcontracted

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	1-9	10-19	20-28	29-37	38-46	47-55	56-64	65-73	74-82	83-91			
Sample ID	SW4	BH210	SW1	BH103A	BH205	BH203	BH201	BH221	BH112	BH101			
Depth											Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016			
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016			
2,4,6-Trinitro Phenol (Picric Acid)*	-	<10	-	-	-	-	-	-	-	-		ug/l	Subcontracted

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	92-100	101-109	110-118	119-127							LOD/LOR	Units	Method No.
Sample ID	SW6	BH209	BH106	SW5									
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G									
Sample Date	13/01/2016	13/01/2016	13/01/2016	13/01/2016									
Sample Type	Liquid	Liquid	Liquid	Liquid									
Batch Number	1	1	1	1									
Date of Receipt	14/01/2016	14/01/2016	14/01/2016	14/01/2016									
Dissolved Arsenic	<2.5	<2.5	<2.5	<2.5							<2.5	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Dissolved Boron	149	50	143	56							<12	ug/l	TM30/PM14
Dissolved Cadmium	<0.5	<0.5	0.5	<0.5							<0.5	ug/l	TM30/PM14
Total Dissolved Chromium	<1.5	<1.5	<1.5	8.6							<1.5	ug/l	TM30/PM14
Dissolved Copper	<7	<7	<7	7							<7	ug/l	TM30/PM14
Dissolved Lead	<5	<5	<5	<5							<5	ug/l	TM30/PM14
Dissolved Mercury	<1	<1	<1	<1							<1	ug/l	TM30/PM14
Dissolved Nickel	2	<2	3	4							<2	ug/l	TM30/PM14
Dissolved Selenium	<3	<3	<3	<3							<3	ug/l	TM30/PM14
Dissolved Vanadium	2.2	<1.5	2.0	4.6							<1.5	ug/l	TM30/PM14
Dissolved Zinc	<3	3	298	27							<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	197	179	196	124							<1	mg/l	TM30/PM14
PAH MS													
Naphthalene	<0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM4/PM30
Acenaphthylene	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PM30
Acenaphthene	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PM30
Fluorene	<0.014	<0.014	<0.014	<0.014							<0.014	ug/l	TM4/PM30
Phenanthrene	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PM30
Anthracene	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PM30
Fluoranthene	<0.012	<0.012	<0.012	<0.012							<0.012	ug/l	TM4/PM30
Pyrene	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PM30
Benzo(a)anthracene	<0.015	<0.015	<0.015	<0.015							<0.015	ug/l	TM4/PM30
Chrysene	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene	<0.018	<0.018	<0.018	<0.018							<0.018	ug/l	TM4/PM30
Benzo(a)pyrene	<0.016	<0.016	<0.016	<0.016							<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01	<0.01							<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PM30
PAH 16 Total	<0.195	<0.195	<0.195	<0.195							<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01							<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01							<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	76	74	72	71							<0	%	TM4/PM30
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Benzene	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
Toluene	<0.5	<0.5	<0.5	1.0							<0.5	ug/l	TM15/PM10
Ethylbenzene	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
p/m-Xylene	<1	<1	<1	<1							<1	ug/l	TM15/PM10
o-Xylene	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	106	105	108	106							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	118	119	118	119							<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	92-100	101-109	110-118	119-127							LOD/LOR	Units	Method No.
Sample ID	SW6	BH209	BH106	SW5									
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G									
Sample Date	13/01/2016	13/01/2016	13/01/2016	13/01/2016									
Sample Type	Liquid	Liquid	Liquid	Liquid									
Batch Number	1	1	1	1									
Date of Receipt	14/01/2016	14/01/2016	14/01/2016	14/01/2016									
Benazolin	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Bentazone	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Bromoxynil	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Clopyralid	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
4 - CPA	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
2,4 - D	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
2,4 - DB	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Dicamba	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Dichloroprop	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Diclofop	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Fenoprop	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Flamprop	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Flamprop – isopropyl	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Ioxynil	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
MCPA	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
MCPB	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Mecoprop	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Picloram	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Pentachlorophenol	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
2,4,5 - T	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
2,3,6 - TBA	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
Triclopyr	-	-	<0.1	-							<0.1	ug/l	TM42/PM30
TPH CWG													
Aliphatics													
>C5-C6	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>C6-C8	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>C8-C10	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>C10-C12	<5	<5	<5	<5							<5	ug/l	TM5/PM30
>C12-C16	<10	<10	<10	<10							<10	ug/l	TM5/PM30
>C16-C21	<10	<10	<10	<10							<10	ug/l	TM5/PM30
>C21-C35	<10	<10	<10	<10							<10	ug/l	TM5/PM30
Total aliphatics C5-35	<10	<10	<10	<10							<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>EC7-EC8	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>EC8-EC10	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>EC10-EC12	<5	<5	<5	<5							<5	ug/l	TM5/PM30
>EC12-EC16	<10	<10	<10	<10							<10	ug/l	TM5/PM30
>EC16-EC21	<10	<10	<10	<10							<10	ug/l	TM5/PM30
>EC21-EC35	<10	<10	<10	<10							<10	ug/l	TM5/PM30
Total aromatics C5-35	<10	<10	<10	<10							<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35)	<10	<10	<10	<10							<10	ug/l	TM5/TM36/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

J E Sample No.	92-100	101-109	110-118	119-127							LOD/LOR	Units	Method No.
Sample ID	SW6	BH209	BH106	SW5									
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G									
Sample Date	13/01/2016	13/01/2016	13/01/2016	13/01/2016									
Sample Type	Liquid	Liquid	Liquid	Liquid									
Batch Number	1	1	1	1									
Date of Receipt	14/01/2016	14/01/2016	14/01/2016	14/01/2016									
PCB 28	-	-	-	-							<0.1	ug/l	TM17/PM30
PCB 52	-	-	-	-							<0.1	ug/l	TM17/PM30
PCB 101	-	-	-	-							<0.1	ug/l	TM17/PM30
PCB 118	-	-	-	-							<0.1	ug/l	TM17/PM30
PCB 138	-	-	-	-							<0.1	ug/l	TM17/PM30
PCB 153	-	-	-	-							<0.1	ug/l	TM17/PM30
PCB 180	-	-	-	-							<0.1	ug/l	TM17/PM30
Total 7 PCBs	-	-	-	-							<0.7	ug/l	TM17/PM30
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1							<0.1	mg/l	TM26/PM0
Sulphate	70.77	19.02	142.46	37.85							<0.05	mg/l	TM38/PM0
Chloride	102.5	23.7	33.7	45.0							<0.3	mg/l	TM38/PM0
Nitrate as NO3	2.0	25.3	31.3	3.1							<0.2	mg/l	TM38/PM0
Nitrite as NO2	0.10	<0.02	<0.02	0.33							<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	0.07	<0.06	<0.06	0.79							<0.06	mg/l	TM38/PM0
Total Cyanide	<0.01	<0.01	<0.01	<0.01							<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	0.10	<0.03	0.04	2.15							<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006							<0.006	mg/l	TM38/PM0
Sulphide	<10	<10	<10	<10							<10	ug/l	TM106/PM0
Pesticide Scan MS	-	-	ND	-								None	TM111/PM30
pH	8.09	6.71	6.56	7.16							<0.01	pH units	TM73/PM0
Cyclotetramethylene Tetranitramine (HMX)*	-	-	-	-								ug/l	Subcontracted
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)*	-	-	-	-								ug/l	Subcontracted
Ethylene Glycol Dinitrate (EGDN)*	-	-	-	-								ug/l	Subcontracted
1,3,5-Trinitrobenzene*	-	-	-	-								ug/l	Subcontracted
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)*	-	-	-	-								ug/l	Subcontracted
1,3-Dinitrobenzene*	-	-	-	-								ug/l	Subcontracted
Nitrobenzene*	-	-	-	-								ug/l	Subcontracted
Glycerol Trinitrate (NG)*	-	-	-	-								ug/l	Subcontracted
4-Amino-2,6-DNT*	-	-	-	-								ug/l	Subcontracted
2,4,6-Trinitrotoluene (TNT)*	-	-	-	-								ug/l	Subcontracted
2-Amino-4,6-DNT*	-	-	-	-								ug/l	Subcontracted
2,6-Dinitrotoluene*	-	-	-	-								ug/l	Subcontracted
2,4-Dinitrotoluene*	-	-	-	-								ug/l	Subcontracted
2-Nitrotoluene*	-	-	-	-								ug/l	Subcontracted
4-Nitrotoluene*	-	-	-	-								ug/l	Subcontracted
Pentaeryhritol Tetranitrate (PETN)*	-	-	-	-								ug/l	Subcontracted
3-Nitrotoluene*	-	-	-	-								ug/l	Subcontracted
Nitroguanidine (Picrite)*	-	-	-	-								ug/l	Subcontracted

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	92-100	101-109	110-118	119-127							LOD/LOR	Units	Method No.
Sample ID	SW6	BH209	BH106	SW5									
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G									
Sample Date	13/01/2016	13/01/2016	13/01/2016	13/01/2016									
Sample Type	Liquid	Liquid	Liquid	Liquid									
Batch Number	1	1	1	1									
Date of Receipt	14/01/2016	14/01/2016	14/01/2016	14/01/2016									
2,4,6-Trinitro Phenol (Picric Acid)*	-	-	-	-								ug/l	Subcontracted

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

VOC Report : **Liquid**

J E Sample No.	1-9	10-19	20-28	29-37	38-46	47-55	56-64	65-73	74-82	83-91			
Sample ID	SW4	BH210	SW1	BH103A	BH205	BH203	BH201	BH221	BH112	BH101			
Depth											Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016	13/01/2016			
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Chloromethane	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Vinyl Chloride	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Chloroethane	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Trichlorofluoromethane	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE)	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Dichloromethane (DCM)	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethane	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Bromochloromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chloroform	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1-Trichloroethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1-Dichloropropene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Carbon tetrachloride	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dichloroethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Trichloroethene (TCE)	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromomethane	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Bromodichloromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Toluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,2-Trichloroethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Tetrachloroethene (PCE)	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dibromoethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chlorobenzene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
p/m-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
o-Xylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Isopropylbenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/l	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichloropropane	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Propylbenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
tert-Butylbenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
sec-Butylbenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
4-Isopropyltoluene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,4-Dichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
n-Butylbenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	104	102	104	105	105	105	105	107	104	106	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	115	113	117	115	116	115	117	118	115	118	<0	%	TM15/PM10

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

VOC Report : **Liquid**

J E Sample No.	92-100	101-109	110-118	119-127								
Sample ID	SW6	BH209	BH106	SW5								
Depth											Please see attached notes for all abbreviations and acronyms	
COC No / misc												
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G								
Sample Date	13/01/2016	13/01/2016	13/01/2016	13/01/2016								
Sample Type	Liquid	Liquid	Liquid	Liquid								
Batch Number	1	1	1	1								
Date of Receipt	14/01/2016	14/01/2016	14/01/2016	14/01/2016								
											LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Chloromethane	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Vinyl Chloride	<0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1							<1	ug/l	TM15/PM10
Chloroethane	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Trichlorofluoromethane	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE)	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Dichloromethane (DCM)	<3	<3	<3	<3							<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethane	<3	<3	<3	<3							<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1							<1	ug/l	TM15/PM10
Bromochloromethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Chloroform	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1-Trichloroethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1-Dichloropropene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Carbon tetrachloride	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dichloroethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Benzene	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
Trichloroethene (TCE)	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichloropropane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromomethane	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Bromodichloromethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Toluene	<0.5	<0.5	<0.5	1.0							<0.5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,2-Trichloroethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Tetrachloroethene (PCE)	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichloropropane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dibromoethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Chlorobenzene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Ethylbenzene	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
p/m-Xylene	<1	<1	<1	<1							<1	ug/l	TM15/PM10
o-Xylene	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Isopropylbenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4							<4	ug/l	TM15/PM10
Bromobenzene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichloropropane	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Propylbenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
tert-Butylbenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
sec-Butylbenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
4-Isopropyltoluene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichlorobenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,4-Dichlorobenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
n-Butylbenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichlorobenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	106	105	108	106							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	118	119	118	119							<0	%	TM15/PM10

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 16/3407

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

JE Job No: 16/3407

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.				
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.				
TM42	Modified US EPA method 8270. Pesticides and herbicdes by GC-MS	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				

JE Job No: 16/3407

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM0	No preparation is required.				
TM106	Determination of Sulphide by Skalar Continuous Flow Analyser	PM0	No preparation is required.				
TM111	SVOC GC-MS with Retention Locking Software using an MS library of over 1000 compounds.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
Subcontracted	Subcontracted analysis, sent to an ISO 17025 accredited laboratory where possible.						

Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781

Environ
8 The Wharf
Birmingham
B1 2JS

Attention :	Alison Huggins
Date :	25th January, 2016
Your reference :	
Our reference :	Test Report 16/3407 Batch 2
Location :	Four Ashes
Date samples received :	15th January, 2016
Status :	Final report
Issue :	1

Eighteen samples were received for analysis on 15th January, 2016 of which eighteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Paul Lee-Boden BSc
Project Manager

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	128-136	137-145	146-154	155-163	164-171	172-181	182-190	191-198	199-208	209-217	LOD/LOR	Units	Method No.
Sample ID	BH109	BH223	BH222	SW2	BH211	BH107	BH213	BH110	BH217	BH219			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016			
Sample Type	Ground Water	Ground Water	Ground Water	Surface Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016			
Dissolved Arsenic #	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM30/PM14
Dissolved Boron	76	34	35	59	59	85	63	64	59	63	<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	ug/l	TM30/PM14
Dissolved Copper #	12	<7	<7	7	<7	<7	<7	<7	<7	<7	<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM30/PM14
Dissolved Nickel #	4	3	2	5	<2	24	<2	3	<2	3	<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	<1.5	<1.5	4.5	<1.5	<1.5	<1.5	<1.5	<1.5	4.2	<1.5	ug/l	TM30/PM14
Dissolved Zinc #	<3	16	19	45	<3	13	<3	<3	7	4	<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	147	96	110	98	255	193	219	220	171	162	<1	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1	0.6	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.013	<0.013	<0.013	0.040	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Acenaphthene #	<0.013	<0.013	<0.013	0.050	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Fluorene #	<0.014	<0.014	<0.014	0.060	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	ug/l	TM4/PM30
Phenanthrene #	<0.011	<0.011	<0.011	0.060	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Anthracene #	<0.013	<0.013	<0.013	0.020	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Fluoranthene #	<0.012	<0.012	<0.012	0.060	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	ug/l	TM4/PM30
Pyrene #	0.020	<0.013	<0.013	0.060	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.015	<0.015	<0.015	0.020	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	ug/l	TM4/PM30
Chrysene #	<0.011	<0.011	<0.011	0.030	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.018	<0.018	<0.018	0.060	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.016	<0.016	<0.016	0.020	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.011	<0.011	<0.011	0.020	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.011	<0.011	<0.011	0.020	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	ug/l	TM4/PM30
PAH 16 Total #	<0.195	<0.195	<0.195	1.120	<0.195	<0.195	<0.195	<0.195	0.500	<0.195	<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	75	72	73	71	80	70	76	74	100	71	<0	%	TM4/PM30
VOC TICs	-	-	-	-	ND	ND	ND	ND	See Attached	ND		None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7150.2++	<0.5	<0.5	ug/l	TM15/PM10
Toluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2867.4++	<0.5	<0.5	ug/l	TM15/PM10
Ethylbenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	163.0	<0.5	<0.5	ug/l	TM15/PM10
p/m-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1	626	<1	<1	ug/l	TM15/PM10
o-Xylene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	345.7	<0.5	<0.5	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	101	96	100	100	98	98	94	95	95	96	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	98	99	100	99	99	99	96	98	98	96	<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	128-136	137-145	146-154	155-163	164-171	172-181	182-190	191-198	199-208	209-217	LOD/LOR	Units	Method No.
Sample ID	BH109	BH223	BH222	SW2	BH211	BH107	BH213	BH110	BH217	BH219			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016			
Sample Type	Ground Water	Ground Water	Ground Water	Surface Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016			
Benazolin	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Bentazone	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Bromoxynil	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Clopyralid	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
4 - CPA	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
2,4 - D	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
2,4 - DB	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Dicamba	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Dichloroprop	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Diclofop	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Fenoprop	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Flamprop	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Flamprop – isopropyl	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Ioxynil	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
MCPA	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
MCPB	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Mecoprop	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Picloram	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Pentachlorophenol	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
2,4,5 - T	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
2,3,6 - TBA	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
Triclopyr	-	-	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM42/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<5	<5	<5	13	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
>C6-C8 #	<5	<5	<5	10	<5	<5	<5	<5	1764	<5	<5	ug/l	TM36/PM12
>C8-C10 #	<5	<5	<5	<5	<5	<5	<5	<5	2444	<5	<5	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10	<10	23	<10	<10	<10	<10	4208	<10	<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	<5	<5	<5	<5	<5	<5	<5	<5	5924	<5	<5	ug/l	TM36/PM12
>EC7-EC8 #	<5	<5	<5	<5	<5	<5	<5	<5	2372	<5	<5	ug/l	TM36/PM12
>EC8-EC10 #	<5	<5	<5	<5	<5	<5	<5	<5	1205	<5	<5	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	<5	<5	<5	<5	<5	1451	<5	<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10	<10	<10	<10	<10	<10	<10	120	<10	<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10	<10	<10	<10	<10	<10	<10	<10	11072	<10	<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35) #	<10	<10	<10	23	<10	<10	<10	<10	15280	<10	<10	ug/l	TM5/TM36/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

J E Sample No.	128-136	137-145	146-154	155-163	164-171	172-181	182-190	191-198	199-208	209-217	LOD/LOR	Units	Method No.
Sample ID	BH109	BH223	BH222	SW2	BH211	BH107	BH213	BH110	BH217	BH219			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016			
Sample Type	Ground Water	Ground Water	Ground Water	Surface Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016			
PCB 28	-	<0.1	-	-	-	-	-	-	<0.1	<0.1	<0.1	ug/l	TM17/PM30
PCB 52	-	<0.1	-	-	-	-	-	-	<0.1	<0.1	<0.1	ug/l	TM17/PM30
PCB 101	-	<0.1	-	-	-	-	-	-	<0.1	<0.1	<0.1	ug/l	TM17/PM30
PCB 118	-	<0.1	-	-	-	-	-	-	<0.1	<0.1	<0.1	ug/l	TM17/PM30
PCB 138	-	<0.1	-	-	-	-	-	-	<0.1	<0.1	<0.1	ug/l	TM17/PM30
PCB 153	-	<0.1	-	-	-	-	-	-	<0.1	<0.1	<0.1	ug/l	TM17/PM30
PCB 180	-	<0.1	-	-	-	-	-	-	<0.1	<0.1	<0.1	ug/l	TM17/PM30
Total 7 PCBs	-	<0.7	-	-	-	-	-	-	<0.7	<0.7	<0.7	ug/l	TM17/PM30
Total Phenols HPLC	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/l	TM26/PM0
Resorcinol	-	-	-	<0.01	-	-	-	-	0.03	-	<0.01	mg/l	TM26/PM0
Catechol	-	-	-	<0.01	-	-	-	-	<0.01	-	<0.01	mg/l	TM26/PM0
Phenol #	-	-	-	<0.01	-	-	-	-	0.04	-	<0.01	mg/l	TM26/PM0
m/p-cresol	-	-	-	<0.02	-	-	-	-	0.11	-	<0.02	mg/l	TM26/PM0
o-cresol	-	-	-	<0.01	-	-	-	-	0.14	-	<0.01	mg/l	TM26/PM0
Total cresols #	-	-	-	<0.03	-	-	-	-	0.25	-	<0.03	mg/l	TM26/PM0
Xylenols #	-	-	-	<0.06	-	-	-	-	1.12	-	<0.06	mg/l	TM26/PM0
1-naphthol	-	-	-	<0.01	-	-	-	-	0.02	-	<0.01	mg/l	TM26/PM0
2,3,5-trimethyl phenol	-	-	-	<0.01	-	-	-	-	0.03	-	<0.01	mg/l	TM26/PM0
2-isopropylphenol	-	-	-	<0.01	-	-	-	-	0.12	-	<0.01	mg/l	TM26/PM0
Total Speciated Phenols HPLC	-	-	-	<0.1	-	-	-	-	1.6	-	<0.1	mg/l	TM26/PM0
Sulphate #	17.35	21.20	44.54	26.35	36.91	90.41	40.36	23.46	94.35	8.94	<0.05	mg/l	TM38/PM0
Chloride #	16.5	34.4	31.4	16.8	24.3	68.9	37.6	36.3	54.8	21.1	<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	17.2	22.7	19.0	0.9	42.7	39.2	35.9	21.3	69.6	0.7	<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	0.14	<0.02	<0.02	<0.02	0.05	0.46	<0.02	<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	<0.06	<0.06	<0.06	0.15	<0.06	<0.06	<0.06	0.07	<0.06	<0.06	<0.06	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	0.07	<0.03	0.06	0.70	<0.03	0.09	<0.03	0.04	0.61	<0.03	<0.03	mg/l	TM38/PM0
Hexavalent Chromium #	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	mg/l	TM38/PM0
Sulphide	<10	<10	<10	20	<10	<10	<10	<10	<10	<10	<10	ug/l	TM106/PM0
Pesticide Scan MS	-	-	-	-	-	-	ND	-	-	-		None	TM111/PM30
pH #	6.71	5.72	6.47	6.91	6.67	5.55	6.61	6.96	6.86	6.69	<0.01	pH units	TM73/PM0
Cyclotetramethylene Tetranitramine (HMX)*	-	-	-	-	-	<1	-	-	<1	-		ug/l	Subcontracted
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)*	-	-	-	-	-	<1	-	-	<1	-		ug/l	Subcontracted
Ethylene Glycol Dinitrate (EGDN)*	-	-	-	-	-	<0.5	-	-	<0.5	-		ug/l	Subcontracted
1,3,5-Trinitrobenzene*	-	-	-	-	-	<1	-	-	<1	-		ug/l	Subcontracted
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)*	-	-	-	-	-	<0.05	-	-	<0.05	-		ug/l	Subcontracted
1,3-Dinitrobenzene*	-	-	-	-	-	<1	-	-	<1	-		ug/l	Subcontracted
Nitrobenzene*	-	-	-	-	-	<5	-	-	<20	-		ug/l	Subcontracted

Client Name: Environ
Reference:
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JE Job No.: 16/3407

Report : Liquid

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H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

J E Sample No.	128-136	137-145	146-154	155-163	164-171	172-181	182-190	191-198	199-208	209-217			
Sample ID	BH109	BH223	BH222	SW2	BH211	BH107	BH213	BH110	BH217	BH219			
Depth											Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016			
Sample Type	Ground Water	Ground Water	Ground Water	Surface Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	2	2	2	2	2	2	2	2	2	2	LOD/LOR	Units	Method No.
Date of Receipt	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016			
Glycerol Trinitrate (NG)*	-	-	-	-	-	<0.5	-	-	<0.5	-		ug/l	Subcontracted
4-Amino-2,6-DNT*	-	-	-	-	-	<1	-	-	<1	-		ug/l	Subcontracted
2,4,6-Trinitrotoluene (TNT)*	-	-	-	-	-	<0.1	-	-	<0.1	-		ug/l	Subcontracted
2-Amino-4,6-DNT*	-	-	-	-	-	<1	-	-	<1	-		ug/l	Subcontracted
2,6-Dinitrotoluene*	-	-	-	-	-	<0.1	-	-	<0.1	-		ug/l	Subcontracted
2,4-Dinitrotoluene*	-	-	-	-	-	<0.1	-	-	<0.1	-		ug/l	Subcontracted
2-Nitrotoluene*	-	-	-	-	-	<5	-	-	<20	-		ug/l	Subcontracted
4-Nitrotoluene*	-	-	-	-	-	<5	-	-	<20	-		ug/l	Subcontracted
Pentaeryhritol Tetranitrate (PETN)*	-	-	-	-	-	<1	-	-	<1	-		ug/l	Subcontracted
3-Nitrotoluene*	-	-	-	-	-	<5	-	-	<20	-		ug/l	Subcontracted
Nitroguanidine (Picrite)*	-	-	-	-	-	<10	-	-	<10	-		ug/l	Subcontracted
2,4,6-Trinitro Phenol (Picric Acid)*	-	-	-	-	-	<10	-	-	<10	-		ug/l	Subcontracted

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	218-227	228-237	238-246	247-255	256-264	265-274	275-283	284-292			LOD/LOR	Units	Method No.
Sample ID	BH224	BH113	BH215	BH212	BH108	BH220	BH102	SW3					
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G					
Sample Date	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	13/01/2016	13/01/2016					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	2	2	2	2	2	2	2	2					
Date of Receipt	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016					
Dissolved Arsenic #	3.4	<2.5	3.7	<2.5	<2.5	<2.5	<2.5	3.5			<2.5	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	0.7	1.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/l	TM30/PM14
Dissolved Boron	83	86	50	107	25	65	34	142			<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5	3.1	<1.5	<1.5	<1.5	2.6			<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	13	<7	<7	<7	7			<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	5	<5	<5	<5	<5	11			<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1	<1	<1	<1	<1			<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	2	14	9	13	<2	<2	5			<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM30/PM14
Dissolved Vanadium #	1.9	1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5			<1.5	ug/l	TM30/PM14
Dissolved Zinc #	<3	<3	125	77	9	<3	5	73			<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	157	439	62	102	50	231	205	235			<1	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.013	<0.013	<0.013	0.070	<0.013	<0.013	<0.013	<0.013			<0.013	ug/l	TM4/PM30
Acenaphthene #	<0.013	<0.013	<0.013	0.090	<0.013	<0.013	<0.013	<0.013			<0.013	ug/l	TM4/PM30
Fluorene #	<0.014	<0.014	<0.014	0.070	<0.014	<0.014	<0.014	<0.014			<0.014	ug/l	TM4/PM30
Phenanthrene #	<0.011	<0.011	<0.011	0.190	<0.011	<0.011	<0.011	<0.011			<0.011	ug/l	TM4/PM30
Anthracene #	<0.013	<0.013	<0.013	0.140	<0.013	<0.013	<0.013	<0.013			<0.013	ug/l	TM4/PM30
Fluoranthene #	<0.012	<0.012	<0.012	0.640	<0.012	<0.012	<0.012	<0.012			<0.012	ug/l	TM4/PM30
Pyrene #	<0.013	<0.013	<0.013	0.620	<0.013	<0.013	<0.013	<0.013			<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.015	<0.015	<0.015	0.310	<0.015	<0.015	<0.015	<0.015			<0.015	ug/l	TM4/PM30
Chrysene #	<0.011	<0.011	<0.011	0.300	<0.011	<0.011	<0.011	<0.011			<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.018	<0.018	<0.018	0.770	<0.018	<0.018	<0.018	<0.018			<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.016	<0.016	<0.016	0.500	<0.016	<0.016	<0.016	<0.016			<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.011	<0.011	<0.011	0.300	<0.011	<0.011	<0.011	<0.011			<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01			<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.011	<0.011	<0.011	0.250	<0.011	<0.011	<0.011	<0.011			<0.011	ug/l	TM4/PM30
PAH 16 Total #	<0.195	<0.195	<0.195	4.300	<0.195	<0.195	<0.195	<0.195			<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	0.55	<0.01	<0.01	<0.01	<0.01			<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	0.22	<0.01	<0.01	<0.01	<0.01			<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	71	72	70	72	77	71	70	71			<0	%	TM4/PM30
VOC TICs	ND	ND	-	-	-	ND	-	-				None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/l	TM15/PM10
Toluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/l	TM15/PM10
Ethylbenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/l	TM15/PM10
p/m-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1			<1	ug/l	TM15/PM10
o-Xylene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	92	99	92	89	90	89	89	90			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	96	97	96	94	96	93	93	93			<0	%	TM15/PM10

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Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	218-227	228-237	238-246	247-255	256-264	265-274	275-283	284-292			LOD/LOR	Units	Method No.
Sample ID	BH224	BH113	BH215	BH212	BH108	BH220	BH102	SW3					
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G					
Sample Date	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	13/01/2016	13/01/2016					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	2	2	2	2	2	2	2	2					
Date of Receipt	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016					
Benazolin	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Bentazone	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Bromoxynil	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Clopyralid	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
4 - CPA	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
2,4 - D	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
2,4 - DB	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Dicamba	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Dichloroprop	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Diclofop	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Fenoprop	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Flamprop	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Flamprop – isopropyl	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Ioxynil	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
MCPA	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
MCPB	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Mecoprop	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Picloram	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Pentachlorophenol	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
2,4,5 - T	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
2,3,6 - TBA	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
Triclopyr	-	-	<0.1	<0.1	-	-	<0.1	-			<0.1	ug/l	TM42/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
>C6-C8 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
>C8-C10 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
>EC7-EC8 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
>EC8-EC10 #	<5	<5	<5	<5	7	<5	<5	<5			<5	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/TM36/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	218-227	228-237	238-246	247-255	256-264	265-274	275-283	284-292			LOD/LOR	Units	Method No.
Sample ID	BH224	BH113	BH215	BH212	BH108	BH220	BH102	SW3					
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G					
Sample Date	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	13/01/2016	13/01/2016					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	2	2	2	2	2	2	2	2					
Date of Receipt	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016					
PCB 28	-	-	-	<0.1	-	-	-	-			<0.1	ug/l	TM17/PM30
PCB 52	-	-	-	<0.1	-	-	-	-			<0.1	ug/l	TM17/PM30
PCB 101	-	-	-	<0.1	-	-	-	-			<0.1	ug/l	TM17/PM30
PCB 118	-	-	-	<0.1	-	-	-	-			<0.1	ug/l	TM17/PM30
PCB 138	-	-	-	<0.1	-	-	-	-			<0.1	ug/l	TM17/PM30
PCB 153	-	-	-	<0.1	-	-	-	-			<0.1	ug/l	TM17/PM30
PCB 180	-	-	-	<0.1	-	-	-	-			<0.1	ug/l	TM17/PM30
Total 7 PCBs	-	-	-	<0.7	-	-	-	-			<0.7	ug/l	TM17/PM30
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/l	TM26/PM0
Resorcinol	-	-	-	-	-	-	-	-			<0.01	mg/l	TM26/PM0
Catechol	-	-	-	-	-	-	-	-			<0.01	mg/l	TM26/PM0
Phenol #	-	-	-	-	-	-	-	-			<0.01	mg/l	TM26/PM0
m/p-cresol	-	-	-	-	-	-	-	-			<0.02	mg/l	TM26/PM0
o-cresol	-	-	-	-	-	-	-	-			<0.01	mg/l	TM26/PM0
Total cresols #	-	-	-	-	-	-	-	-			<0.03	mg/l	TM26/PM0
Xylenols #	-	-	-	-	-	-	-	-			<0.06	mg/l	TM26/PM0
1-naphthol	-	-	-	-	-	-	-	-			<0.01	mg/l	TM26/PM0
2,3,5-trimethyl phenol	-	-	-	-	-	-	-	-			<0.01	mg/l	TM26/PM0
2-isopropylphenol	-	-	-	-	-	-	-	-			<0.01	mg/l	TM26/PM0
Total Speciated Phenols HPLC	-	-	-	-	-	-	-	-			<0.1	mg/l	TM26/PM0
Sulphate #	13.03	20.36	19.72	89.70	42.13	9.32	6.97	76.38			<0.05	mg/l	TM38/PM0
Chloride #	8.4	3.5	10.5	19.4	13.5	10.6	22.3	76.4			<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	8.4	13.6	51.2	10.5	3.3	55.3	156.3	26.0			<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.11			<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.12			<0.06	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	<0.03	0.21	<0.03	0.03	0.03	<0.03	<0.03	0.12			<0.03	mg/l	TM38/PM0
Hexavalent Chromium #	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006			<0.006	mg/l	TM38/PM0
Sulphide	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM106/PM0
Pesticide Scan MS	-	-	ND	ND	-	-	ND	-				None	TM111/PM30
pH #	6.84	7.04	4.63	4.42	5.75	6.76	5.96	7.29			<0.01	pH units	TM73/PM0
Cyclotetramethylene Tetranitramine (HMX)*	<1	<1	-	-	-	<1	-	-				ug/l	Subcontracted
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)*	<1	<1	-	-	-	<1	-	-				ug/l	Subcontracted
Ethylene Glycol Dinitrate (EGDN)*	<0.5	<0.5	-	-	-	<0.5	-	-				ug/l	Subcontracted
1,3,5-Trinitrobenzene*	<1	<1	-	-	-	<1	-	-				ug/l	Subcontracted
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)*	<0.05	<0.05	-	-	-	<0.05	-	-				ug/l	Subcontracted
1,3-Dinitrobenzene*	<1	<1	-	-	-	<1	-	-				ug/l	Subcontracted
Nitrobenzene*	<5	<5	-	-	-	<5	-	-				ug/l	Subcontracted

Please see attached notes for all abbreviations and acronyms

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

J E Sample No.	218-227	228-237	238-246	247-255	256-264	265-274	275-283	284-292					
Sample ID	BH224	BH113	BH215	BH212	BH108	BH220	BH102	SW3					
Depth											Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G					
Sample Date	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	13/01/2016	13/01/2016					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	2	2	2	2	2	2	2	2			LOD/LOR	Units	Method No.
Date of Receipt	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016					
Glycerol Trinitrate (NG)*	<0.5	<0.5	-	-	-	<0.5	-	-				ug/l	Subcontracted
4-Amino-2,6-DNT*	<1	<1	-	-	-	<1	-	-				ug/l	Subcontracted
2,4,6-Trinitrotoluene (TNT)*	<0.1	<0.1	-	-	-	<0.1	-	-				ug/l	Subcontracted
2-Amino-4,6-DNT*	<1	<1	-	-	-	<1	-	-				ug/l	Subcontracted
2,6-Dinitrotoluene*	<0.1	<0.1	-	-	-	<0.1	-	-				ug/l	Subcontracted
2,4-Dinitrotoluene*	<0.1	<0.1	-	-	-	<0.1	-	-				ug/l	Subcontracted
2-Nitrotoluene*	<5	<5	-	-	-	<5	-	-				ug/l	Subcontracted
4-Nitrotoluene*	<5	<5	-	-	-	<5	-	-				ug/l	Subcontracted
Pentaeryhritol Tetranitrate (PETN)*	<1	<1	-	-	-	<1	-	-				ug/l	Subcontracted
3-Nitrotoluene*	<5	<5	-	-	-	<5	-	-				ug/l	Subcontracted
Nitroguanidine (Picrite)*	<10	<10	-	-	-	<10	-	-				ug/l	Subcontracted
2,4,6-Trinitro Phenol (Picric Acid)*	<10	<10	-	-	-	<10	-	-				ug/l	Subcontracted

Client Name: Environ
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

VOC Report : **Liquid**

J E Sample No.	128-136	137-145	146-154	155-163	164-171	172-181	182-190	191-198	199-208	209-217	LOD/LOR	Units	Method No.
Sample ID	BH109	BH223	BH222	SW2	BH211	BH107	BH213	BH110	BH217	BH219			
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G			
Sample Date	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016			
Sample Type	Ground Water	Ground Water	Ground Water	Surface Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016			
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	14	<3	<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7150.2 ++	<0.5	<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Toluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2867.4 ++	<0.5	<0.5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Ethylbenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	163.0	<0.5	<0.5	ug/l	TM15/PM10
p/m-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1	626	<1	<1	ug/l	TM15/PM10
o-Xylene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	345.7	<0.5	<0.5	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	7	<3	<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	7	<3	<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	46	<3	<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	137	<3	<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	101	96	100	100	98	98	94	95	95	96	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	98	99	100	99	99	99	96	98	98	96	<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Environ **VOC Report :** **Liquid**
Reference:
Location: Four Ashes
Contact: Alison Huggins
JE Job No.: 16/3407

J E Sample No.	218-227	228-237	238-246	247-255	256-264	265-274	275-283	284-292			LOD/LOR	Units	Method No.
Sample ID	BH224	BH113	BH215	BH212	BH108	BH220	BH102	SW3					
Depth													
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G					
Sample Date	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	14/01/2016	13/01/2016	13/01/2016					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	2	2	2	2	2	2	2	2					
Date of Receipt	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016	15/01/2016					
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1			<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1			<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Toluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Ethylbenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/l	TM15/PM10
p/m-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1			<1	ug/l	TM15/PM10
o-Xylene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4	<4			<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	92	99	92	89	90	89	89	90			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	96	97	96	94	96	93	93	93			<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Job number: 16/3407
Sample number: 199
Sample identity: BH217
Sample depth:
Sample Type: Ground Water
Units: ug/l

Method: **VOC**
Matrix: **Liquid**

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
109-06-8	Pyridine, 2-methyl-	5.395	96	461
108-48-5	Pyridine, 2,6-dimethyl-	5.804	97	352
271-89-6	Benzofuran	6.695	87	227
108-67-8	Mesitylene	6.776	94	139
496-11-7	Indane	6.880	95	561
95-13-6	Indene	6.988	97	954
7399-50-0	2-(3-Pentyl)pyridine	7.287	93	147
17059-52-8	Benzofuran, 7-methyl-	7.338	93	169
1560-06-1	Benzene, 2-butenyl-	7.560	80	134
15677-15-3	Cycloprop[a]indene, 1,1a,6,6a-tetrahydro-	7.592 - 7.649	94,94	131
541-05-9	Cyclotrisiloxane, hexamethyl-	8.201 - 8.613	80,83,83,83,83,86,86	296

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 16/3407

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 16/3407

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.	Yes			
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.				

JE Job No: 16/3407

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes			
TM42	Modified US EPA method 8270. Pesticides and herbicdes by GC-MS	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser.	PM0	No preparation is required.	Yes			
TM106	Determination of Sulphide by Skalar Continuous Flow Analyser	PM0	No preparation is required.				
TM111	SVOC GC-MS with Retention Locking Software using an MS library of over 1000 compounds.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
Subcontracted	Subcontracted analysis, sent to an ISO 17025 accredited laboratory where possible.						

APPENDIX 5
A – GAS MONITORING DATA
B – GROUNDWATER LEVEL DATA
C – WATER QUALITY DATA

Appendix 5A - Gas Monitoring Field Data			
Project:	UK15-22306	**Site:**	Four Ashes, Staffordshire
Monitored by:	Alison Huggins	**Dates:**	1-2/12/2015; 21-22/12/15; 7-8/1/2016; and 9-10/02/2016
Equipment:	Geotech Interface Dip Meter, Casella PID MiniRae 3000, GA5000 Gas Analyser.	**Weather:**	Very windy with occasional rainfall events across most monitoring rounds. Heavy rain on 7th January.
Atmospheric Pressure:	The initial ground gas monitoring visit was undertaken during periods of increasing pressure on the 1st and stable pressure on the 2nd December. Over the 21st and 22nd monitoring event pressure was observed to decrease and increase sharply and then decrease continuously across the second day. The pressure over the third monitoring session was observed to decrease and then increase and becoming stable across the second day. Pressure over the fourth and final monitoring round was decreasing over the morning of the first day and then steadily increasing throughout the entire second day.		

BH	Date	Flow	Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Disulphide (ppm)	PID (ppm)	Pressure (h Pa)	dP (mb)	dtw (m bgl)	dtb (m bgl)
BH204	1/12/15	-1.3	<0.1	1.9	18.2	<1	<1	0.2	1006	0.09	dry	3.81
	21/12/15	-0.1	<0.1	1.9	18.9	<1	<1	0.2	995	0.02	1.19	
	7/1/16	0	<0.1	1.6	19.7	<1	<1	0.1	969	0	0.43	
	9/2/16	0	<0.1	0.2	21.3	<1	<1	-	983	0.01	0.1	
BH206	1/12/15	-2	<0.1	0.4	21.1	<1	<1	0.4	1007	0.02	1.2	3.71
	21/12/15	-0.7	<0.1	0.1	21.7	<1	<1	1.6	998	0	0.95	
	7/1/16	0	<0.1	0.2	21.5	<1	<1	0.5	982	0	0.9	
	09/02/16	0	<0.1	0.2	21.6	<1	<1	-	973	0.02	0.45	
BH207	1/12/15	-0.4	<0.1	3.4	16.6	<1	<1	<0.1	1006	0.03	3	3.86
	21/12/15	-2.5	<0.1	3.2	16.6	<1	<1	1.2	995	0.02	1.6	
	7/1/16	0	<0.1	2.5	11.5	<1	<1	0.5	971	0.05	1.59	
	10/02/16	0.1	<0.1	1.9	??	<1	<1	-	983	18.85	1.33	
BH208A	1/12/15	-3.5	<0.1	2.4	17.6	<1	<1	0.4	1006	0.05	3.9	4.02
	22/12/15	-1.6	<0.1	2.6	16.9	<1	<1	0.3	993	-0.02	2.89	
	7/1/16	0.9	<0.1	2.9	16.8	<1	<1	0.3	969	0	dry	

Appendix 5A - Gas Monitoring Field Data

BH	Date	Flow	Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Disulphide (ppm)	PID (ppm)	Pressure (h Pa)	dP (mb)	dtw (m bgl)	dtb (m bgl)
	10/02/16	0.1	<0.1	3.8	16	<1	<1	-	982	-0.54	1.1	
BH214	1/12/15	-1.3	<0.1	2.5	18.1	<1	<1	0.3	1007	-0.05	3.85	3.92
	22/12/15	-3.4	<0.1	2.9	17.8	<1	<1	0	993	-0.07	2.22	
	7/1/16	0	<0.1	2.2	18.3	<1	<1	0.1	969	0	2.5	
	10/02/16	0	<0.1	2.2	17	2	<1	-	985	5.19	0.65	
BH216	1/12/15	0.2	<0.1	6.7	14.4	<1	<1	<0.1	1008	0.07	2.99	3.71
	21/12/15	0.2	<0.1	7.6	8.8	<1	<1	-	991	-0.05	2.22	
	8/1/16	0.1	<0.1	6.5	10.2	<1	<1	0.1	983	0.01	2.1	
	10/2/16	3.9	<0.1	6.1	4.6	<1	<1	-	984	29.48	1.33	
BH218	2/12/15	-0.4	<0.1	0.1	21.1	<1	<1	0.1	1006	-0.12	2.42	3.71
	22/12/15	1.3	<0.1	0.1	21.1	<1	<1	0.5	995	0.05	1.8	
	7/1/16	0	<0.1	0.2	20.8	<1	<1	0.2	983	0.16	0.93	
	09/02/16	0.3	<0.1	0.1	20.9	<1	<1	-	970	0	0.85	
WS301	1/12/15	-1.4	<0.1	0.1	21.4	<1	<1	0.1	1007	0.02	0.9	4.14
	21/12/15	-1.4	<0.1	0.1	21.7	<1	<1	0.3	997	0.02	0.97	
	7/1/16	0	<0.1	0.1	20.2	<1	<1	0.1	983	0.02	0.84	
	9/2/16	-0.1	<0.1	0.1	21.4	<1	<1	-	972	-0.05	0.81	
WS302	1/12/15	0.1	<0.1	0.6	20.6	<1	<1	0.1	1008	-0.02	dry	3.99
	21/12/15	-0.8	<0.1	2.9	18	<1	<1	0.4	997	0.02	3.85	
	7/1/16	flow cell broken	<0.1	2.5	18.6	<1	<1	0.1	983	0.66	3.33	
	9/2/16	-1.1	<0.1	0.6	20.6	<1	<1	-	973	0.02	2.01	
WS303	2/12/15	-1	<0.1	0.1	20.6	<1	<1	0.3	1005	0.17	1.36	3.01
	21/12/15	-3	<0.1	0.1	21.1	<1	<1	1	994	-0.07	0.67	
	7/1/16	-0.5	<0.1	0.1	20.5	<1	<1	0.2	969	0.02	0.54	
	09/2/16	0	<0.1	0.1	20.9	<1	<1	-	973	-0.09	0.15	
WS304	2/12/15	-1	<0.1	0.9	19.8	<1	<1	0.2	1004	0.1	1.03	3.01

Appendix 5A - Gas Monitoring Field Data

BH	Date	Flow	Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Disulphide (ppm)	PID (ppm)	Pressure (h Pa)	dP (mb)	dtw (m bgl)	dtb (m bgl)
	22/12/15	-3	<0.1	0.1	21.1	<1	<1	1	994	-0.07	0.67	
	7/1/16	-0.1	<0.1	0.3	21	<1	<1	0.4	969	0	0.52	
	10/2/16	0	<0.1	13.0	20.2	2	<1	-	986	0.24	0.07	
WS308	2/12/15	0	<0.1	4.1	14.8	<1	<1	0.2	1006	0.07	2.54	2.93
	22/12/15	-0.3	<0.1	5.3	13.5	<1	<1	0.9	994	-0.12	1.93	
	7/1/16	0	<0.1	0.5	20.1	<1	<1	0	982	0.12	0.53	
	09/2/16	0.5	<0.1	0.4	20.9	<1	<1	-	971	0.03	0.24	
WS309	2/12/15	5	<0.1	1.4	19.5	<1	<1	0.1	1005	0.03	dry	1.8
	2/12/15	-1.5	<0.1	5.6	19.7	<1	<1	0.9	991	0.17	dry	
	8/1/16	0.4	0.1	2.3	19.2	<1	<1	0.4	983	0	dry	
	10/2/16	0	<0.1	0.2	21.5	<1	<1	-	993	-0.8	0.98	
WS310	2/12/15	-0.4	<0.1	3.2	17.3	<1	<1	0.1	1005	0.03	1.6	3.18
	22/12/15	0.1	<0.1	3	17.8	<1	<1	0.3	993	-0.03	1.46	
	7/1/16	0	<0.1	2.3	19.5	<1	<1	0.4	969	0.05	1.3	
	10/2/16	0.1	<0.1	2.4	19	<1	<1	-	982	2.48	0.52	
WS311	2/12/15	-0.1	<0.1	0.5	20.8	<1	<1	0.1	1005	0.03	1.8	2.07
	22/12/15	0.2	<0.1	0.9	20.6	<1	<1	1.7	993	0.03	1.36	
	7/1/16	0	<0.1	0.3	21.5	<1	<1	0.2	969	0	0.69	
	10/2/16	0.2	<0.1	0.2	21.2	<1	<1	-	982	0.03	0.49	
WS313	1/12/15	0.8	<0.1	2	19.7	<1	<1	0.3	1007	0.05	dry	3.47
	21/12/15	-1.5	<0.1	1.8	19.6	<1	<1	0.4	991	-0.03	2.05	
	8/1/16	0	0.1	2.1	19.8	<1	<1	0.2	983	0	1.95	
	09/2/16	0	<0.1	0.1	21	<1	<1	-	970	-0.87	0.31	
WS314	1/12/15	0.1	<0.1	0.1	21.4	<1	<1	0.2	1007	0	3.3	3.45
	21/12/15	-0.2	<0.1	0.1	21.1	<1	<1	-	991	0.1	2.52	
	7/1/16	0	<0.1	0.1	20.1	<1	<1	0.1	982	0	2.3	

Appendix 5A - Gas Monitoring Field Data

BH	Date	Flow	Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Disulphide (ppm)	PID (ppm)	Pressure (h Pa)	dP (mb)	dtw (m bgl)	dtb (m bgl)
	10/2/16	0	<0.1	0.1	21	<1	<1	-	985	0.09	2.1	
WS317	2/12/15	-0.7	<0.1	4	15.5	<1	<1	0.2	1006	0.01	dry	2.32
	22/12/15	-1.4	<0.1	4.2	16.1	<1	<1	2.9	995	0.09	1.95	
	7/1/16	0	<0.1	4.4	11.5	<1	<1	0.6	982	-0.1	0.98	
	9/02/16	0	<0.1	4.3	13.6	<1	<1	-	971	0.02	0.94	
WS318	1/12/15	0	<0.1	2.2	18.7	<1	<1	0.3	1007	0	1.5	2.01
	21/12/15	-2.7	<0.1	0.7	21.1	<1	<1	1	992	0.14	0.61	
	7/1/16	0	0.1	1.5	19.5	<1	<1	0.3	982	0	0.5	
	10/2/16	0	<0.1	1.5	20.0	4	<1	-	985	0	0.34	
WS319	1/12/15	-0.4	<0.1	1.4	19.9	<1	<1	0.1	1008	0.03	dry	2.78
	21/12/15	-3.4	<0.1	2.3	19.8	<1	<1	0	994	0.05	1.21	
	7/1/16	-0.1	0.1	1.5	19.9	<1	<1	0.1	982	0.01	1.1	
	10/02/16	0	<0.1	4.3	18.5	4	<1	-	984	0.74	0.54	
WS320	1/12/15	0.1	<0.1	1.4	19.9	<1	<1	0.1	1007	0.05	2.13	2.4
	21/12/15	-0.4	<0.1	1.3	20.4	<1	<1	0.6	994	0.02	0.64	
	7/1/16	0.1	<0.1	0.4	20.1	<1	<1	0	982	0	0.5	
	10/02/16	0	<0.1	0.1	20.9	<1	<1	-	986	0.23	0.4	
WS321	1/12/15	0	<0.1	4.8	16.4	<1	<1	0.1	1007	0.09	3.54	4.02
	21/12/15	-0.3	<0.1	5.6	14.9	<1	<1	0.4	993	-0.3	2.89	
	7/1/16	0	0.1	5.2	16.1	<1	<1	0.3	982	0	2.7	
	10/2/16	-0.5	<0.1	0.1	21	<1	<1	-	986	0.07	1.04	
WS322	2/12/15	-0.7	<0.1	2.7	18.9	<1	<1	0.3	1005	-0.02	dry	4.02
	22/12/15	-0.3	<0.1	5.6	14.9	<1	<1	0.4	993	0.17	2.89	
	8/1/16	-0.1	<0.1	3.2	16.8	<1	<1	0.1	983	0	2.6	
	10/2/16	0.5	<0.1	0.1	21.1	<1	<1	-	985	0	0.66	
WS324	2/12/15	-0.4	<0.1	2.2	18.8	<1	<1	0.2	1006	-0.03	dry	1.65

Appendix 5A - Gas Monitoring Field Data

BH	Date	Flow	Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Disulphide (ppm)	PID (ppm)	Pressure (h Pa)	dP (mb)	dtw (m bgl)	dtb (m bgl)
	22/12/15	-2.6	<0.1	2.5	18.9	<1	<1	1.3	995	0.05	1.2	
	7/1/16	0	<0.1	2.3	18.3	1	<1	0.3	983	0	0.53	
	9/2/16	0.9	<0.1	1.6	16.2	<1	<1	-	971	7.03	0.31	

Appendix 5B: Groundwater Level Monitoring Results			
Project	UK15-22306	**Site**	Four Ashes, Staffordshire
Monitored By:	Alison Huggins and Emily Betts	**Date**	November & December 2015 and January & February 2016.
Equipment	Solinst Interface Dip Meter YSI Quattro Pro Water Quality Meter	**Weather**	Generally cold <15°C with occasional rain events and windy during all monitoring sessions.

	18/11/15		**24/11/15**		**1/12/15**		**11/12/15**		**17/12/15**		**21/12/15**	
BH	**dtw (m bgl)**	**dtw (m AOD)**	**dtw (m bgl)**	**dtw (m AOD)**	**dtw (m bgl)**	**dtw (m bgl)**	**dtw (m AOD)**	**dtw (m AOD)**	**dtw (m bgl)**	**dtw (m AOD)**	**dtw (m bgl)**	**dtw (m AOD)**
BH101	5.59	97.283	5.95	96.923	5.89	96.983	5.75	97.123	5.68	97.193	5.71	97.163
BH102	3.74	101.009	4.17	100.579	4.14	100.609	3.93	100.819	3.77	100.979	3.72	101.029
BH103A	0.3	98.816	0.28	98.836	0.15	98.966	0.1	99.016	0.1	99.016	0.12	98.996
BH106	3.45	103.6	3.5	103.55	3.48	103.57	3.18	103.87	2.99	104.06	2.9	104.15
BH107	4	99.702	3.9	99.802	3.82	99.882	3.69	100.012	3.59	100.112	3.59	100.112
BH108	3.24	102.219	3.19	102.269	3.23	102.229	3.15	102.309	3.08	102.379	3.04	102.419
BH109	4.54	103.341	4.55	103.331	4.65	103.231	4.54	103.341	4.34	103.541	4.49	103.391
BH110	1.35	98.719	1.3	98.769	0.9	99.169	0.77	99.299	0.62	99.449	0.79	99.279
BH112	2.98	103.392	2.96	103.412	2.93	103.442	2.79	103.582	2.66	103.712	2.6	103.772
BH113	3.4	98.347	3.32	98.427	3.2	98.547	3	98.747	2.55	99.197	2.56	99.187
BH201	6.26	97.763	6.21	97.813	6.24	97.783	6.14	97.883	6.05	97.973	6.06	97.963
BH203	5.33	97.366	5.3	97.396	5.29	97.406	5.32	97.376	5.21	97.486	5.22	97.476
BH205	1.1	98.427	1.24	98.287	1.08	98.447	1.11	98.417	1.06	98.467	1.11	98.417
BH209	3.84	104.42	3.77	104.49	3.85	104.41	3.6	104.66	3.53	104.73	3.54	104.72
BH210	3.98	99.42	3.95	99.45	3.86	99.54	3.74	99.66	3.57	99.83	3.56	99.84
BH211	3.05	99.614	2.93	99.734	2.7	99.964	2.93	99.734	2.17	100.494	2.11	100.554
BH212	3.63	103.172	3.62	103.182	3.72	103.082	3.53	103.272	3.44	103.362	3.36	103.442
BH213	2.94	99.834	2.74	100.034	2.5	100.274	2.08	100.694	1.85	100.924	1.73	101.044
BH215	3.4	102.991	3.41	102.981	3.43	102.961	3.33	103.061	3.22	103.171	3.17	103.221
BH217	3.22	100.605	3.18	100.645	3.08	100.745	2.94	100.885	2.85	100.975	2.82	101.005
BH219	1.5	98.266	1.47	98.296	1.13	98.636	0.92	98.846	0.84	98.926	0.91	98.856
BH220	2.47	100.882	2.32	101.032	2.14	101.212	1.99	101.362	1.9	101.452	1.84	101.512
BH221	2.63	102.413	2.57	102.473	2.9	102.143	2.23	102.813	2	103.043	1.91	103.133
BH222	2.97	103.368	2.89	103.448	2.86	103.478	2.49	103.848	2.16	104.178	2.08	104.258
BH223	4.14	102.854	4.15	102.844	4.11	102.884	3.8	103.194	3.76	103.234	3.59	103.404
BH224	2.9	99.667	3.01	99.557	2.77	99.797	2.55	100.017	2.3	100.267	2.35	100.217

Appendix 5B: Groundwater Level Monitoring Results

	7/1/16		13/1/16		19/1/15		2/2/16		9/2/2016		25/2/2016	
BH	dtw (m bgl)	dtw (m AOD)	dtw (m bgl)	dtw (m AOD)	dtw (m bgl)	dtw (m AOD)	dtw (m bgl)	dtw (m AOD)	dtw (m bgl)	dtw (m AOD)	dtw (m bgl)	dtw (m AOD)
BH101	5.51	97.363	5.54	97.333	5.62	97.253	3.86	99.013	4.400	98.473	4.820	98.053
BH102	3.11	101.639	3.02	101.729	2.93	101.819	3.08	101.669	2.720	102.029	3.020	101.729
BH103A	0.1	99.016	0	99.116	0	99.116	0.07	99.046	-0.050	99.166	0.070	99.046
BH106	2.08	104.97	2.03	105.02	1.78	105.27	1.91	105.14	1.540	105.510	1.800	105.250
BH107	3.24	100.462	3.21	100.492	3.16	100.542	3.2	100.502	3.090	100.612	3.290	100.412
BH108	2.71	102.749	2.75	102.709	2.57	102.889	2.51	102.949	2.320	103.139	2.050	103.409
BH109	3.52	104.361	2.84	105.041	2.47	105.411	2.32	105.561	1.630	106.251	1.980	105.901
BH110	0.45	99.619	0.36	99.709	0.42	99.649	0.57	99.499	0.310	99.759	0.700	99.369
BH112	2.2	104.172	1.65	104.722	1.44	104.932	1.41	104.962	0.970	105.402	1.320	105.052
BH113	1.93	99.817	1.95	99.797	1.88	99.867	2.02	99.727	1.680	100.067	2.140	99.607
BH201	7.6	96.423	5.5	98.523	5.18	98.843	5.22	98.803	5.000	99.023	5.190	98.833
BH203	4.98	97.716	4.99	97.706	4.86	97.836	4.98	97.716	4.800	97.896	4.920	97.776
BH205	0.86	98.667	0.82	98.707	0.92	98.607	1.11	98.417	0.820	98.707	1.080	98.447
BH209	0.48	107.78	3.07	105.19	3	105.26	2.9	105.36	2.800	105.460	4.840	103.420
BH210	2.78	100.62	2.7	100.7	2.55	100.85	2.79	100.61	2.610	100.790	2.900	100.500
BH211	1.9	100.764	1.32	101.344	1.8	100.864	1.54	101.124	1.450	101.214	1.360	101.304
BH212	3.1	103.702	2.52	104.282	2.3	104.502	2.19	104.612	1.890	104.912	1.930	104.872
BH213	1.23	101.544	1.21	101.564	1.06	101.714	1.22	101.554	0.960	101.814	1.170	101.604
BH215	2.7	103.691	1.65	104.741	2.43	103.961	2.39	104.001	2.120	104.271	2.060	104.331
BH217	2.43	101.395	2.42	101.405	2.38	101.445	2.52	101.305	2.370	101.455	2.530	101.295
BH219	0.5	99.266	0.45	99.316	0.48	99.286	0.76	99.006	0.330	99.436	0.810	98.956
BH220	1.42	101.932	1.28	102.072	1.32	102.032	1.59	101.762	1.280	102.072	1.630	101.722
BH221	1.6	103.443	1.25	103.793	1.09	103.953	1.22	103.823	1.050	103.993	1.190	103.853
BH222	1.86	104.478	1.2	105.138	1.17	105.168	1.29	105.048	1.090	105.248	1.250	105.088
BH223	2.98	104.014	2.77	104.224	2.69	104.304	2.65	104.344	2.410	104.584	2.500	104.494
BH224	1.71	100.857	1.7	100.867	1.71	100.857	2.02	100.547	1.600	100.967	2.040	100.527

Appendix 5C – Groundwater Physiochemical Parameters			
Project	UK15-22306	**Site**	Four Ashes, Staffordshire
Monitored By:	Alison Huggins and Emily Betts	**Date**	24-25/11/2015 and 13-14/01/2016
Equipment	Solinst Interface Dip Meter YSI Quattro Pro Water Quality Meter	**Weather**	Occasional rain across both monitoring event with low temperatures of approx. 15°C across the first event and approx. 8°C across the second event.

BH	Date	Temp (°C)	DO (%)	DO (mg/l)	SPC (µS/cm)	pH	ORP (mV)	dtw (m bgl)	dtb (m bgl)
BH101	24/11/2015	10.1	77.2	8.55	502.4	6.8	-41.8	5.95	9.96
	13/02/16	9.0	52.6	6.1	517.9	6.52	-12.0	5.54	9.83
BH102	24/11/2015	10.7	47.9	5.3	152.5	5.91	-4.7	4.17	7.95
	13/01/16	7.6	70.7	8.46	193.0	6.66	33.1	3.02	7.93
BH103A	25/11/2015	10.6	17.5	1.94	415.3	7.02	-80.4	0.28	8.19
	13/01/2015	8.4	16.6	1.90	323.4	7.11	11.2	0.0	6.95
BH106	24/11/2015	11.4	70	7.63	244.5	6.41	15.7	3.5	8.03
	13/01/16	9.3	71.4	8.44	149.0	7.22	5.5	2.03	7.94
BH107	25/11/2015	10.3	44.8	5.03	186.4	6.85	-5.5	3.9	8.12
	14/01/016	10.1	53.7	6.08	171.4	6.53	39.8	3.2	8.07
BH108	24/11/2015	9.7	58.5	6.65	128.4	6.25	1.5	3.19	7.63
	14/01/16	7.9	33.9	4.07	69.5	5.85	44.9	2.75	7.62
BH109	24/11/2015	10.4	67.6	7.77	94.3	6.42	17	4.55	7.12
	14/01/016	8.9	59.4	6.93	126.5	6.38	23.8	2.84	7.06
BH110	25/11/2015	11	43.9	4.79	212.5	6.8	-42.5	1.3	6.47
	14/01/16	9.1	34.7	3.09	196.5	6.75	-3.7	0.36	6.46
BH112	24/11/2015	10.5	17.5	1.95	497.4	7.16	-138.8	2.96	8.58
	13/01/16	8.0	37.4	4.47	528.8	7.07	-124.2	1.65	8.5
BH113	25/11/2015	11.2	41.7	4.16	232.8	6.94	-40.9	3.32	7.07

BH	Date	Temp (°C)	DO (%)	DO (mg/l)	SPC (µS/cm)	pH	ORP (mV)	dtw (m bgl)	dtb (m bgl)
	14/01/16	8.1	41.0	4.78	365.5	6.87	-12.0	1.95	7.07
BH201	24/11/2015	10.7	58.8	6.45	181	7.47	-44	6.21	9.98
	13/01/16	9.6	87.6	10.0	163.3	7.04	96.7	5.5	9.90
BH203	24/11/2015	11.2	62.3	6.83	148.5	5.89	12.1	5.3	6.78
	13/01/16	8.3	73.6	8.59	138.7	7.18	27.4	4.99	6.72
BH205	25/11/2015	10.6	21.6	2.41	289.2	6.95	-102.9	1.24	7
	13/01/2016	8.5	55.1	6.48	287.1	7.14	-47.9	0.82	6.95
BH209	24/11/2015	10.7	68.4	67.7	132	6.52	13.2	3.77	8
	13/1/2016	8.2	69.1	7.78	134.0	7.82	9.0	3.07	8.01
BH210	24/11/2015	10.5	70.1	7.8	248.7	6.37	15.7	3.95	6.7
	13/01/016	8.0	78.9	9.51	142.4	7.19	121.2	2.7	6.63
BH211	25/11/2015	11	53.1	5.8	222.9	6.73	-25.6	2.93	6.32
	14/01/16	7.1	56.8	6.96	227.8	7.07	1.6	1.32	6.30
BH212	24/11/2015	10.2	42.5	4.83	117	4.48	143.3	3.62	7.94
	14/01/16	8.1	38.8	4.68	121.8	5.15	119.6	2.52	7.85
BH213	25/11/2015	10.8	63.8	7.05	215.2	6.72	-20.8	2.74	6.12
	14/01/16	5.7	79.8	10.0	209.4	6.94	8.4	1.21	5.89
BH215	24/11/2015	9.8	52.9	6	146	5.22	31.7	3.41	7.07
	14/01/16	8.6	74.8	8.72	73.2	7.23	99.1	1.65	7.05
BH217	25/11/2015	No readings taken given likely impacted groundwater as observed during intrusive works.						3.18	7.46
	14/01/16							2.42	
BH219	25/11/2015	11.1	24	2.63	142.3	6.72	-35.8	1.47	6.96
	14/01/16	8.2	34.0	4.16	135.4	6.62	-2.9	0.45	6.93
BH220	25/11/2015	11.5	60.6	7.23	156.1	6.97	-22.5	2.32	6.81
	14/01/16	7.5	73.7	8.82	162.9	7.13	-12.6	1.28	6.77
BH221	24/11/2015	10.4	43.4	4.87	58	5.89	78.8	2.57	7.73
	13/01/2016	9.1	46.4	5.35	65.1	7.25	9.9	1.25	7.68
BH222	24/11/2015	9.9	8.3	9.84	6.7	6.1	3.8	2.89	7.86

BH	Date	Temp (°C)	DO (%)	DO (mg/l)	SPC (µS/cm)	pH	ORP (mV)	dtw (m bgl)	dtb (m bgl)
	14/01/16	8.6	65.9	8.03	151.9	8.46	-2.2	1.20	7.92
BH223	24/11/2015	10.9	584	6.41	140.8	5.36	27.5	4.15	8.57
	14/01/16	9.2	59.2	6.79	114.0	5.8	48.7	2.77	8.50
BH224	25/11/2015	11.3	56.7	6.24	116.2	6.97	-26.7	3.01	7.9
	14/01/16	8.7	70.4	8.19	125.7	6.92	15.6	1.7	7.88
SW1	25/11/2015	9	70.7	8.1	363.8	7.28	54.7	n/a	n/a
	13/01/16	5.8	77.5	9.62	210.1	6.87	48.0	n/a	n/a
SW2	25/11/2015	7.3	27.9	3.32	99.7	7.6	70.2	n/a	n/a
	14/01/16	5.5	55.5	6.96	103.3	7.35	-50.4	n/a	n/a
SW3	25/11/2015	6.9	71.5	8.62	379	7.49	-44.7	n/a	n/a
	13/01/16	5.5	70.3	8.94	256.4	7.07	-18.2	n/a	n/a
SW4	24/11/2015	6.1	52.6	6.53	402	6.72	-21.6	n/a	n/a
	13/01/16	5.0	63.3	8.41	236.3	7.16	212.4	n/a	n/a
SW5	24/11/2015	5.3	18.4	2.3	350	6.82	-123.9	n/a	n/a
	13/01/16	4.2	43.0	5.5	152.8	6.96	-39.1	n/a	n/a
SW6	25/11/2015	6.9	72.6	8.83	292.7	7.91	-55.6	n/a	n/a
	13/01/2016	5.2	89.4	11.33	286.2	8.3	-60.0	n/a	n/a

Notes:

dtw = depth to groundwater level

dtb = depth to base of the monitoring well