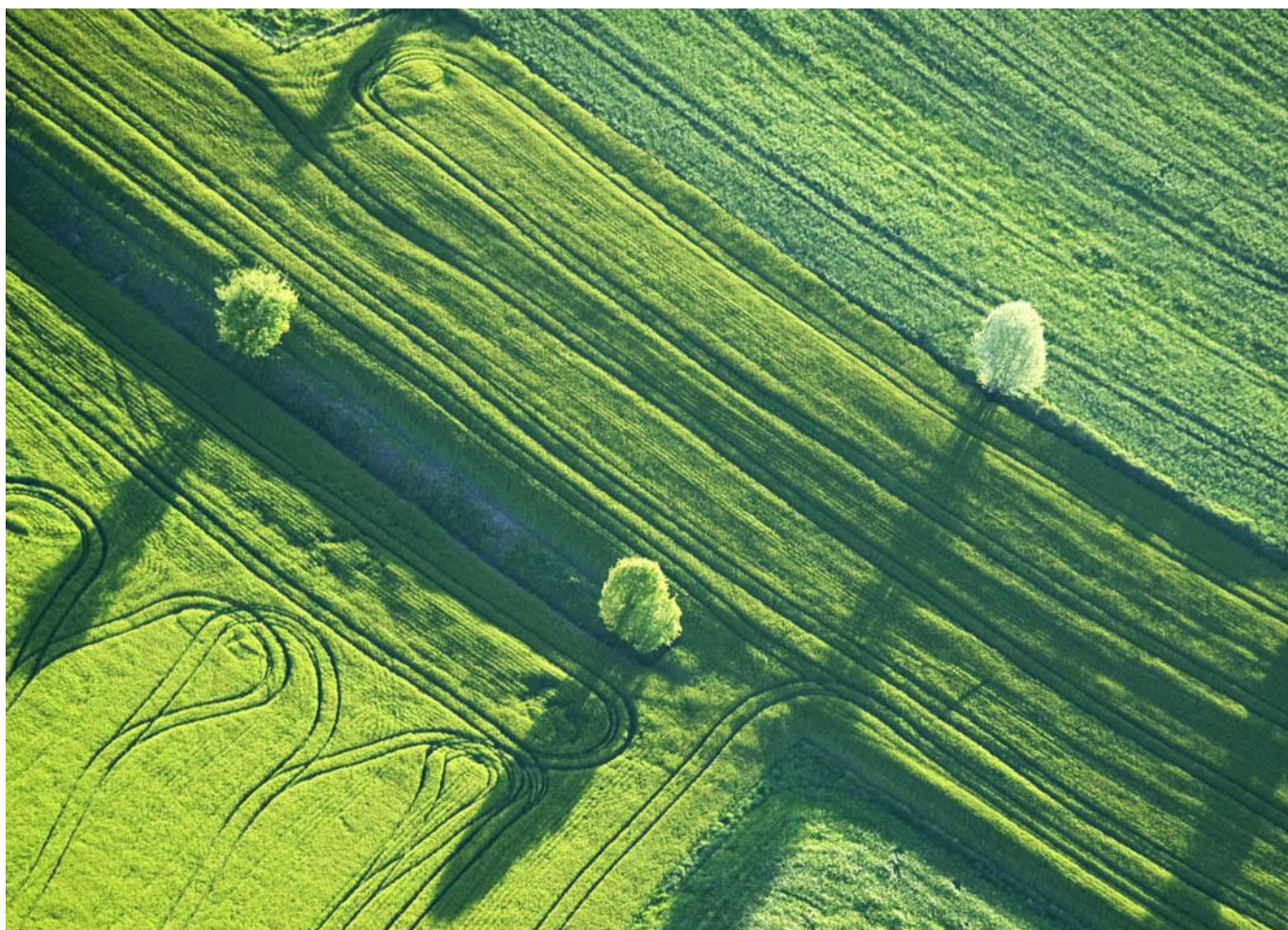




Gladman Developments Ltd

Leicester Road, Earl Shilton

Phase 2 Geo-environmental and Geotechnical Site
Investigation

252719-R01(01)

RSK GENERAL NOTES

Project No.: 252719-R01 (01)

Title: Phase 2 Geo-environmental and Geotechnical Site Investigation: Leicester Road, Earl Shilton

Client: Gladman Developments Ltd

Date: 5th October 2022

Office: RSK Environment Limited, Abbey Park, Humber Road, Coventry, CV3 4AQ. Tel 02476 505600

Status: 00

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Signature



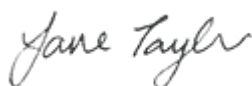
Technical reviewer Rowan Brown

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Revision control sheet				
Revision ref.	Date	Reason for revision	Amended by:	Approved by:
00	8 th September 2022	First issue	n/a	see above
01	5 th October 2022	Addition of surface water sampling data and risk assessment	Emma Wild	Marc Dixon

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

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1 INTRODUCTION

1.1 Commissioning

RSK Environment Limited (RSK) was commissioned by Gladman Developments Ltd to carry out a Phase 2 Geo-environmental and Geotechnical Site Investigation of the land at Leicester Road, Earl Shilton, Leicestershire, LE9 7EQ. The project was carried out to an agreed brief as set out in RSK's proposal (Ref. 252719-T01 (00), dated April 2022).

RSK's service constraints are shown in Appendix A.

The site in question is being considered for development for residential use.

1.2 Objectives

The objective of the work is:

- to identify any land contamination and/or geotechnical constraints to the proposed development and to support discharge of relevant planning conditions and relevant building control requirements
- to identify the need for any additional investigation or remediation works to demonstrate that the site is suitable for its proposed use

1.3 Scope of works

The scope of this assessment has been developed in accordance with relevant British Standards and authoritative technical guidance as referenced through the report. The assessment of the contamination status of the site is in line with the technical approach presented in Land Contamination Risk Management (LCRM) (Environment Agency, 2021) – which supersedes CLR11 Model Procedures for Land Contamination – and in general accordance with BS 10175: 2011 + A2 2017 (BSI, 2017). It is also compliant with relevant planning policy and guidance.

The scope of the intrusive investigation has been designed in line with the recommendations of BS5930:2015+A1:2020 Code of practice for ground investigations (BSI, 2020), which maintains compliance with BS EN 1997-1 and 1997-2 and their related standards. It has also been developed in general accordance with BS 10175: 2011 + A2 2017. Ground gas assessment has been undertaken in general accordance with BS8576: 2013 and BS 8485:2015+A1:2019.

A brief summary of relevant legislation and policy relating to land contamination is given in Appendix C.

The scope of works for the assessment has included the following:

Intrusive Investigation

- design and implementation of an intrusive investigation, in situ testing, soil sampling, laboratory geo-environmental and geotechnical testing, groundwater and ground gas monitoring of installed boreholes

- interpretation of data to develop a refined conceptual site model (CSM)
- generic quantitative risk assessment (GQRA) of relevant contaminant linkages
- interpretation of ground conditions and geotechnical data to provide preliminary recommendations with respect to foundations and infrastructure design
- preliminary assessment of the potential waste classification
- preparation of this factual and interpretative report.

1.4 Existing reports

The following reports detailing previous works at the site were made available for review:

- RSK 'Phase 1 Desk Study: Land off Leicester Road, Earl Shilton', ref.: 302188-R01 (01), dated February 2020

Pertinent information from these reports has been summarised in Section 2.

1.5 Limitations

This report is subject to the RSK service constraints given in Appendix A and limitations that may be described through this document.

2 SITE DETAILS

2.1 Site location

Site location details are presented in Table 1 and a site location plan is provided on [Figure 1](#).

Table 1 Site location details

Site name	Leicester Road, Earl Shilton
Full site address and Post Code	Leicester road, Earl Shilton, Leicestershire, LE9 7EQ
National Grid reference (centre of site)	446630, 298390

2.2 Site description

The site covers 9.45 hectares and comprises several open fields used for pasture.

2.3 Surrounding land uses

The site is located to the north of Earl Shilton, with predominantly residential and agricultural setting. Immediate surrounding land uses are described in Table 2.

Table 2 Surrounding land uses

North	Further open fields with a horse stable and Shilton Road beyond
East	Leicester Road with agricultural land and residential dwellings beyond
South	Residential dwellings and allotments associated with Keats Lane and High Tor East
West	Further open fields and agricultural land

2.4 Development plans

The proposed layout of the site, at the time of preparing this report, is shown in Appendix B.

It is understood that 140 low-rise residential dwellings are to be constructed with associated private gardens, access infrastructure and public open spaces. In addition, two SUDS features are proposed in the north and north-west of the site.

The land to the far west of the site is to be retained as agricultural land.

2.5 Summary of previous investigations

A summary of pertinent information from previous investigations is included below in Table 3.

Table 3 Summary of previous investigation reports

Report Details	1. Phase 1 Desk Study – Land off Leicester Road, Earl Shilton, RSK, 302188-R01 (00), dated February 2020
Site coverage	Whole site as presented in Figure 1
Summary scope of works	Desk study report including a site walkover
Does the client have reliance upon the report?	Yes
Key factual findings	Ground conditions at the site were anticipated to comprise the Gunthorpe Member (mudstones) with superficial deposits of the Wigston Member / Wolston Sand and Gravel to the south of the site. Based on the preliminary CSM, potential sources of contamination are limited to possible made ground deposits of an unknown composition, although risks are indicated to be low to very low. It was recommended that a site investigation be undertaken to provide information on the underlying site soils and to expose any made ground deposits (if present)

3 SITE INVESTIGATION STRATEGY & METHODOLOGY

3.1 Introduction

RSK carried out intrusive investigation works between 18th and 22nd July 2022 and subsequent monitoring of boreholes between 28th July and 26th August 2022.

3.2 Objectives

The specific objectives of the investigation were as follows:

- to establish the ground conditions underlying the site including the extent and thickness of any made ground
- to investigate specific potential sources of contamination identified in initial CSM
- to determine groundwater depth
- to determine the ground gas regime underlying the site
- to assess geotechnical properties of soils

3.3 Selection of investigation methods

The techniques adopted for the investigation were chosen with consideration of the objectives and site constraints, which are described below.

Window sample drilling was chosen based on the targeted drill depth, requirement for in-situ geotechnical data, the opportunity to collect samples and install monitoring wells. This was supplemented by mechanically excavated trial pitting to obtain a number of investigation locations and achieve greater visibility of the shallow soils, including any made ground deposits (if present).

Prior to conducting intrusive works, utility service plans were obtained, and buried service clearance undertaken in line with RSK's health and safety procedures. Copies of statutory service records obtained by RSK as part of the agreed scope of works are available upon request.

3.4 Investigation strategy

The ground investigation was carried out using intrusive ground investigation techniques in general accordance with the recommendations of BS5930:2015+A1:2020, which maintains compliance with BS EN 1997-1 and 1997-2 and their related standards. Whilst every attempt was made to record full details of the strata encountered in the boreholes, techniques of hole formation and sampling will inevitably lead to disturbance, mixing or loss of material in some soils and rocks.

Details of the investigation locations, installations and rationale are presented in Table 4. An exploratory hole location plan is shown on [Figure 3](#).

Table 4 Exploratory hole and monitoring well location rationale

Investigation type	Number	Designation	Monitoring well installation	Rationale examples below
Boreholes by window sampling methods	12	WS01 to WS12	Gas/ groundwater	To determine the shallow soil profile at the site, whilst obtaining in-situ geotechnical data and allowing for the installation of dual-purpose groundwater and ground gas monitoring wells
Trial-pits excavated using mechanical excavator	26	TP01 to TP26	n/a	To accurately log the upper strata in non-targeted locations beneath the site and to collect shallow soil samples. In addition, trial pit soakaways were positioned within proposed SUDS features.
Land Rover Mounted CBR Tests	6	TP08, TP12, TP17, TP18, TP23, TP25	n/a	To obtain CBR values for road pavement design at targeted locations

3.4.1 Implementation of investigation works

The exploratory holes were logged by an engineer in general accordance with the recommendations of BS5930:2015+A1:2020 (which incorporates the requirements of BS EN ISO 14688-1, 14688-2 and 14689-1).

The monitoring well construction and associated response zones are detailed on the exploratory hole records in Appendix E. The response zones were installed to target identified gas generation sources detailed in the initial preliminary CSM.

The soil sampling and analysis strategy was designed to characterise each encountered soil strata, permit an assessment of the potential contaminant linkages identified and investigate the geotechnical characteristics. In addition, samples were taken to allow for geo-environmental and geotechnical testing to be undertaken.

Soils collected for laboratory analysis were placed in a variety of containers appropriate to the anticipated testing suite required. They were dispatched to the laboratory in cool boxes under chain of custody documentation. Samples were stored in accordance with the RSK quality procedures to maintain sample integrity and preservation and to minimise the chance of cross contamination.

3.5 Monitoring programme

3.5.1 Ground gas monitoring

In line with the initial CSM, response zones were installed to target the sources or pathways. Dual gas taps were installed in line with BS8576.

Six monitoring rounds have been undertaken to provide data to support refining of the CSM. The number of monitoring rounds undertaken is in general accordance with the decision matrix presented as [Figure 6](#) of BS8576 for a low source generation potential and medium sensitivity development.

A calibrated infrared gas meter was used to measure gas flow, concentrations of carbon dioxide (CO₂), methane (CH₄) and oxygen (O₂) in percentage by volume, while hydrogen sulphide (H₂S) and carbon monoxide (CO) were recorded in parts per million.

Initial and steady state concentrations were recorded. In addition, during the first monitoring round, all wells were screened with a PID to establish if there are any interferences and cross-sensitivity of other hydrocarbons with the infrared gas meter

The atmospheric pressure before and during monitoring, together with the weather conditions, were recorded. The monitoring included periods of falling atmospheric pressures and after/during rainfall.

All ground gas monitoring results together with the temporal conditions are contained within Appendix F. Equipment calibration certificates are available on request.

3.5.2 Groundwater monitoring and sampling

Six rounds of groundwater monitoring were undertaken on a weekly basis. The monitoring records, including dates, are shown in Appendix F.

Depths to groundwater were recorded using an electronic dip meter on each of the return monitoring visits.

3.5.3 Surface water sampling

Two (2 no.) surface water samples were collected from the pond present towards the centre of the site. This was then submitted for laboratory analysis.

3.6 Laboratory testing

Laboratory testing was undertaken at a UKAS accredited laboratory with ISO17025 and MCERTS accredited test methods were specified where applicable for contamination testing and as shown in the laboratory test certificates appended.

3.6.1 Chemical analysis of soil samples

The soil sampling strategy was designed to characterise made ground and/or natural strata typically within the upper 1.0m of the ground profile whilst also characterising deeper strata and the potential for contaminant migration from relevant sources of identified within the preliminary CSM.

The programme of chemical tests undertaken on soil samples obtained from the intrusive investigation is presented in

Table 5 with the laboratory testing results contained in Appendix G.

Table 5 Summary of chemical testing of soil samples

Tests undertaken	No. of tests
Soils	
Metals Suite – As, Cd, Cr, CrVI, Cu, Hg, Ni, Pb, Se, Zn	10
Asbestos Screen	10
Total Organic Carbon (TOC)	10
Total Petroleum Hydrocarbons Criteria Working Group (TPHCWG), BTEX, MTBE	10
Polycyclic Aromatic Hydrocarbons (PAHs)	10
pH	10
OCP & OPP Combined Pesticides	4
Soil Leachates	
Metals Suite – As, Cd, Cr, CrVI, Cu, Hg, Ni, Pb, Se, Zn	3

3.6.2 Chemical analysis of surface water samples

Surface water samples were collected in containers appropriate to the anticipated testing suite required. The containers were filled to capacity and placed in a cool box to minimise volatilisation.

Chemical testing undertaken on water samples obtained during the monitoring programme is presented in Table 6 with the laboratory testing results contained in [Appendix H](#).

Table 6 Summary of chemical testing of surface water samples

Sample type	Tests undertaken	No. of tests
Surface water (from on-site pond)	Metals Suite – As, Ca, Cd, Cr, Cu, Hg, Ni, Pb, Se, Zn	2
	pH	
	Dissolved Oxygen Content (DOC)	
	Water-soluble sulphate	
	Polycyclic Aromatic Hydrocarbons (PAHs)	
	Total Petroleum Hydrocarbons Criteria Working Group (TPHCWG), BTEX, MTBE	

3.6.3 Geotechnical analysis of soils

Where appropriate disturbed, bulk and undisturbed soil samples were taken for geotechnical classification testing with the depth and nature of samples detailed within the exploratory hole records.

Where appropriate, testing was undertaken in accordance with BS 1377:1990 Method of Tests for Soils for Civil Engineering Purposes or, where superseded, by the relevant part

of BS EN ISO 17892:2014 Geotechnical investigation and testing - Laboratory Testing of Soil. Tests carried out in order to classify the concrete class required on-site have been undertaken following the procedures within BRE SD1:2005.

The programme of geotechnical tests undertaken on samples obtained from the intrusive investigation is presented in Table 7. The results and UKAS accreditation of tests methods are shown in Appendix I.

Table 7 Summary of geotechnical testing undertaken

Tests undertaken	No. of tests
Moisture content	15
Liquid/ plastic limits	15
Sieve analysis	8
Sedimentation analysis	8
BRE Suite	14

3.6.4 Infiltration testing

Infiltration tests were carried out in trial pits, TP05, TP09 and TP15 to establish the infiltration rate of the Gunthorpe Member at the location of the proposed SUDS features. The tests were carried out generally in accordance with the method described in BRE Digest 365 (BRE, 2016). This involved filling the pits with water from a tanker and recording the drop in water level with time as the water soaked into the ground.

Copies of the testing records are included in Appendix E.

4 SITE INVESTIGATION FACTUAL FINDINGS

The results of the intrusive investigation and subsequent geo-environmental and geotechnical laboratory analysis undertaken are detailed below.

4.1 Ground conditions encountered

The descriptions of the strata encountered, notes regarding visual or olfactory evidence of contamination, list of samples taken, field observations of soil and groundwater, in-situ testing and details of monitoring well installations are included on the exploratory hole records presented in Appendix E.

The exploratory holes revealed that the site is underlain by a variable thickness of agricultural topsoil over either an agricultural subsoil or subsoil. The Wigston Sand and Gravel Member is present in the south of the site, and the bedrock Gunthorpe Member was encountered in most exploratory holes other than where the base depth of Wigston Sand and Gravel Member were not proven. This generally confirms the succession determined within the initial CSM.

For the purpose of discussion, the ground conditions encountered during the fieldworks are summarised in Table 8 with the strata discussed in subsequent subsections.

Table 8 General succession of strata encountered

Stratum	Exploratory holes encountered	Depth to top of stratum m bgl	Proven thickness (m)
Agricultural Topsoil	All locations	Ground Level	0.11 – 0.65
Agricultural Subsoil	TP04, TP17	0.24 – 0.30	0.13 – 0.40
Made Ground	TP22, TP24	Ground Level	0.35 – 0.90
Wigston Sand and Gravel Member	TP05 – TP13, TP14 – TP16, TP18 – TP26, WS01, WS03 – WS05, WS12	0.10 – 0.90	0.10 – 6.05
Gunthorpe Member	TP01 – TP22, WS01 – WS08	0.30 – 4.60	0.20 – 3.70. The Gunthorpe member was proven to the full depth of investigation at 5.00m bgl.

4.1.1 Agricultural Topsoil

Typically, the agricultural topsoil comprised a granular layer with significant root content established from ground level and proven to thicknesses of between 0.11m and 0.65m.

Anthropogenic inclusions were occasionally encountered within this stratum, generally comprising brick and glass fragments; however, these are anticipated to be associated with agricultural activities/ploughing.

4.1.2 Agricultural Subsoil

This stratum was encountered beneath the agricultural topsoil at TP04 and TP17, and had a thickness of 0.13 to 0.40m.

The material encountered comprised a light brown very clayey gravelly sand with anthropogenic inclusions of rare brick fragments in TP17.

4.1.3 Made Ground

Made ground deposits were encountered within TP22 and TP24 from ground level to a maximum depth of 0.90m bgl.

The made ground comprised an initial layer of greyish brown slightly gravelly sand over a secondary layer of soft brownish grey mottled orangish brown and brown slightly gravelly sandy clay with a low cobble content of brick and occasional relict root fragments in TP22. Within TP24 a light greyish brown slightly gravelly silty sand with frequent rootlets and rare glass fragments was encountered.

4.1.4 Wigston Sand and Gravel Member

This stratum was encountered at a depth of between 0.11m and 0.90m bgl and varied between 0.10m and 6.05m in proven thickness; although it should be appreciated that the full thickness of the superficial deposit was not penetrated at a number of locations.

Typically, the Wigston Sand and Gravel Member comprised brown, orangish brown or reddish brown clayey gravelly sands with frequent quartzite and flint gravels.

Significant thicknesses of this strata were generally encountered within the southern field, along with bands of soft to firm clay. In addition, the soils in this area were generally damp or wet at depth and low SPT values were recorded in this area.

The Wigston Sand and Gravel Member was typically found to be absent to the north-west of the site however, was more widespread across the remainder of the site than anticipated from BGS maps.

A summary of the in-situ and laboratory test results recorded in the stratum are presented in Table 9.

Table 9 Summary of in-situ and laboratory test results for Wigston Sand and Gravel Member

Soil parameters	Min. Value	Max. Value	Reference
Moisture content (%)	9.7	12.4	Appendix I
Modified moisture content (%)	12	22	Appendix I
Liquid limit (%)	26	57	Appendix I
Plasticity limit (%)	16	30	Appendix I
Plasticity index (%)	10	27	Appendix I
Modified plasticity index (%)	6	27	Appendix I
Plasticity term	Low	High	Appendix I

Soil parameters	Min. Value	Max. Value	Reference
Volume change potential	Low	Medium	Appendix I
SPT 'N' values granular	1	28	Appendix E
SPT 'N' values cohesive	11	30	
Density term	Loose	Medium dense	Appendix E

4.1.5 Gunthorpe Member

This stratum was encountered at a depth of between 0.30m and 4.50m bgl and typically comprised firm to very stiff reddish brown with occasional light grey mottling slightly sandy slightly gravelly clays.

The Gunthorpe Member was established across the majority of the site, with the exception of the window samples positioned within the southern field, of which the base of the Wigston Member was not proven. The boreholes in this field were advanced to depths of between 5.00m and 6.45m bgl, and sands and gravels prevailed.

The Gunthorpe Member was proven to the full depth of investigation at 5.00m bgl within WS04 and WS07.

A summary of the in-situ and laboratory test results recorded in the stratum are presented in Table 10.

Table 10 Summary of in-situ and laboratory test results for Gunthorpe Member

Soil parameters	Min. Value	Max. Value	Reference
Moisture content (%)	8.8	28.4	Appendix I
Modified moisture content (%)	15	29	Appendix I
Liquid limit (%)	26	56	Appendix I
Plasticity limit (%)	13	29	Appendix I
Plasticity index (%)	10	28	Appendix I
Modified plasticity index (%)	7	28	Appendix I
Plasticity term	Low	High	Appendix I
Volume change potential	Low	Medium	Appendix I
SPT 'N' values	11	>50	Appendix E
Undrained shear strength measured by shear vane testing (kN/m ²)	30	117	Appendix E
Consistency term from field description	Firm	Very stiff	Appendix E

4.1.6 Visual/olfactory evidence of soil contamination

No visual or olfactory of soil contamination was noted on site, nor was any visual evidence of asbestos encountered.

4.2 Groundwater

4.2.1 Groundwater encountered during intrusive works

Groundwater was encountered during the intrusive investigation works as detailed on the logs in Appendix E. A summary of the locations and depths groundwater was encountered is presented below:

- WS03 at 2.35m bgl
- WS08 at 2.00m bgl
- WS09 at 2.50m bgl
- WS10 at 2.25m bgl
- WS11 at 4.35m bgl
- WS12 at 2.55m bgl
- TP10 at 3.50m bgl
- TP22 at 2.50m bgl
- TP23 at 1.60m bgl
- TP24 at 4.70m bgl

The groundwater was typically encountered as a seepage within the granular superficial deposits.

4.2.2 Groundwater encountered during monitoring

Rest groundwater levels recorded during the monitoring programme are summarised in Table 11 based on the data provided in Appendix F. Field data measurements are also shown in Appendix F.

Table 11 Summary of groundwater monitoring results

Monitoring well	Response zone stratum	Depth to groundwater (m bgl)
WS01	GUN	Dry
WS02		Dry
WS03		Dry
WS04		Dry
WS07		Dry
WS08		Dry
WS11	WIG	4.72 – 4.76
WS12		Dry

It should be noted that groundwater levels might fluctuate for a number of reasons including seasonal variations. On-going monitoring would be required to establish both the full range of conditions and any trends in groundwater levels.

4.2.3 Visual/olfactory evidence of groundwater contamination

No visual or olfactory evidence of groundwater contamination was noted at the site.

4.3 Chemical laboratory results

The soil testing results and surface water results are presented in Appendix G and H respectively.

Asbestos was not detected within any of the 10no. samples screened.

4.4 Geotechnical laboratory results

The results of the geotechnical testing are discussed in Section 7 and presented in Appendix I.

4.5 Ground gas monitoring

The results of the ground gas monitoring and testing carried out are given in Appendix F and discussed in Section 5.

5 GEO-ENVIRONMENTAL ASSESSMENT

5.1 Refinement of initial CSM

Ground conditions appear similar to those outlined within the preliminary CSM (report ref.: 302188-R01 (00)), with an initial layer of agricultural topsoil over subsoil. To the south of the site, superficial deposits associated with the Wigston Sand and Gravel Member were encountered and the Gunthorpe Member was established to the base of exploratory holes across the majority of the site.

It should be noted that an agricultural subsoil was also recorded in two locations due to a small inclusion of anthropogenic materials.

Localised made ground was encountered at the surface of TP22 and TP24 and proven to maximum thicknesses of 0.90m and 0.35m respectively. Anthropogenic inclusions generally included rare glass and brick fragments and TP22 also included a low cobble content of brick.

On the basis of the above, no additional linkages have been added nor omitted to the CSM.

5.2 Linkages for assessment

As described in LCRM (Environment Agency, 2021), there are two stages of quantitative risk assessment (QRA), Tier 2 generic (GQRA) and Tier 3 detailed (DQRA). The GQRA comprises the comparison of soil, groundwater, soil gas and / or ground gas results with generic assessment criteria (GAC) that are appropriate to the linkage being assessed. This comparison can be undertaken directly against the laboratory results or following statistical analysis depending upon the sampling procedure that was adopted. This assessment relates to LCRM Stage 1, Tier 2 generic quantitative risk assessment

Following the refinement of the CSM, the potentially complete contaminant linkages that require further assessment and the methodology of assessment are presented in Table 12.

Table 12 Linkages for GQRA

Potentially relevant contaminant linkage	Assessment method
Human health and phytotoxic-related linkages	
H1. Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust by future residents	Human health GAC in Appendix J for a proposed residential end use with home-grown produce since the proposed end use includes residential gardens.
H2. Inhalation exposure of future residents to asbestos fibres	Qualitative assessment based on the asbestos minerals present, their form, concentration, location and the nature of the proposed development.
H3. Organic contaminants permeating potable water supply pipes	Comparison of soil data to GAC in Appendix K for plastic water supply pipes using UKWIR (2010) guidance.

Potentially relevant contaminant linkage	Assessment method
Controlled waters-related linkages	
W1. Leaching of soil contaminants and dissolved phase migration to surface waters and the wider secondary aquifers	Comparison of leachate data to the relevant GAC in Table 1 of Appendix L.
W2. Migration of dissolved phase contaminants to surface waters	Comparison of surface water data to relevant GAC based on freshwater EQS in Table 1 of Appendix L.
Ground gas-related linkages	
G1. Concentrations of methane and carbon dioxide in ground gas entering and accumulating in enclosed spaces or small rooms in new buildings, which could affect future site users. For methane this could create a potentially explosive atmosphere, while death by asphyxiation could result from carbon dioxide.	Borehole hazardous gas flow rates (Q _{hg}) have been calculated using maximum (peak) methane and carbon dioxide concentrations and steady state flow rates in accordance with BS8485. This is subject to interpretation and use of professional judgement to designate the site or zones of the site characteristic situation by comparison to a Gas Screening Value (GSV) as appropriate and in line with the CSM.

5.3 Methodology and assessment of human health related linkages

5.3.1 H1. Oral, dermal and inhalation exposure with impacted soil by future occupants

End users of the site are defined as those who are exposed to sources of contamination on a regular and predictable basis. In the case of development for a residential end use, the critical receptor as defined within SR3 is a 0 to 6-year old female.

All results have been compared with the residential with home grown produce GAC. A soil organic matter (SOM) of 1% has been selected as a conservative means of assessment. The soil screening output spreadsheet is presented as Appendix M.

No exceedances have been noted against the relevant GACs, therefore it is considered that a complete contaminant linkage is not associated with the site soils in regard to the proposed residential end use.

5.3.2 H2. Inhalation exposure of future occupants/site users to asbestos fibres

The visual inspection at the laboratory identified no materials suspected of potentially containing asbestos and the scheduled laboratory screening for asbestos found no detectable asbestos fibres.

5.3.3 H3. Organic contaminants permeating potable water supply pipes

For initial assessment purposes, the results of the investigation have been compared with the GAC presented in Appendix K for this linkage, which are reproduced from *UKWIR*

Report 10/WM/03/21. Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (UKWIR, 2010).

The results indicate that a relevant linkage is unlikely to exist associated with organic contaminants and therefore pollutant polyethylene (PE) and/or polyvinyl chloride (PVC) water supply pipes are expected to be suitable for use on the development.

It should be noted that at the time of this investigation the future routes of water supply pipes had not been established, hence the investigation and sampling strategy may not be fully compliant with UKWIR recommendations. Consequently, a targeted investigation and specific sampling/analytical strategy may be required at a later date once the route(s) of the supply pipe(s) are known. In addition, it is recommended that the relevant water supply company be contacted at an early stage to confirm its requirements for assessment, which may not necessarily be the same as those recommended by UKWIR.

5.4 Methodology and assessment of controlled waters-related linkages

5.4.1 W1 Leaching of soil contaminants and dissolved phase migration to surface water receptors and wider secondary aquifers

Controlled water receptors at the site as outlined in the preliminary CSM include the pond in the centre of the site and groundwater within the Secondary A and B aquifers associated with the superficial and bedrock deposits.

The aquifers below the site are considered to be of low sensitivity given their secondary aquifer status and the lack of any potable groundwater abstractions within a 2km radius. They are therefore not considered to represent significant receptors but remain relevant as potential pathways.

Given this, the on-site pond is the key receptor and therefore the use of Drinking Water Standards has been discounted. Where appropriate, site-specific assessment criteria (SSAC) known as PNEC (Predicted No Effect Concentration) have been calculated in accordance with the WFD (2015) and UKTAG M-BAT methodology (2014) using chemical parameters recorded at the on-site pond. These are considered to be more representative of the on-site conditions than the generic EQS values and therefore supersede their use. Full assessment details are presented in Appendix O.

The soil leachate results found to exceed the assessment criteria presented in Appendix L and O are summarised in Table 13.

Table 13 Summary of soil leachate GQRA results with respect to controlled waters

GAC Type	EQS (µg/l)		PNEC ^b (µg/l)	
Determinand	GAC	Exceedances	SSAC	Exceedances
Copper	1 ^a	35 (TP22 at 0.80m) 42 (TP24 at 0.10m)	11	35 (TP22 at 0.80m) 42 (TP24 at 0.10m)
Lead	1.2 ^a	20 (TP24 at 0.10m) 45 (TP22 at 0.80m)	3.2	20 (TP24 at 0.10m) 45 (TP22 at 0.80m)

GAC Type	EQS (µg/l)		PNEC ^b (µg/l)	
Determinand	GAC	Exceedances	SSAC	Exceedances
Nickel	4 ^a	4 (TP24 at 0.10m) 15 (TP22 at 0.80m)	13	15 (TP22 at 0.80m)
Zinc	10.9 ^a	29 (TP24 at 0.10m) 28 (TP22 at 0.80m)	19	29 (TP24 at 0.10m) 28 (TP22 at 0.80m)

^a EQS refers to fraction available to aquatic life (WFD, 2015)

^b PNEC - Predicted No Effect Concentration (UKTAG M-BAT, 2014)

Table 13 indicates exceedances of the GAC in soil leachate samples are present for copper, lead, nickel and zinc suggesting that leaching of contaminants to groundwater may be occurring.

The elevated metals recorded are all associated with the made ground deposits at the site (TP22 and TP24) and are not reflected in the tested sample of natural ground. They comprise relatively marginal exceedances of nickel and zinc, and greater exceedances of copper and lead over both EQS and PNEC values.

Each of these potential contaminants are discussed as follows. Information on background soil concentrations available from the UK Soil Observatory and the concentrations identified in soils as part of this investigation are presented for comparison in Table 14.

Table 14 Published background soil concentrations

Determinand	Published background soil concentrations (mg/kg)		On-site soil concentrations (mg/kg)
	Advanced Soil Geochemical Atlas of England and Wales ¹	BGS Natural Background Concentration (NBC) ²	
Copper	19 (60 th percentile)	17 - 24 (25 th to 50 th percentile)	10 to 34
Lead	52 (60 th percentile)	33 - 47 (25 th to 50 th percentile)	<1 to 44
Nickel	15 (40 th percentile)	13 - 15 (25 th to 50 th percentile)	8 to 61
Zinc	79 (60 th percentile)	N/A	45 to 88

¹ Based on data from the National Soil Inventory (NSI) and published by BGS/UK Soil Observatory

² BGS report ref. CR/12/035.

While some soil concentrations of the metals are noted to be above soil background levels, they are not considered to be excessively high, do not exceed soil screening values for human health, and no visual or olfactory evidence of gross contamination has been noted at the site. As such, a significant soil source of metal contamination is not

considered to be present at the site. It should be noted that laboratory leaching tests are considered more aggressive than naturally occurring leaching of contaminants from soils in a real-world setting so are likely to be over-conservative, however the potential for contamination of near surface and surface Controlled Waters, albeit limited, remains and cannot be discounted based on leachate and soil testing alone.

Given that the pond is located down-gradient of exploratory hole locations where the elevated concentrations were identified, it is considered possible that a potentially complete pollutant linkage is present at the site, and therefore in order to further assess this risk sampling of surface water from the on-site pond was subsequently undertaken and is discussed in the following section.

5.4.2 W2 Migration of dissolved phase contaminants to surface waters

As discussed in the above section, it has been identified that contaminants have potential to be leaching into the on-site surface water feature from the made ground soils present in its vicinity, though it was noted that the concentrations detected were only marginally above background. However, it is not currently evident whether groundwater is in continuity with the pond or not.

Two (2 No.) samples were obtained from the central pond to provide a direct assessment on the water quality, however sufficient groundwater samples could not be obtained from adjacent monitoring wells to assess the concentrations within the groundwater itself.

As above, the chemical analytical results have been compared to both the relevant generic EQS values and the calculated site-specific PNEC values protective of aquatic life in the pond as presented in Table 15.

Table 15 Summary of surface water GQRA results

GAC Type	EQS (µg/l)		PNEC ^b (µg/l)	
Determinand	GAC	Exceedances	SSAC	Exceedances
Copper	1 ^a	14 (SW1) 10 (SW2)	11	14 (SW1)
Nickel	4 ^a	6 (SW1) 7 (SW2)	13	None
Zinc	10.9 ^a	14 (SW1) 17 (SW2)	19	None

^a EQS refers to fraction available to aquatic life (WFD, 2015)

^b PNEC - Predicted No Effect Concentration (UKTAG M-BAT, 2014)

Nickel and zinc

Nickel and zinc concentrations from both samples were found to be in exceedance of the generic EQS but were no longer found to be in exceedance when compared to the site-specific PNEC and therefore neither nickel or zinc are considered to pose a significant risk.

Copper

The concentrations of copper in exceedance of the assessment criteria are considered to be significantly elevated above the generic EQS value (up to 14 times the GAC), however are much more marginally so when compared to the calculated site-specific PNEC value (up to 1.2 times the SSAC).

Given the marginal nature of these exceedances, particularly in comparison to the soil concentrations reported for the site, the leaching of copper from nearby soils is not considered to pose a significant risk to the pond.

5.5 G1: Methodology and assessment of ground gas-related linkages

5.5.1 Appropriate guidance

The risks to development from ground gases have been assessed in accordance with BS8485:2015+A1:2019 (BS8485), which provides guidance on ground gas (methane and carbon dioxide) characterisation and hazard assessment, as well as providing a framework for the prescription of protection measures within new buildings.

The process involves characterising the gas hazard from combining the qualitative assessment of risk (using the CSM) with ground investigation data so that a 'characteristic situation' (CS) can be derived for the site or zones within the site. Characteristic situations range from CS1 to CS6, the higher the CS, the higher the hazard potential. Gas protection measures within new buildings can be prescribed using a point scoring system, taking into consideration the CS and the proposed building type.

BS8485 indicates that the gas hazard can be characterised using the following methods:

- an empirical semi-quantitative approach using gas monitoring data to determine the 'characteristic situation' of the site (or zones of the site) and subsequent protective measures (Wilson and Card approach).
- an empirical semi-quantitative approach using TOC data to determine the 'characteristic situation' of the site (or zones of the site) and subsequent protective measures (CL:AIRE RB17 approach) or
- detailed quantitative assessment methodologies

For the purpose of this assessment, the empirical semi-quantitative approach above has been used to characterise the gas hazard and provide advice on the protective measures likely to be required within new buildings at the site.

5.5.2 Summary of the refined CSM for ground gas

In the assessment of risks and selection of appropriate mitigation measures, BS8485 highlights the importance of the conceptual model. In summary, potential sources of ground gas within influencing distance of the site identified in the preliminary CSM comprise:

- made ground deposits possibly present on site

Pathways and receptors for ground gas were identified in the preliminary CSM. It is understood that building foundations are to include spread foundations with block and beam flooring, with piles and/or ground improvement recommended within the southern site field.

This assessment has been undertaken to assess risks to building structures and proposed end users. The assessment has not taken into consideration the health and safety of construction workers. Risks may still be present to construction workers especially where works include the entry into excavations within the ground. Construction workers should undertake appropriate risk assessments and risks should be managed through health and safety procedures and safe systems of work.

The risk assessment has been undertaken based on the current understanding of the CSM.

5.5.3 Empirical semi-quantitative approach using borehole monitoring data (Wilson and Card approach, BS8485)

5.5.3.1 Background

The empirical semi quantitative approach using gas monitoring data requires the designation of a gas screening value (GSV) for the entire site or zones within the site, which informs the hazard potential and associated prescribed ground gas protection measures within new buildings (where necessary). BS8485 defines the GSV as the *'flow rate (l/hr) of a specific hazardous gas **representative of a site or zone**, derived from assessment of borehole concentration and flow rate measurements and taking account of all other influencing factors, in accordance with a conceptual site model'*.

BS8485 Section 6.3.1 outlines the process for developing a GSV for the site or a zone as follows:

- borehole hazardous gas flow rate (Q_{hg}) is calculated for each borehole standpipe for each monitoring event. The borehole hazardous gas flow rate is defined in BS8485 as the *'flow rate of a specific hazardous gas, either methane or carbon dioxide, from a borehole standpipe'*. The Q_{hg} is calculated from individual borehole measurements of total gas flow and the concentration of the specific hazardous gas. BS8485 states in Section 6.3.4 that the **maximum** gas concentration recorded during the monitoring event should be used, together with **steady-state** values of gas flows
- the reliability of the measured gas flow rates and concentrations are assessed taking into account borehole construction
- decisions are made about how to deal with any temporal or spatial shortages in the data
- judgements are made about what GSV to designate for use for design purposes taking all relevant information and the conceptual site model into account.

Once the Q_{hg} has been calculated for methane and carbon dioxide, individual borehole measurements are compared to the thresholds presented in Table 2 of BS8485 which inform the CS that directly relates to each individual measurement. Taking into account the site data (i.e. borehole gas concentration and flow rate to calculate the Q_{hg}) and all

other influencing factors in accordance with the CSM, a decision can then be made regarding the GSV that is considered to be representative of the site or a zone within it.

Typical threshold concentrations of methane (1% v/v) and carbon dioxide (5% v/v), and flow rates (>70 l/h), are also considered when designating the GSV for the site or zone, which in turn dictates the hazard potential and CS. It is important to note that the site or zone characteristic GSV and maximum concentration or flow thresholds are guideline values and not absolute. The thresholds may be exceeded in certain circumstances, if the CSM indicates it is safe to do so.

5.5.3.2 Designation of a GSV for the site or zone

The results of the ground gas monitoring and testing undertaken, alongside site conditions at the time of monitoring, are given in Appendix F.

Consideration has been given to the presence of flooded or partially flooded response zones at the time of monitoring, with details of fully or partially flooded response zones detailed in Appendix F.

For the purposes of the current ground gas risk assessment, data from entirely flooded response zones has been included in the risk assessment.

A summary of the maximum recorded concentrations per borehole (or minimum for oxygen) is presented in Table 16 overleaf. This table also presents details of the response zone, maximum recorded initial and steady state flow rates and minimum recorded depth to water across all monitoring rounds.

The range of atmospheric pressure over the six monitoring rounds completed was 995 - 1017 mbar and this was recorded to be falling at the time of two rounds.

Table 16 Summary of ground gas monitoring results – all data

Exploratory position ID	Response zone top (mbgl)	Response zone base (mbgl)	Response zone geological unit	No. of monitoring rounds	Peak CH ₄ max. (%/vol)	Steady-state CH ₄ max. (%/vol)	Peak CO ₂ max. (%/vol)	Steady-state CO ₂ max. (%/vol)	Oxygen min. (%/vol)	Peak gas flow max. (l/hr)	Steady-state gas flow max. (l/hr)	Depth to water min. (m)	Depth to water max. (m)	Atm. pressure min. (mb)	Atm pressure max. (mb)
WS01	1.00	4.00	GUN	6	0	0	1.2	1.1	18.9	0.1	0.1	Dry		997	1017
WS02	1.00	4.00	GUN	6	0	0	1.5	1.4	18.2	0	0	Dry		996	1017
WS03	1.00	4.00	WIG / GUN	6	0	0	1.2	1.2	18.7	0.2	0.2	Dry		997	1017
WS04	2.00	5.00	GUN	6	0	0	0.8	0.8	18.7	0	0	Dry		996	1017
WS07	1.00	4.00	GUN	6	0	0	1.4	1.4	18.4	0.1	0.1	Dry		996	1017
WS08	1.00	3.00	GUN	6	0	0	1.4	1.3	19.2	0.2	0.2	Dry		996	1017
WS11	3.00	6.00	WIG	6	0	0	2.5	2.4	18.6	0	0	4.72	4.76	995	1016
WS12	1.00	3.00		6	0	0	0.7	0.6	19.4	0.1	0.1	Dry		995	1015

Note: GUN is Gunthorpe Member and WIG is Wigston Sand and Gravel Member

5.5.3.3 Summary of borehole hazardous gas flow rates

Borehole hazardous gas flow rates (Q_{hg}) have been calculated for each borehole standpipe, for each monitoring round and are presented, alongside two 'worst case' checks in Appendix P comprising a probable 'worst case' and potential 'worst case' from the available monitoring data. Within this data gas concentrations exceeding the thresholds presented in Table 2 of BS8485 are identified, alongside the CS that could be associated with each individual borehole monitoring event.

5.5.3.4 Worst case check

In accordance with BS8485, a 'worst case' Q_{hg} has been calculated per borehole by multiplying the maximum recorded flow from any monitoring round for that borehole by the maximum recorded methane or carbon dioxide concentration in that borehole. A further worst-case Q_{hg} check across all data collected is presented in Appendix P for the entire site (or zone), which has been calculated by multiplying the maximum recorded flow by the maximum recorded methane or carbon dioxide concentration.

5.5.3.5 Designation of site gas screening value (GSV)

Considering the calculated Q_{hg} , the CSM, monitoring conditions and response zone construction, Table 17 presents the GSVs designated for the site (or zone if applicable).

Table 17 Summary of ground gas monitoring results

Hazardous gas	GSV (l/h)	Justification for the GSV
Methane	0.0002	Utilising a flow rate of 0.2l/hr and concentration of <0.1%
Carbon dioxide	0.005	Utilising a flow rate of 0.2l/hr and concentration of 2.5%

Based on the Q_{hg} , the maximum concentrations and flows recorded, the CSM and the method for determining the CS presented within Table 2 of BS8485, the site has been characterised as CS1.

5.5.3.6 Data Limitations

It should be noted that there are inherent limitations in ground gas monitoring including spatial adequacy of monitoring locations, changes in groundwater levels, variation in temporal or atmospheric conditions and whether these have been adequately characterised by the scope of monitoring undertaken.

The investigation undertaken to date has incorporated an appropriate number of ground gas monitoring visits and the data is considered reliable. A low-pressure visit has been undertaken (<1000mbar) and then two falling pressure visit out of the six monitoring visits.

However, as a round has not been undertaken during a low and falling atmospheric pressure, worst-case conditions may not have been encountered at the site.

5.5.3.7 Trace gases

Some elevated concentrations of carbon monoxide (19 to 23 ppm) have been recorded within several boreholes (WS01, WS08, WS12), typically during the first monitoring visits. These concentrations significantly reduce over the following four return monitoring visits. This indicates that carbon monoxide detected has been caused by the introduction of oxygen from drilling/monitoring well installation which has caused an initial spike in bacteriological activity rather than being present as a continuous source. No further consideration is given to carbon monoxide.

5.5.4 BS8485 recommended ground gas protection measures

Based on the current understanding of the conceptual site model and the assessment undertaken, the site has been classified as CS1. Considering the foregoing and in accordance with BS8485, ground gas protective measures are not considered necessary within proposed buildings.

5.5.5 Implications of ground improvement or foundation design

As detailed in Section 7, spread foundation types are being considered for the vast majority of the development. Where alternative foundation solutions are required (southern portion of the site), preferential gas pathways should be considered when the founding solution determined. Where such works may create preferential pathways for ground gas migration to the surface, this needs to be considered through the design process, such as through a foundation works risk assessment.

Should foundation solutions or building design change within the design process, then this gas risk assessment and mitigation should be reviewed and where applicable updated.

6 PRELIMINARY WASTE ASSESSMENT

In accordance with the definition provided in the Waste Framework Directive (WFD), materials are only considered waste if ‘they are discarded, intended to be discarded or required to be discarded, by the holder’. Naturally occurring soils are not considered waste if reused on the site of origin for the purposes of development. Soils such as made ground that are not of clean and natural origin (irrespective of whether they are contaminated or not) and other materials such as recycled aggregate, do not become waste until the criteria above are met. Further background information is provided in Appendix D.

Excavation arisings from the development may therefore be classified as waste if surplus to requirements or unsuitable for reuse. The following assessments assume the material tested is classified subsequently as waste.

6.1 Hazardous waste assessment

Technical Guidance WM3 (EA, 2021) sets out in its Appendix D requirements for waste sampling. It is a legal requirement to correctly assess and classify waste. The level of sampling should be proportionate to the volume of waste and its heterogeneity. The preliminary assessment provided below is based only upon the available sample results and may not be sufficient to adequately classify the waste.

6.1.1 Chemical contaminants

EnviroLab, an RSK company, has developed a waste soils characterisation assessment tool (HASWASTE), which follows the guidance within Technical Guidance WM3. The analytical results have been assessed using this tool to assess the hazardous properties to support potential off-site disposal of materials in the future. Note that it is ultimately for landfills to confirm what wastes they are able to accept within the constraints of their permit.

No samples were found to have hazardous properties based on this assessment. This suggests that if applicable the waste would require disposal at a suitably permitted inert or non-hazardous waste landfill.

6.1.2 Asbestos within waste soils

Technical Guidance WM3 requires that within a mixed waste the separately identifiable wastes be assessed separately.

For instance, where waste soil contains identifiable pieces of asbestos (visible to the naked eye) the asbestos should, where feasible, be separated from the soil and classified separately. This should be disposed of within a hazardous, stable non-reactive hazardous waste landfill or a special cell in a non-hazardous waste landfill.

Samples of potential asbestos containing material were collected from site and analysed for the presence of asbestos, the results of which are presented in Appendix G. Analysis confirmed that asbestos was not present within any of the 10no. samples screened. Visible asbestos containing material was not identified on-site.

7 GEOTECHNICAL ASSESSMENT

7.1 Proposed development

It is understood that the proposed development is to involve the construction of low-rise residential properties and associated infrastructure. At this stage no specific information relating to building loads has been provided. It has been assumed the ground-bearing floor slabs will not be required and that beam and block flooring will be utilised.

7.2 Key geotechnical hazards / development constraints

The key risks identified from the available ground investigation data are discussed below:

- A variable and locally significant thickness of superficial deposits (Wigston Sand and Gravel) has been identified at the site
- Loose sands and soft clays are present within the Wigston Sand and Gravel which will preclude the use of conventional spread footings within this stratum without some form of prior improvement
- Both the Wigston Sand and Gravel Member and the Gunthorpe Member have soils of a medium volume change potential

7.3 Foundations

7.3.1 Foundation options

The ground investigation has identified variable ground conditions across the site, and the proposed foundation solution varies accordingly. A Foundation Zoning Plan has been produced for the site and is presented as Figure 4.

In the north of the site, firm to stiff clays associated with the Gunthorpe member are present at relatively shallow depth and therefore the use of conventional spread footings may be considered in this area.

In the south of the site, extensive deposits of the Wigston Sand and Gravel were encountered. The composition and strength/density of the superficial deposits was highly variable, and the soils encountered frequently comprised loose sands and soft clays.

On the basis of the prevailing ground conditions in the south of the site, the use of conventional spread footings is not likely to be suitable for the proposed development in this area without prior treatment/ground improvement. Alternatively, considered should be given to the use of piles taken through the unsuitable superficial deposits and into the underlying competent Gunthorpe member.

In order for the foundation solution to be developed in the southern part of the site, further ground investigation will be required to establish the full thickness of the superficial strata and obtain information regarding the composition and strength/density of both the superficial deposits and underlying bedrock.

7.3.2 Spread foundations

The recommendations for the design and construction of spread foundations in relation to the ground conditions are set out in Table 18.

Table 18 Design and construction of spread foundations

Design/construction considerations	Design/construction recommendations
Founding stratum	Firm to stiff clays associated with the Gunthorpe Member.
Depth	Foundations should be taken to a minimum depth of 0.90m below the final or existing ground level, whichever is lower, and at least 0.2m into the founding stratum below any overlying made ground, unsuitable (loose/soft) deposits, or to any greater depth required in respect of the special design considerations given below.
Special design considerations	
Shrinkable soils	Owing to the presence of shrinkable clay soils, foundations should be designed taking into account all the normal precautions, including minimum founding depths, to minimise the risk of future foundation movements in accordance with NHBC standards or similar. The findings of the ground investigation indicate that foundations should be designed for shrinkable soils of medium volume change potential.
Variable founding soils	Owing to the significant lateral and vertical variability of the founding strata, consideration should be given to incorporating appropriate reinforcement into the strip foundations to minimise the risk of future differential foundation movements.
Presumed bearing capacity	Strip foundations with a width of up to 1.0m and constructed on the Gunthorpe Member (firm to stiff clays, $c_u > 10 \text{ kN/m}^2$) at a minimum depth of 0.90m may be designed using a presumed bearing capacity of 90 kN/m^2 . The presumed bearing capacity includes a partial factor on bearing resistance of 2 (coarse soils) / 3 (fine soils) against bearing capacity failure. Total settlements associated with the presumed bearing pressure are anticipated to be less than 25 mm.
Construction considerations	All foundation excavations should be inspected, and any made ground and soft, organic or otherwise unsuitable materials removed and replaced with mass concrete. The proposed founding stratum is a relatively silt-rich soil, hence susceptible to rapid softening once exposed. Hence all foundation excavations should immediately be blinded with concrete or the full foundation constructed.

7.4 Roads and hardstanding

In the 1 m to 1.5 m below the proposed finished ground level the exploratory holes have revealed a soil profile comprising agricultural topsoil, agricultural subsoil over superficial Wigston Sand and Gravel Member with bedrock Gunthorpe Member deposits at depth. The potentially poorest sub-grade material within this profile is the agricultural subsoil.

In pavement design terms, the groundwater conditions are anticipated to comprise a low water table, i.e., at least 1 m below the pavement formation level.

The results of in-situ testing are summarised in Table 19.

Table 19 Summary of CBR values derived from in-situ DCP tests

Test location	Material type	Minimum CBR value determined at or just below anticipated formation level
TP08	Gravelly SAND	15%
TP12		15%
TP17		14%
TP18		32%
TP23		14%
TP25		24%

7.5 Excavations for foundations and services

Generally, the trial pits remained stable during excavation which indicates that foundation excavations should also remain stable in the short term. In the event that excavations are to remain open for longer periods, consideration should be given to the use of trench support systems.

Man-entry into any excavations should not be undertaken without provision of suitable shoring and support and dewatering or suitable regrading and battering of side slopes to safe angles. Confined spaces protocols for the Health and Safety of personnel should always be used where man entry into excavations is to be undertaken as low oxygen conditions may be present.

Groundwater was encountered in some of the exploratory holes at depth. Dewatering may therefore be required to facilitate foundation excavation.

Excavation should be possible using conventional site plant. Breakers may be necessary to remove any concrete obstructions within the made ground.

7.6 Chemical attack on buried concrete

This assessment of the potential for chemical attack on buried concrete at the site is based on BRE Special Digest 1: Concrete in aggressive ground, which represents the most up-to-date guidance on this topic currently available in the UK.

The desk study and site reconnaissance indicate that, for the purposes of assessing the aggressive chemical environment of the site, the site should be considered as comprising natural ground unlikely to contain pyrite.

Based on testing results, Table 20 gives the characteristic pH, water-soluble and total sulphate content values for soils from each of the geological units and groundwater encountered on-site.

Table 20 Characteristic pH, water soluble sulphate and total sulphate values

Stratum	pH	Water Soluble Sulphate (mg/l)	Total Potential Sulphate (mg/l)
Wigston Sand and Gravel Member	6.07	10	0.03
Gunthorpe Member	6.15	27.5	0.03

Based on the results above and following the steps outlined in the BRE guidance, the Design Sulphate Classes and Aggressive Chemical Environment for Concrete classifications are summarised in Table 21, on the basis of water-soluble sulphate and total potential sulphate, respectively.

Table 21 Concrete design class

Stratum	Ground water	Water Soluble Sulphate		Total Potential Sulphate	
		DS Class	AC Class	DS Class	AC Class
Wigston Sand and Gravel Member	Mobile	DS-1	AC-1	DS-1	AC-1
Gunthorpe Member		DS-1	AC-1	DS-1	AC-1

7.7 Infiltration drainage

The results of soakaway testing are summarised in Table 22.

Table 22 Infiltration test results

Trial pit	Geological unit	Test result (m/s)
TP05	Gunthorpe Member	N/A
TP09		N/A
TP15		1.62 X 10 ⁻⁶ *
Notes: * Best infiltration rate calculated, tests 1 and 2 did not drain enough to calculate an infiltration rate		

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Geo-environmental assessment

The results of the site investigation and GQRA indicate that the identified potential contaminant linkages are absent in regard to human health receptors.

Elevated concentrations of metals were detected within made ground in the vicinity of the on-site pond, however chemical analysis of both leachable soils and water of the on-site pond indicates that this does not pose a significant risk to controlled waters.

Based on the current understanding of the conceptual site model and the assessment undertaken, the site has been classified as CS1. Considering the foregoing and in accordance with BS8485, ground gas protective measures are not considered necessary within proposed buildings.

8.2 Geotechnical assessment

The ground investigation has identified variable ground conditions across the site, and the proposed foundation solution varies accordingly.

In the north of the site, firm to stiff clays associated with the Gunthorpe member are present at relatively shallow depth and therefore the use of conventional spread footings may be considered in this area.

In the south of the site, extensive deposits of the Wigston Sand and Gravel were encountered above the Gunthorpe Member. The composition and strength/density of the superficial deposit was highly variable, and the soils encountered frequently comprised loose sands and soft clays.

On the basis of the prevailing ground conditions in the south of the site, the use of conventional spread footings is not likely to be suitable for the proposed development in this area without prior treatment/ground improvement. Alternatively, considered should be given to the use of piles taken through the unsuitable superficial deposits and into the underlying competent Gunthorpe member.

8.3 Recommendations

In order for the foundation solution to be developed in the southern part of the site, further ground investigation will be required to establish the full thickness of the superficial strata and obtain information regarding the composition and strength/density of both the superficial deposits and underlying bedrock.

At this stage it is proposed such investigations would include deep boreholes advanced using cable percussive methods, along with Cone Penetration Test (CPT) probing to profile the in-situ engineering characteristics of the superficial deposits.

REFERENCES

Previous SI reports and other site related information

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FIGURES

FIGURE 1
SITE LOCATION PLAN



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Client

GLADMAN DEVELOPMENTS LIMITED

Project Title

LEICESTER ROAD, EARL SHILTON

Drawing Title

SITE LOCATION PLAN

Drawn	Date	Checked	Date	Approved	Date
AP	07.08.19	JH	07.08.19	JH	07.08.19

Project No.
252719

Drawing File
302188-R01(00)D001A

Scale
1:50000

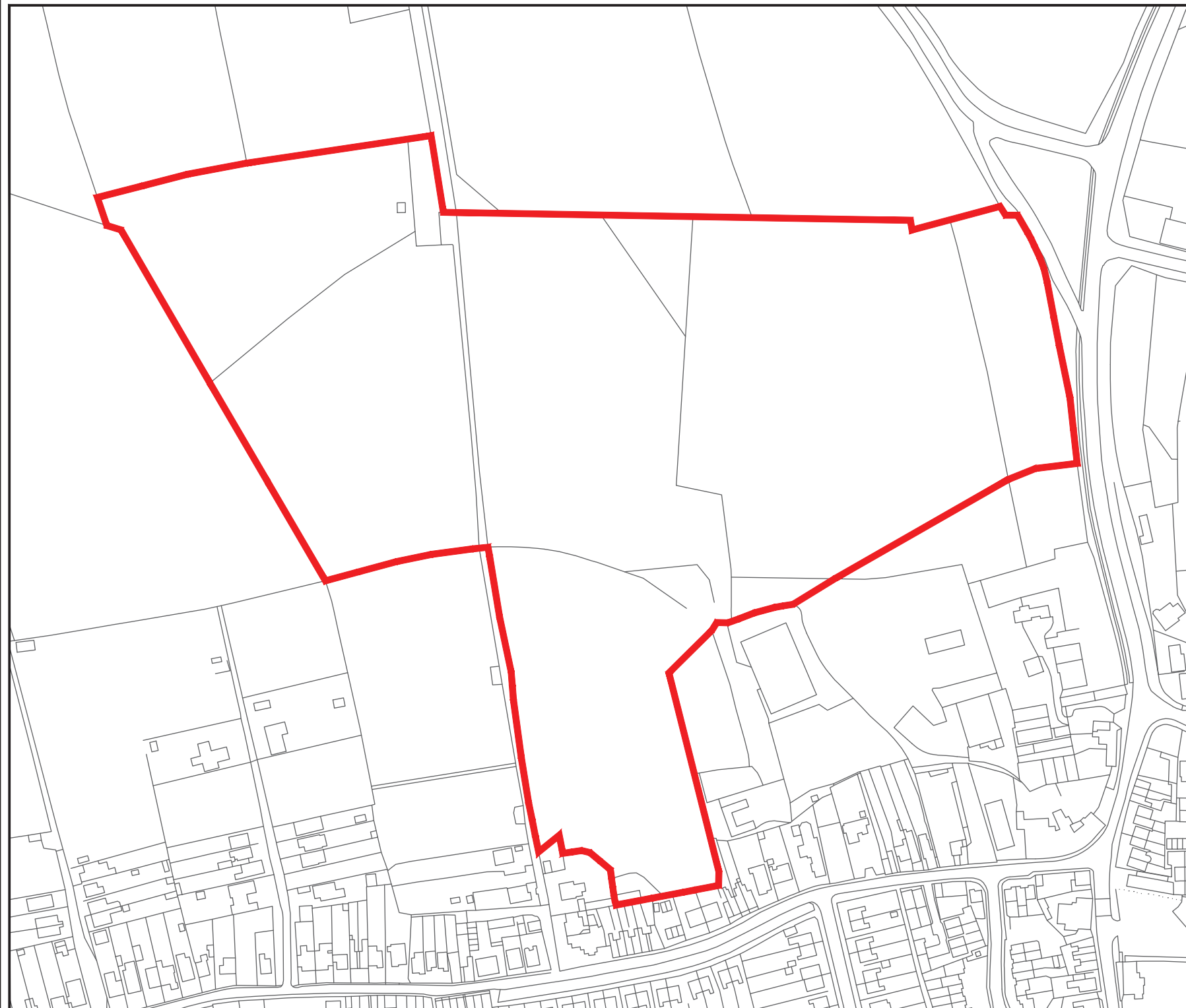
Orig Size
A4

Dimensions
—

Drawing No.
FIGURE 1

Rev.
A

FIGURE 2
SITE LAYOUT PLAN



LEGEND:

— Site boundary



Notes

A	07.08.19	FIRST ISSUE	AP	JH	JH	
REV.	DATE	DESCRIPTION	BY	CHD.	APR.	
Dimensions		Projection	Scale	Orig Size		
m			1:2500	A3		



12 Royal Scot Road
Pride Park
Derby
DE24 8AJ

CLIENT

GLADMAN DEVELOPMENT LIMITED

PROJECT

PROJECT
LEICESTER ROAD, EARL SHILTON

TITLE

SITE LAYOUT PLAN

JOB No.:

DRAWING FILE:

1

302188-R01(01)D002A

BY:

DATE:	
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CONTRACT NO.	
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REV:

AP

AP	07.08.19
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FIGURE 2

A

Scale 1 : 2,500



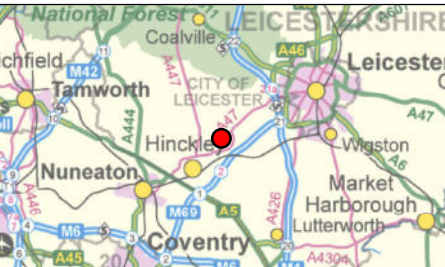
FIGURE 3
EXPLORATORY HOLE LOCATION PLAN



I.D	X	Y
TP01	446536	298474
TP02	446581	298506
TP03	446575	298471
TP04	446645	298469
TP05	446675	298496
TP06	446680	298442
TP07	446716	298423
TP08	446729	298462
TP09	446758	298504
TP10	446769	298482
TP11	446775	298453
TP12	446809	298432
TP13	446769	298396
TP14	446538	298430
TP15	446585	298423
TP16	446614	298396
TP17	446658	298410
TP18	446575	298379
TP19	446604	298357
TP20	446673	298359
TP21	446725	298371
TP22	446591	298318
TP23	446551	298298
TP24	446566	298263
TP25	446615	298255
TP26	446598	298218
WS01	446744	298483
WS02	446810	298438
WS03	446745	298445
WS04	446787	298404
WS05	446734	298398
WS06	446648	298429
WS07	446674	298384
WS08	446632	298363
WS09	446561	298339
WS10	446592	298290
WS11	446570	298238
WS12	446625	298199

- Legend:
- Batson Land
 - Hemsley Land
 - Meakins Land
 - Trial pit (17)
 - Trial pit with CBR (6)
 - Trial pit with soakaway (3)
 - Window sampler borehole (12)

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



Rev	Date	Description	Drn	Chk	App
00	26/08/2022	First Draft	DR	JT	JT

252719 - Earl Shilton, Leicester Road



TITLE: Exploratory Hole Location Plan

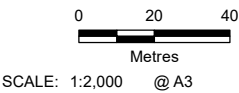
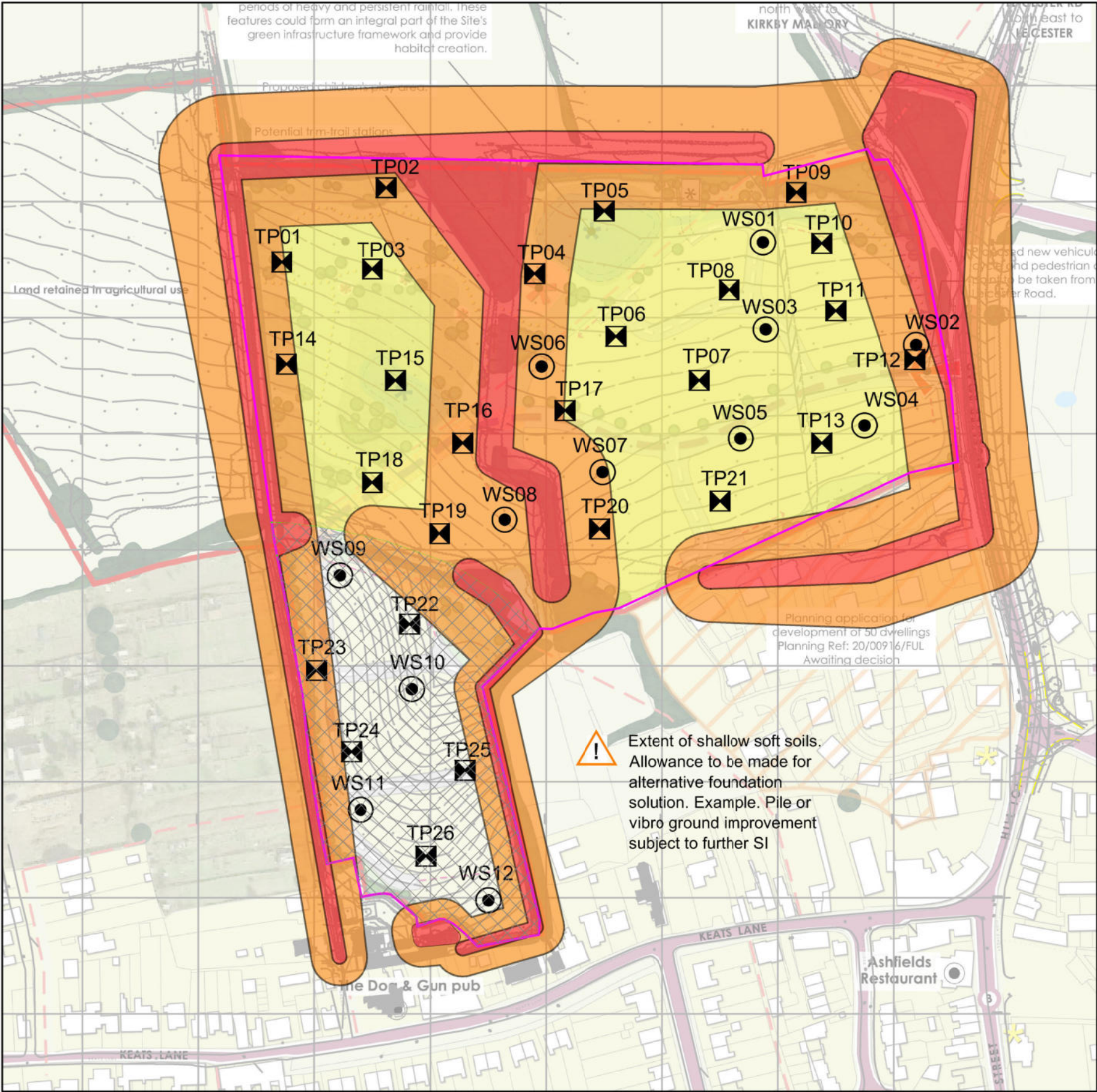


FIGURE 4
FOUNDATION ZONING PLAN

Note:
The foundation depths detailed on this zoning plan are based on the effects of existing tree influence only. Depths have been determined in accordance with the recommendations set out within NHBC Chapter 4.2 (Building Near Trees) and are to be confirmed following review of all information provided within this Geo-Environmental Site Assessment and subsequent exploratory logs.

- Notes:**
- This foundation zoning plan is to be read in conjunction with recommendations made within Geo-environmental site assessment Ref:252719-R01
 - This foundation zoning plan has been produced based on the types and locations of trees shown within CSA Environmental Arboricultural Assessment Report Ref:CSA/4519/03 only, and does not allow for trees/hedges not shown within this assessment, including areas of proposed planting.
 - A topographical plan showing tree locations and types is included as part of CSA Environmental Arboricultural Assessment Report however not all tree trunks or tree types are shown on the plan (particularly in wooded areas or where species have been grouped) and therefore assumptions have been made with regards to the location of some tree trunks and tree types i.e. for tree groups the depths shown are based on the worst case species.
 - Depths due to hedgerows are based on the worst case species and assume a maintained maximum height of 6m.
 - Depths due to tree's are based on the mature tree heights noted in NHBC Chapter 4.2 (with the exception of hedgerows).
 - if any of the assumptions above are found to be incorrect then the recommendations will need to be revised to suit.
 - If there is any doubt regarding the foundation depths, RSK should be contacted for advice.



LEGEND:

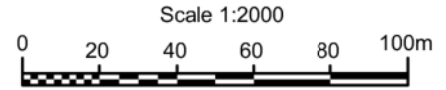
- Foundations require piling due to the effects of existing trees i.e formations >2.5m below existing ground level.
- Foundations require deepening due to the effects of existing trees.
- Foundations with min. founding depths of 0.90m from existing ground level due to the presence of medium plasticity soils.
- Piled foundations anticipated due to encountered ground conditions. Foundation Strategy is T3C following further site investigation/detailed design

- Notes:**
- Foundations on this site are to be designed and constructed in accordance with NHBC: Chapter 4.2 (Building near trees) and CSA Environmental Arboricultural Assessment Report Ref:CSA/4519/03 . The soils underlying the site are of medium volume change in accordance with the findings of the Site Assessment.
 - The foundation strategy indicated above is in accordance with existing levels. Foundation requirements subject to change following receipt of proposed FFL's.
 - Foundations are to be taken to non-desiccated soils, which should be taken as the greater of:
 - 1) The minimum depths shown on the drawing, which are derived from chapter 4.2
 - 2) 500mm below evidence of live roots or other signs of desiccation.
 - It is essential to ensure that the foundation bottom is inspected and approved by a competent person to ensure that there are no tree roots present. Alternatively material excavated from the trench bottom should be examined.

A	26.08.22	FIRST DRAFT	MH	JG	JG
REV.	DATE	DESCRIPTION	BY	CHD.	APR.
Dimensions		Projection	Scale	Orig Size	
m			AS SHOWN	A3	



CLIENT					
GLADMAN DEVELOPMENTS Ltd					
PROJECT					
EARL SHILTON LEICESTER ROAD					
TITLE					
FIGURE 4: FOUNDATION ZONING PLAN					
JOB No.:			DRAWING FILE:		
252719			252719-R01-Figure004		
BY:	DATE:	CONTRACT NO.			REV:
MH	26.08.22		A3		A



APPENDICES

APPENDIX A

SERVICE CONSTRAINTS

1. This report and the site investigation carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for Gladman Developments Ltd (the "Client") in accordance with the terms of a contract [RSK Environment Standard Terms and Conditions] between RSK and the Client, dated 27th June 2022.. The Services were performed by RSK with the reasonable skill and care ordinarily exercised by an environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the Client.
2. Other than that, expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.
3. Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the Client. RSK is not aware of any interest of or reliance by any party other than the Client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.**
4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK 's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date of this report, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.
5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the Client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.
6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the Client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off site of asbestos, invasive plants, electromagnetic fields, lead paint, heavy metals, radon gas, persistent, bioaccumulative or toxic chemicals (including PFAS/ PFOS) or other radioactive or hazardous materials, unless specifically identified in the Services.
7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a visual inspection of the site together with RSK's interpretation of information, including documentation, obtained from third parties and from the Client on the history and usage of the site,

unless specifically identified in the Services or accreditation system (such as UKAS ISO 17020:2012 clause 7.1.6):

- a. The Services were based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely.
- b. The Services were limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the visual inspection.
- c. The Services did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services.

RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the Client and RSK.

8. The intrusive environmental site investigation aspects of the Services are a limited sampling of the site at pre-determined locations based on the known historic / operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the properties of the materials adjacent and local conditions, together with the position of any current structures and underground utilities and facilities, and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters (as stipulated in the scope between the client and RSK, based on an understanding of the available operational and historical information) and it should not be inferred that other chemical species are not present.
9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for setting out and should be considered indicative only.
10. The comments given in this report and the opinions expressed are based on the ground conditions encountered during the site work and on the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account. In particular, it should be noted that there may be areas of made ground not detected due to the limited nature of the investigation or the thickness and quality of made ground across the site may be variable. In addition, groundwater levels and ground gas concentrations and flows, may vary from those reported due to seasonal, or other, effects and the limitations stated in the data should be recognised.
11. Asbestos is often observed to be present in soils in discrete areas. Whilst asbestos-containing materials may have been locally encountered during the fieldworks or supporting laboratory analysis, the history of brownfield and demolition sites indicates that asbestos fibres may be present more widely in soils and aggregates, which could be encountered during more extensive ground works.
12. Unless stated otherwise, only preliminary geotechnical recommendations are presented in this report and these should be verified in a Geotechnical Design Report, once proposed construction and structural design proposals are confirmed.

APPENDIX B

DEVELOPMENT DRAWINGS



0 20 40 60 80 100 metres

Site Boundary: Approx. 9.45ha

DEVELOPABLE AREA

Residential development area:
Approx. 3.45ha (Up to 140 units @ 40dph)

ACCESS AND MOVEMENT

- Proposed vehicular access point
- Proposed spine road through the development
- Proposed secondary streets
- Proposed private drives and lanes
- Proposed shared/focal space
- Proposed recreational routes

GREEN INFRASTRUCTURE

- Existing vegetation
- Proposed public open space with new thicket and tree planting
- Proposed wildflower planting
- Proposed locations for sustainable drainage features
- Proposed street tree planting
- Proposed children's play areas - Local Equipped Area for Play (LEAP)
- Potential trim-trail stations
- Foul Pumping Station

SURROUNDING CONTEXT

- Existing vehicular circulation
- Existing Public Footpath
- Listed Building - Grade II & Grade II*
- Local facility/points of interest
- Existing waterbodies and water courses
- Nearby planning application

Rev	Date	By	Description
M	14/02/2022	RC	Updated to reflect latest access strategy
L	20/01/2022	SM	Updated to reflect latest access strategy
K	06/01/2021	SM	Minor amendment
J	03/12/2020	SM	Developable area in western field removed

CSA environmental

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ashwell@csaenvironmental.co.uk
csaenvironmental.co.uk

Project Earl Shilton, Leicester Road

Title Development Framework Plan

Client Gladman Developments Ltd

Scale 1:2000 @ A3	Drawn PM
Date October 2019	Checked RR
Drawing No. CSA/4519/108	Rev M

APPENDIX C

SUMMARY OF LEGISLATION AND POLICY RELATING TO LAND CONTAMINATION

Part IIA of the Environmental Protection Act 1990

Part IIA of the Environmental Protection Act 1990 (Part IIA) and its associated Contaminated Land Regulations 2000 (SI 2000/227), which came into force in England on 1 April 2000, formed the basis for the current regulatory framework and the statutory regime for the identification and remediation of contaminated land. Part IIA of the EPA 1990 defines contaminated land as 'any land which appears to the Local Authority in whose area it is situated to be in such a condition by reason of substances in, on or under the land, that significant harm is being caused, or that there is significant possibility of significant harm being caused, or that pollution of controlled waters is being or is likely to be caused'. Controlled waters are considered to include all groundwater, inland waters and estuaries.

In August 2006, the Contaminated Land (England) Regulations 2006 (SI 2006/1380) were implemented, which extended the statutory regime to include Part IIA of the EPA as originally introduced on 1 April 2000, together with changes intended chiefly to address land that is contaminated by virtue of radioactivity. These have been replaced subsequently by the Contaminated Land (England) (Amendment) Regulations 2012, which now exclude land that is contaminated by virtue of radioactivity.

The intention of Part IIA is to deal with contaminated land issues that are considered to cause significant harm on land that is not undergoing development (see Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, April 2012). This document replaces Annex III of Defra Circular 01/2006, published in September 2006 (the remainder of this document is now obsolete).

Planning Policy

Land contamination is often addressed via the planning process during redevelopment of sites. This approach was documented in Planning Policy Statement: Planning and Pollution Control PPS23, which states that it remains the responsibility of the landowner and developer to identify land affected by contamination and carry out sufficient remediation to render the land suitable for use. PPS23 was withdrawn early in 2012 and has been replaced by much reduced guidance within the National Planning Policy Framework (NPPF), reference ISBN: 978-1-5286-1033-9, July 2021. For sites in Wales, reference should be made to Planning Policy Wales (Welsh Government. Edition 11, February 2021).

The new framework has limited guidance on contaminated land, as follows:

Chapter 11. Making effective use of land

- 117 Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or 'brownfield' land.

118. Planning policies and decisions should:

c) give substantial weight to the value of using suitable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land.

Chapter 15. Conserving and enhancing the natural environment

170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Ground conditions and pollution

178. Planning policies and decisions should ensure that:

a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);

b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990; and

c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.

179. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

Water Resources Act (WRA)

The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 updated the Water Resources Act 1991, which introduced the offence of causing or knowingly permitting pollution of controlled waters. The Act provides the Environment Agency with powers to implement remediation necessary to protect controlled waters and recover all reasonable costs of doing so.

Water Framework Directive (WFD)

The Water Framework Directive 2000/60/EC is designed to:

- enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands that depend on the aquatic ecosystems
- promote the sustainable use of water

- reduce pollution of water, especially by 'priority' and 'priority hazardous' substances
- ensure progressive reduction of groundwater pollution.

The WFD requires a management plan for each river basin be developed every six years.

Groundwater Directive (GWD)

The 1980 Groundwater Directive 80/68/EEC and the 2006 Groundwater Daughter Directive 2006/118/EC of the WFD are the main European legislation in place to protect groundwater. The 1980 Directive is due to be repealed in December 2013. The European legislation has been transposed into national legislation by regulations and directions to the Environment Agency.

Priority Substances Directive (PSD)

The Priority Substances Directive 2008/105/EC is a 'Daughter' Directive of the WFD, which sets out a priority list of substances posing a threat to or via the aquatic environment. The PSD establishes environmental quality standards for priority substances, which have been set at concentrations that are safe for the aquatic environment and for human health. In addition, there is a further aim of reducing (or eliminating) pollution of surface water (rivers, lakes, estuaries and coastal waters) by pollutants on the list. The WFD requires that countries establish a list of dangerous substances that are being discharged and EQS for them. In England and Wales, this list is provided in the River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010. In order to achieve the objectives of the WFD, classification schemes are used to describe where the water environment is of good quality and where it may require improvement.

Environmental Permitting Regulations (EPR)

The Environmental Permitting (England and Wales) Regulations 2016 (as amended) provide a single regulatory framework that streamlines and integrates waste management licensing, pollution prevention and control, water discharge consenting, groundwater authorisations, and radioactive substances regulation. Schedule 22, paragraph 6 of EPR 2016 states: 'the regulator must, in exercising its relevant functions, take all necessary measures - (a) to prevent the input of any hazardous substance to groundwater; and (b) to limit the input of non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.'

Notes:

1. *The above information is provided for background but does not constitute site-specific advice*
2. *The above summary applies to England only. Variations exist within other countries of the United Kingdom*

APPENDIX D

TECHNICAL BACKGROUND

D1 Desk Study

Aquifer designation and Source protection zones

Principal aquifer: layers of rock or drift deposit that have high intergranular and/or fracture permeability (usually providing a high level of water storage). They may support water supply and/or river base flow on a strategic scale.

Secondary A aquifer: permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

Secondary B aquifer: predominantly lower permeability layers that may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.

Secondary undifferentiated aquifer: it has not been possible to attribute either a category A or B to a rock type. In most cases this means that it was previously designated as both a minor and non-aquifer in different locations owing to the variable characteristics.

Unproductive' strata: low permeability with negligible significance for water supply or river base flow.

The EA generally adopts a three-fold classification of source protection zones (SPZ) surround abstractions for public water supply. The Site is situated in an area defined as follows:

- Zone 1 or the 'inner protection zone' is located immediately adjacent to the groundwater source and is based on a 50-day travel time from any point below the water table to the source. It is designed to protect against the effects of human activity and biological/chemical contaminants that may have an immediate effect on the source
- Zone 2 or the 'outer protection zone' is defined by a 400-day travel time from a point below the water table to the source. The travel time is designed to provide delay and attenuation of slowly degrading pollutants
- Zone 3 or the 'total catchment' is the area around the source within which all groundwater recharge is presumed to be discharged at the source.

Preliminary risk assessment methodology

LCRM outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. An outline conceptual model should be formed at the preliminary risk assessment stage that collates all the existing information pertaining to a site in text, tabular or diagrammatic form. The outline conceptual model identifies potentially complete (termed possible) contaminant linkages (contaminant–pathway–receptor) and is used as the basis for the design of the site investigation. The outline conceptual model is updated as further information becomes available, for example as a result of the site investigation.

Production of a conceptual model requires an assessment of risk to be made. Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the

likelihood and the consequences of an event must be taken into account when assessing risk. RSK has adopted guidance provided in CIRIA C552 for use in the production of conceptual models.

The likelihood of an event can be classified on a four-point system using the following terms and definitions based on CIRIA C552:

- highly likely: the event appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution
- likely: it is probable that an event will occur or circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term
- low likelihood: circumstances are possible under which an event could occur, but it is not certain even in the long term that an event would occur and it is less likely in the short term
- unlikely: circumstances are such that it is improbable the event would occur even in the long term.

The severity can be classified using a similar system also based on CIRIA C552. The terms and definitions relating to severity are:

- severe: short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. Short-term risk to an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000)
- medium: chronic damage to human health ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000), pollution of sensitive water resources, significant change in an ecosystem or organism forming part of that ecosystem
- mild: pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures or the environment
- minor: harm, not necessarily significant, but that could result in financial loss or expenditure to resolve. Non-permanent human health effects easily prevented by use of personal protective clothing. Easily repairable damage to buildings, structures and services.

Once the probability of an event occurring and its consequences have been classified, a risk category can be assigned according to the table below.

		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Definitions of these risk categories are as follows together with an assessment of the further work that may be required:

- very high: there is a high probability that severe harm could occur or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability; urgent investigation and remediation are likely to be required
- high: harm is likely to occur. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required. Remedial works may be necessary in the short term and are likely over the long term
- moderate: it is possible that harm could arise, but it is unlikely that the harm would be severe and it is more likely that the harm would be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term
- low: it is possible that harm could occur, but it is likely that if realised this harm would at worst normally be mild
- very low: there is a low possibility that harm could occur and if realised the harm is unlikely to be severe.

D2 Site Investigation Methodology

Ground gas monitoring

An infrared gas meter was used to measure gas flow, concentrations of carbon dioxide (CO₂), methane (CH₄) and oxygen (O₂) in percentage by volume, while hydrogen sulphide (H₂S) and carbon monoxide (CO) were recorded in parts per million. Initial and steady state concentrations were recorded. In addition, during the first monitoring round, all wells were screened with a PID to establish if there are any interferences and cross-sensitivity of other hydrocarbons with the infrared gas meter.

Low flow groundwater sampling

Groundwater samples were retrieved using a United States Environment Protection Agency (USEPA) approved low-flow purging and sampling methodology.

The low-flow method relies on moving groundwater through the well screen at approximately the same rate as it flows through the geological formation. This results in a significant reduction in the volume of water extracted before sampling and significantly reduces the amount of disturbance of the water in the monitoring well during purging and sampling. Drawdown levels in the monitoring well and water quality indicator parameters (pH, temperature, electrical conductivity, redox potential and dissolved oxygen) are monitored during low-flow purging and sampling, with stabilisation indicating that purging is complete and sampling can begin. As the flow rate used for purging, in most cases, is the same or only slightly higher than the flow rate used for sampling, and because purging and sampling are conducted as one continuous operation in the field, the process is referred to as low-flow purging and sampling.

Reuse of suitable materials

The Definition of Waste: Development Industry Code of Practice (CL:AIRE, 2011) (CoP) was developed in consultation with the Environment Agency and development industry to enable the

re-use of materials under certain scenarios and subject to demonstrating that specific criteria are met. The current reuse scenarios covered by the CoP comprise

- reuse on the site of origin (with or without treatment)
- direct transfer of clean and natural soils between sites
- use in the development of land other than the site of origin following treatment at an authorised Hub site (including a fixed soil treatment facility).

The importation of made ground soils (irrespective of contamination status) or crushed demolition materials is not permitted currently under the CoP and requires either a standard rules environmental permit or a U1 waste exemption (see below).

In the context of excavated materials used on-sites undergoing development, four factors are considered to be of particular relevance in determining if the material is a waste or when it ceases to be waste:

- the aim of the Waste Framework Directive is not undermined, i.e. if the use of the material will create an unacceptable risk of pollution of the environment or harm to human health it is likely to be waste
- the material is certain to be used
- the material is suitable for use both chemically and geotechnically
- only the required quantity of material will be used.

The CoP requires the preparation of a materials management plan (MMP) that confirms the above factors will be met. This plan needs to be reviewed by a 'Qualified Person' (QP) who will then issue a declaration form to the EA. As the project progresses, data must be collated and on completion a verification report produced that shows the MMP was followed and describes any changes.

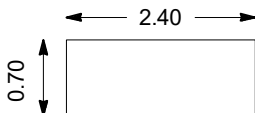
The MMP establishes whether specific materials are classified as waste and how excavated materials will be treated and/or reused in line with the CoP. The MMP is likely to form part of the site waste management plan.

APPENDIX E

EXPLORATORY HOLE RECORDS

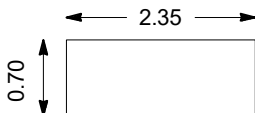
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP01
Contract Ref: 252719	Start: 20.07.22 End: 20.07.22	Ground Level: 101.49	National Grid Co-ordinate: E:446532.6 N:298477.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Brown slightly clayey gravelly SAND with frequent roots. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (AGRICULTURAL TOPSOIL)	(0.30)	
0.50	1	B				Stiff to very stiff brown slightly sandy CLAY. Sand is fine. (GUNTHORPE MEMBER)	0.30	
0.50	2	ES				... frequent roots present between 0.30m and 0.60m bgl.		
						... rare grey mottling from 0.60m bgl.		
1.00	3	ES				... becoming reddish brown from 1.00m bgl.	(1.40)	
1.20	4	B				... mudstone lithorelicts from 1.50m bgl.		
						... relict bedding from 1.60m bgl.	1.70	
1.75	5	B				Weak light grey to grey partially weathered MUDSTONE. (GUNTHORPE MEMBER)	1.75	
						... grey clay and grey mudstone cobbles at 1.70m bgl.		
						Trial pit terminated at 1.75m bgl.		

Plan (Not to Scale)		General Remarks		
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.		
		All dimensions in metres	Scale:	1:25
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: RMoore	Checked By:	

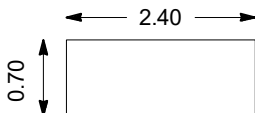
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP02
Contract Ref: 252719	Start: 20.07.22 End: 20.07.22	Ground Level: 99.82	National Grid Co-ordinate: E:446564.9 N:298505.1	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	D				Brown slightly clayey slightly gravelly SAND with abundant rootlets. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (AGRICULTURAL TOPSOIL)	(0.30)	
0.40	2	ES				Stiff to very stiff brown mottled grey slightly sandy CLAY with abundant rootlets. Sand is fine. (GUNTHORPE MEMBER)	0.30	
0.40	3	B						
0.80	4	ES				. . . becoming reddish brown from 0.70m bgl.		
1.40	5	B				. . . mudstone lithorelicts present from 1.30m bgl. . . . mudstone relict bedding present from 1.50m bgl.	(1.80)	
2.10	6	D				Trial pit terminated at 2.10m bgl.	2.10	

Plan (Not to Scale)		General Remarks		
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.		
		All dimensions in metres	Scale:	1:25
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: RMoore	Checked By:	

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP03
Contract Ref: 252719	Start: 20.07.22 End: 20.07.22	Ground Level: 100.90	National Grid Co-ordinate: E:446570.5 N:298476.1	Sheet: 1 of 1

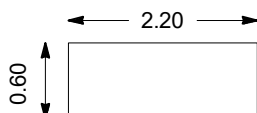
Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Brown slightly clayey very gravelly SAND. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (AGRICULTURAL TOPSOIL)	(0.40)	
0.55	1	ES				Stiff to very stiff brown slightly sandy CLAY with rootlets. Rare fine to medium rounded gravel of quartzite. (GUNTHORPE MEMBER)	0.40	
0.55	2	B				. . . reddish brown from 0.55m bgl.		
0.95	3	ES				. . . no roots present from 0.90m bgl.		
1.00	4	B				. . . relict bedding and rare grey mottling from 1.10m bgl.	(1.60)	
1.30	5	D						
1.45	6	D						
1.65	7	B						
2.00	8	B				Extremely weak reddish brown distinctly weathered MUDSTONE with grey reduction spots and blackish weathering edges. (GUNTHORPE MEMBER)	2.00	
2.40	9	B				. . . light grey reduction spots from 2.40m bgl.	(0.60)	
							2.60	
						Trial pit terminated at 2.60m bgl.		

Plan (Not to Scale)		General Remarks		
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.		
		All dimensions in metres	Scale:	1:25
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: RMoore	Checked By:	

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP04
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 99.94	National Grid Co-ordinate: E:446649.8 N:298464.3	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20 0.25-0.35 0.30	1 2 3	ES B D				Grass over soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Sand is fine and medium. Gravel is subrounded and rounded fine and medium of flint and quartzite. (AGRICULTURAL TOPSOIL)	0.24	
0.60 0.60	4	D V	$c_u=88$			Brownish grey mottled orange gravelly very clayey fine and medium SAND. Gravel is subangular to rounded fine and medium of flint and quartzite. (AGRICULTURAL SUBSOIL)	0.37	
1.40		V	$c_u=90$			Stiff reddish brown with light grey inclusions slightly gravelly CLAY. Gravel is subrounded and rounded fine and medium of flint. (GUNTORPE MEMBER)	(2.53)	
1.70	5	D						
2.30	6	D						
							2.90	
3.50	7	D				Firm friable reddish brown CLAY with light grey inclusions and with frequent mudstone lithorelicts. (GUNTORPE MEMBER)	(0.80)	
							3.70	
Trial pit terminated at 3.70m bgl.								

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled with arisings upon completion.

All dimensions in metres

Scale: **1:25**

Method Used:

Machine dug

Plant Used:

JCB-3CX

Logged By:

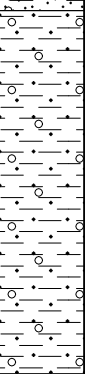
IReid

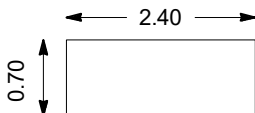
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AGS

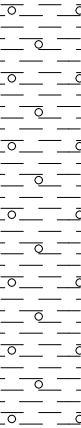
TRIAL PIT LOG

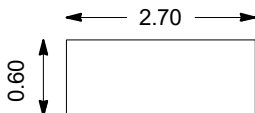
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP05
Contract Ref: 252719	Start: 18.07.22 End: 18.07.22	Ground Level: 98.89	National Grid Co-ordinate: E:446687.7 N:298490.3	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.50	1	ES				Brown clayey very gravelly SAND. Sand is fine to medium. Gravel is subangular to rounded fine to coarse quartzite with abundant roots. (AGRICULTURAL TOPSOIL)	(0.40)	
							0.40	
0.70	2	B				Light brown clayey very gravelly SAND. Sand is fine to medium. Gravel is subangular to rounded fine to coarse quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.40)	
							0.80	
1.20	3	ES	$c_u=105/110/103$			Firm to stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to rounded fine quartzite. (GUNTHORPE MEMBER)	(1.20)	
1.40	4	B						
1.80	5	D	$c_u=110/115/117$					
1.80		V					2.00	
Trial pit terminated at 2.00m bgl.								

Plan (Not to Scale)		General Remarks		
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.		
		All dimensions in metres Scale: 1:25		
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: RMoore	Checked By:	

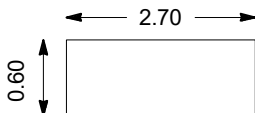
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP06
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 101.30	National Grid Co-ordinate: E:446705.0 N:298430.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.25	1	ES				Grass over light greyish brown gravelly silty fine and medium SAND with occasional rootlets. (AGRICULTURAL TOPSOIL)	(0.30)	
0.50-0.70	2	B				Light brown very sandy silty subangular to rounded fine and medium GRAVEL of flint and quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.58)	
1.40 1.50	3	V D	$c_u=90$			Stiff reddish brown with light grey inclusions slightly gravelly CLAY. Gravel is subrounded and rounded fine and medium of flint. (GUNTORPE MEMBER)	(1.42)	
2.00 2.10	4	D V	$c_u=96$			Firm friable reddish brown CLAY with light grey inclusions and frequent medium gravel sized mudstone lithorelicts. (GUNTORPE MEMBER)	2.30	
3.40	5	D				Trial pit terminated at 3.60m bgl.	3.60	

Plan (Not to Scale) 		General Remarks 1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.	
Method Used: Machine dug		Plant Used: JCB-3CX	
Logged By: IReid		Checked By: AGS	
All dimensions in metres		Scale: 1:25	

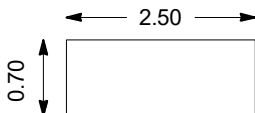
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP07
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: ---	National Grid Co-ordinate: E:446716.0 N:298423.0	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				Grass over brownish grey slightly gravelly silty fine SAND with occasional rootlets. Gravel is subangular to rounded fine and medium of quartzite and flint. (AGRICULTURAL TOPSOIL)	(0.34)	
0.40-0.60	2	B				Light brown very gravelly silty fine and medium SAND. Gravel is subrounded and rounded fine and medium of flint and quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.46)	
0.90-1.10	3	B				Orangish brown very gravelly clayey fine and medium SAND. Gravel is subangular to rounded fine and medium of flint and quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.44)	
1.30	4	D				Firm to stiff reddish brown with light grey inclusions slightly gravelly slightly sandy CLAY. Sand is fine and medium. Gravel is subrounded and rounded fine and medium of flint and quartzite. (GUNTHORPE MEMBER)	1.24	
1.60		V	$c_u=79/75/74$					
2.00	5	D						
2.10		V	$c_u=76/70/69$				(2.06)	
2.60		V	$c_u=58/60$					
2.80	6	D						
3.40		V	$c_u=58/67$				3.30	
3.50	7	D				Firm friable reddish brown and light grey silty CLAY. (GUNTHORPE MEMBER)	(0.40)	
						Trial pit terminated at 3.70m bgl.	3.70	

Plan (Not to Scale)		General Remarks		
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.		
Method Used: Machine dug		Plant Used: JCB-3CX		Scale: 1:25
Logged By: IReid		Checked By: AGS		

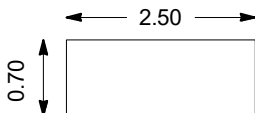
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP08
Contract Ref: 252719	Start: 19.07.22 End: 19.07.22	Ground Level: 100.44	National Grid Co-ordinate: E:446733.5 N:298455.9	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	D				Brown slightly clayey very gravelly SAND. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite and abundant roots. (AGRICULTURAL TOPSOIL)	(0.45)	
0.60	2	ES				Light brown slightly clayey very gravelly SAND with rare roots. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	0.45	
0.60	3	B					(0.85)	
1.40		V	$c_u=85/90/92$			Firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is rounded fine to medium quartzite. (GUNTHORPE MEMBER) ... becoming firm to stiff from 1.65m bgl.	1.30	
1.80	4	B					(1.10)	
1.80		V	$c_u=110/107/112$					
2.30	5	D					2.40	
Trial pit terminated at 2.40m bgl.								

Plan (Not to Scale)		General Remarks		
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.		
Method Used: Machine dug		Plant Used: JCB-3CX	Logged By: RMoore	Checked By: AGS
All dimensions in metres		Scale: 1:25		

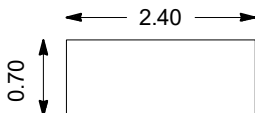
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP09
Contract Ref: 252719	Start: 18.07.22 End: 18.07.22	Ground Level: 98.94	National Grid Co-ordinate: E:446760.3 N:298493.2	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.70	1	ES				Brown gravelly clayey SAND with rootlets. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (AGRICULTURAL TOPSOIL)	(0.65)	
0.70	2	B				Light brown gravelly clayey SAND. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.35)	
1.30	3	ES				Firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded fine to medium quartzite. (GUNTORPE MEMBER) ... multiple sand lenses present from 1.25m bgl.	1.00	
1.60		V	$c_u=70/55/63$					
1.80	4	B				... becoming sandy from 1.70m bgl.	(1.80)	
2.00		V	$c_u=70/75/76$					
2.30	5	D						
						Trial pit terminated at 2.80m bgl.	2.80	

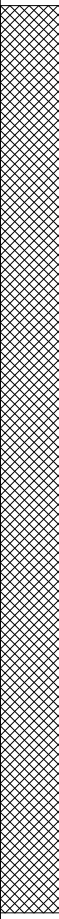
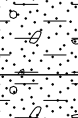
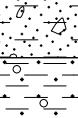
Plan (Not to Scale)		General Remarks		
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.		
		All dimensions in metres	Scale:	1:25
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: RMoore	Checked By:	

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP10
Contract Ref: 252719	Start: 20.07.22 End: 20.07.22	Ground Level: 101.04	National Grid Co-ordinate: E:446764.4 N:298452.6	Sheet: 1 of 1

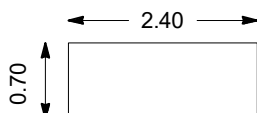
Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	D				Brown slightly clayey very gravelly SAND. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite and abundant rootlets. (AGRICULTURAL TOPSOIL)	(0.40)	
0.60	2	B				Light brown slightly clayey gravelly SAND with roots. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.50)	
0.60	3	ES					0.90	
1.00	4	B				Firm reddish brown slightly sandy slightly gravelly CLAY. (GUNTHORPE MEMBER) ... becoming slightly sandy CLAY from 1.30m to 1.60m bgl.		
1.00	5	ES	$c_u=70/72/70$					
1.20		V						
1.60		V	$c_u=77/75/74$					
2.30	6	B				... light grey clay band from 3.10m bgl.	(2.70)	
2.60		V	$c_u=84/80/88$					
3.50	7	D				... slightly damp from 3.50m bgl.	3.60	
						Trial pit terminated at 3.60m bgl.		

Plan (Not to Scale)		General Remarks		
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater seepage encountered at 3.50m bgl. 4. Trial pit backfilled with arisings upon completion.		
Method Used: Machine dug		Plant Used: JCB-3CX	Logged By: RMoore	Checked By: AGS

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP11
Contract Ref: 252719	Start: 20.07.22 End: 20.07.22	Ground Level: 102.13	National Grid Co-ordinate: E:446766.9 N:298434.1	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thick ness)	Material Graphic Legend	
Depth	No	Type	Results						
0.30	1	D				Brown slightly clayey very gravelly SAND with abundant roots. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (AGRICULTURAL TOPSOIL)	(0.40)		
0.30	2	ES		Light brown slightly clayey very gravelly SAND. Sand is fine. Gravel is subrounded to rounded fine to coarse quartzite. (WIGSTON SAND AND GRAVEL MEMBER)		0.40			
0.65	3	B				Reddish brown very clayey gravelly SAND. Sand is fine to coarse. Gravel is subrounded to rounded fine to medium quartzite gravel. (GUNTHORPE MEMBER)	(0.60)		
							1.00		
1.10	4	ES							
1.20	5	B						(1.10)	
								2.10	
2.10	6	V	$c_u=75/76/70$			Firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (GUNTHORPE MEMBER)			
2.20		B							
2.50		V	$c_u=90/92/95$				... losing gravels from 2.40m bgl.	(0.90)	
2.80	7	V	$c_u=90/85/87$						
2.90		B					3.00		
3.00		V	$c_u=60/65/62$						
						Trial pit terminated at 3.00m bgl.			

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled with arisings upon completion.

All dimensions in metres

Scale: **1:25**

Method Used:

Machine dug

Plant Used:

JCB-3CX

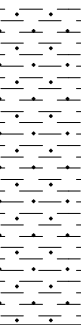
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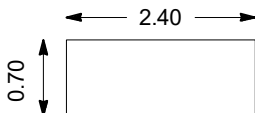
RMoore

Checked By:



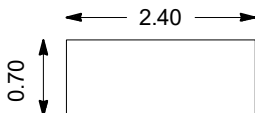
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP12
Contract Ref: 252719	Start: 19.07.22 End: 19.07.22	Ground Level: ---	National Grid Co-ordinate: E:446809.0 N:298432.0	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20 0.30	1 2	ES B				Brown slightly clayey gravelly SAND. Sand is fine to medium. Gravel is subrounded to rounded quartzite and abundant roots. (AGRICULTURAL TOPSOIL)	(0.40) 0.40	
						Light brown clayey slightly gravelly SAND. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.70) 1.10	
1.10 1.20 1.30	3 4 V	ES B V	$c_u=62/72/64$			Firm reddish brown slightly sandy CLAY. Sand is fine. Gravel is rare subrounded to rounded fine to medium quartzite. (GUNTORPE MEMBER) ... grey mottling from 1.40m bgl.	(1.10) 2.20	
1.60 1.80 1.85		V B V	$c_u=85/90/93$ $c_u=95/103/98$			... becoming firm to stiff from 1.60m bgl.		
2.20	6	D				Trial pit terminated at 2.20m bgl.		

Plan (Not to Scale)		General Remarks		
		- Location scanned with GPR prior to breaking ground. No services encountered. - Trial pit remained stable during excavation. - Groundwater not encountered. - Trial pit backfilled with arisings upon completion.		
		All dimensions in metres	Scale:	1:25
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: RMoore	Checked By:	

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP13
Contract Ref: 252719	Start: 19.07.22 End: 19.07.22	Ground Level: 104.96	National Grid Co-ordinate: E:446724.5 N:298361.2	Sheet: 1 of 1

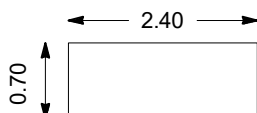
Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	D				Brown slightly clayey gravelly SAND. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite and abundant roots. (AGRICULTURAL TOPSOIL)	(0.30)	
0.50	2	B				Light brown slightly clayey gravelly SAND. Sand is fine. Gravel is subrounded to rounded fine to coarse quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.60)	
0.50	3	ES						
1.00	4	ES				Firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (GUNTHORPE MEMBER) ... light grey reduction spots from 1.00m bgl. ... light grey mottling from 1.20m bgl. ... light grey clay band from 2.10m to 2.30m bgl. ... mudstone lithoreclits and relict bedding from 2.30m bgl. ... becoming firm to stiff from 2.50m bgl.	0.90	
1.20	5	B	$c_u=77/75/72$					
1.30		V						
1.90		V	$c_u=85/92/85$				(2.30)	
2.50	6	B						
2.80		V	$c_u=95/97/100$					
3.10	7	D					3.20	
3.10		V	$c_u=102/105/105$					
Trial pit terminated at 3.20m bgl.								

Plan (Not to Scale)		General Remarks		
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.		
		All dimensions in metres	Scale:	1:25
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: RMoore	Checked By:	

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP14
Contract Ref: 252719	Start: 20.07.22 End: 20.07.22	Ground Level: 104.00	National Grid Co-ordinate: E:446540.5 N:298430.2	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				Brown slightly clayey gravelly SAND. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite and abundant roots. (AGRICULTURAL TOPSOIL)	(0.30)	
0.45	2	B				Stiff to very stiff slightly sandy CLAY with frequent roots. Sand is fine. (GUNTHORPE MEMBER)		
0.55	3	ES				... losing roots from 0.50m bgl.		
0.80	4	ES	$c_u=130/130/135$			... becoming mottled grey from 0.60m bgl.		
0.80		V				... light grey mudstone cobble (7cm) at 0.70m bgl.		
1.00	5	B				... reddish brown and no roots from 0.70m bgl.		
1.10		V	$c_u=145/140/143$			... relict bedding from 0.95m bgl.		
							(2.50)	
1.70		V	$c_u=150/150/150$					
1.75	6	B				... light grey mudstone lithorelicts from 1.90m bgl.		
						... very crumbly from 2.00m bgl.		
2.70	7	B				... weak brownish red mudstone with blacken edges due to weathering	2.80	
2.80	8	ES				grey reduction spots at 2.70m bgl.		
						Trial pit terminated at 2.80m bgl.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled with arisings upon completion.

All dimensions in metres

Scale: **1:25**

Method Used:

Machine dug

Plant Used:

JCB-3CX

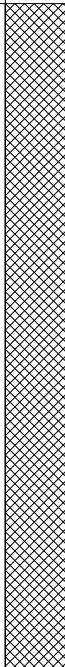
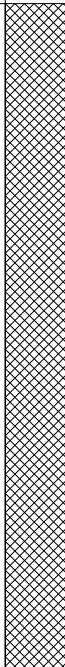
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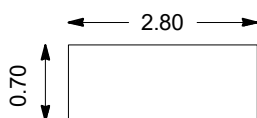
Checked By:



Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP15
Contract Ref: 252719	Start: 18.07.22 End: 18.07.22	Ground Level: 103.28	National Grid Co-ordinate: E:446581.3 N:298420.9	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.40	1	ES	c _u =75/84/70		Brown clayey gravelly SAND with abundant roots. Sand is fine to medium. Gravel is subangular to rounded fine to medium quartzite. (AGRICULTURAL TOPSOIL)	(0.40)		
0.60	2	B			Light brown clayey gravelly SAND. Sand is fine to medium. Gravel is subangular to rounded quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.30)		
0.80	3	V			Firm reddish brown slightly sandy CLAY. Rare gravel of subrounded to rounded fine quartzite. (GUNTHORPE MEMBER)	0.70		
0.90		ES	(1.50)					
1.70	4	B	c _u =120/127/136			. . . becoming firm to stiff from 1.70m bgl.		
1.80	V							
2.00	5	D						
							2.20	
						Trial pit terminated at 2.20m bgl.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled with arisings upon completion.

All dimensions in metres

Scale: **1:25**

Method Used:

Machine dug

Plant Used:

JCB-3CX

Logged By:

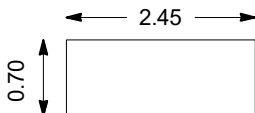
RMoore

Checked By:

AGS

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP16	
Contract Ref: 252719	Start: 20.07.22 End: 20.07.22	Ground Level: 103.37	National Grid Co-ordinate: E:446612.1 N:298390.5	Sheet: 1 of 1	

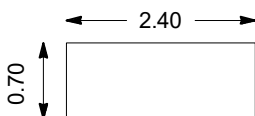
Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	D				Brown slightly clayey gravelly SAND with abundant roots. Sand is fine to medium. Gravel is subrounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	(0.40)	
0.50	2	B				Light brown slightly clayey slightly gravelly SAND. (WIGSTON SAND AND GRAVEL MEMBER)	0.40	
0.50	3	ES				... becoming very clayey from 0.50m bgl.	0.60	
0.70	4	B				Firm to stiff slightly sandy CLAY. Sand is fine to coarse. Rare gravel subrounded to rounded fine to medium quartzite. (GUNTHORPE MEMBER)		
0.70	5	ES						
1.30		V	$c_u=70/77/73$			... sand lens at 1.20m bgl. ... becoming firm at 1.30m bgl.	(1.60)	
1.50	6	B				... becoming stiff with grey mottling at 1.50m bgl.		
1.50		V	$c_u=120/125/120$					
1.90	7	D				... relict bedding from 1.90m bgl.		
1.90		V	$c_u=108/110/112$				2.20	
2.20		V	$c_u=125/132/135$			Trial pit terminated at 2.20m bgl.		

Plan (Not to Scale)		General Remarks			
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.			
		All dimensions in metres		Scale:	1:25
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: RMoores	Checked By:		

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP17
Contract Ref: 252719	Start: 19.07.22 End: 19.07.22	Ground Level: 101.82	National Grid Co-ordinate: E:446664.0 N:298406.1	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	D				Brown slightly clayey very gravelly SAND with abundant roots. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (AGRICULTURAL TOPSOIL)	(0.30)	
0.40	2	ES				Light brown very clayey gravelly SAND. Sand is fine to medium. Gravel is subrounded to rounded fine to medium quartzite, occasional roots and occasional fine brick fragments. (AGRICULTURAL SUBSOIL)	(0.40)	
0.50	3	B					0.70	
0.80	4	ES				Firm to stiff slightly sandy CLAY with rare fine rounded quartzite gravels. Sand is fine. (GUNTHORPE MEMBER) ... pockets of soft clay between 1.20m and 1.40m bgl.		
0.90	5	B						
1.00		V	$c_u=90/92/95$					
1.30		V	$c_u=30/31/36$					
1.60		V	$c_u=80/82/78$					
1.70	6	B					(2.00)	
2.50		V	$c_u=115/108/110$					
2.70	7	D				Trial pit terminated at 2.70m bgl.	2.70	

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled with arisings upon completion.

All dimensions in metres

Scale: **1:25**

Method Used:

Machine dug

Plant Used:

JCB-3CX

Logged By:

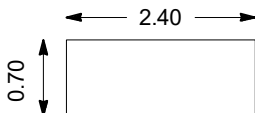
RMoore

Checked By:



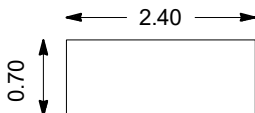
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP18
Contract Ref: 252719	Start: 19.07.22 End: 19.07.22	Ground Level: 105.94	National Grid Co-ordinate: E:446559.9 N:298385.1	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	B				Brown slightly clayey gravelly SAND with abundant roots. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (AGRICULTURAL TOPSOIL)	(0.30)	
0.55	2	ES				Light brown clayey gravelly SAND with rare roots. Sand is fine to medium. Gravel is subrounded to rounded quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.40)	
0.90	3	ES				Firm reddish brown mottled grey sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse quartzite. (GUNTHORPE MEMBER)	0.70	
1.00	4	B						
1.20		V	$c_u=60/65/63$					
1.50		V	$c_u=73/80/78$					
1.60	5	B					(1.70)	
2.20		V	$c_u=77/75/82$			... sand lenses occasional from 2.00m bgl.		
2.40	6	B				Trial pit terminated at 2.40m bgl.	2.40	

Plan (Not to Scale)		General Remarks		
		- Location scanned with GPR prior to breaking ground. No services encountered. - Trial pit remained stable during excavation. - Groundwater not encountered. - Trial pit backfilled with arisings upon completion.		
		All dimensions in metres	Scale:	1:25
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: RMoore	Checked By:	

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP19
Contract Ref: 252719	Start: 20.07.22 End: 20.07.22	Ground Level: 105.32	National Grid Co-ordinate: E:446603.4 N:298360.3	Sheet: 1 of 1

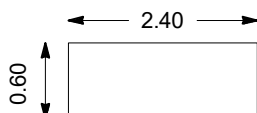
Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	B				Brown slightly clayey gravelly SAND with abundant roots. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse quartzite. (AGRICULTURAL TOPSOIL)	(0.40)	
0.60	2	ES				Light brown clayey gravelly SAND with rare roots. Sand is fine to medium. Gravel is subrounded to rounded quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.30)	
0.60	3	B				... becoming very clayey from 0.65m bgl.	0.70	
0.80	4	ES				Soft to firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded quartzite. (GUNTHORPE MEMBER)		
0.90		V	$c_u=50/52/55$					
0.95	5	B				... becoming firm and mottled grey from 1.20m bgl.		
1.40		V	$c_u=70/72/69$			... mudstone lithorelicts present from 1.40m bgl.	(1.70)	
1.70		V	$c_u=75/77/75$					
1.80	6	B				... becoming stiff from 1.90m bgl.		
2.00		V	$c_u=110/107/109$			... relict bedding and mudstone lithorelicts increased from 2.00m bgl.		
2.40	7	D				Trial pit terminated at 2.40m bgl.	2.40	

Plan (Not to Scale)		General Remarks		
		1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.		
Method Used: Machine dug		Plant Used: JCB-3CX		Scale: 1:25
Logged By: RMoores		Checked By: RMoores		

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP20	
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 104.05	National Grid Co-ordinate: E:446670.3 N:298357.6	Sheet: 1 of 1	

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES	c _u =108/106			Grass over light brown very gravelly silty fine SAND with frequent rootlets. Gravel is subangular to rounded fine and medium of flint and quartzite. (AGRICULTURAL TOPSOIL)	0.11	
0.20-0.50	2	B				Light brown very gravelly clayey fine and medium SAND. Gravel is angular to subrounded fine and medium of mudstone and flint. (WIGSTON SAND AND GRAVEL MEMBER)	(0.39)	
						Stiff reddish brown with light grey inclusions CLAY. (GUNTHORPE MEMBER)	0.50	
0.80	3	D						
1.90	4	D					(2.30)	
2.50	5	D						
2.60		V						
3.10	6	D				Firm friable reddish brown with light grey inclusions CLAY. (GUNTHORPE MEMBER)	2.80	
							(0.80)	
							3.60	
Trial pit terminated at 3.60m bgl.								

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled with arisings upon completion.

All dimensions in metres

Scale: **1:25**

Method Used:

Machine dug

Plant Used:

JCB-3CX

Logged By:

IReid

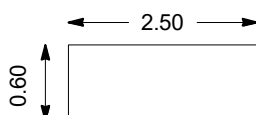
Checked By:

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Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP21
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 104.78	National Grid Co-ordinate: E:446700.0 N:298355.1	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				Grass over greyish brown slightly gravelly silty fine SAND with frequent rootlets. Gravel is subangular fine of quartzite. (AGRICULTURAL TOPSOIL)	0.23	
0.60-0.70	2	B				Light brown gravelly silty fine and medium SAND. Gravel is subangular and subrounded fine and medium of flint and quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.67)	
1.00-1.10	3	B				Orangish brown gravelly slightly clayey fine and medium SAND. Gravel is subangular and subrounded fine and medium of flint. (WIGSTON SAND AND GRAVEL MEMBER)	0.90 (0.45)	
1.40 1.50 1.70	4 V 5	D D	$c_u=86/80/85$			Stiff reddish brown mottled light grey slightly gravelly slightly sandy CLAY. Sand is fine and medium. Gravel is subrounded and rounded fine and medium of flint and quartzite. (GUNTHORPE MEMBER)	1.35 (1.65)	
2.60 2.80	V 6	V D	$c_u=90/90/78$				3.00	
3.40 3.40	7 V	D V	$c_u=99/98/95$			Stiff friable reddish brown with light grey inclusions slightly sandy CLAY. Sand is fine and medium. (GUNTHORPE MEMBER)	(0.70) 3.70	
Trial pit terminated at 3.70m bgl.								

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled with arisings upon completion.

All dimensions in metres

Scale: **1:25**

Method Used:

Machine dug

Plant Used:

JCB-3CX

Logged By:

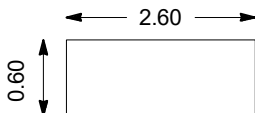
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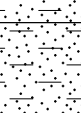
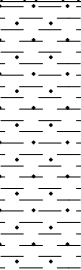
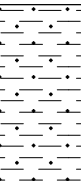
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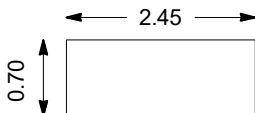
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP22
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 109.15	National Grid Co-ordinate: E:446583.2 N:298311.2	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over greyish brown slightly gravelly fine SAND with frequent rootlets. Gravel is subangular to subrounded fine and medium of flint. (MADE GROUND)	0.14	
0.40	1	ES				Soft brownish grey mottled orangish brown and brown slightly gravelly sandy CLAY with low cobble content and occasional relict root fragments. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of flint, quartzite and brick. Cobbles are subrounded of brick. (MADE GROUND)	(0.76)	
0.80	2	ES					0.90	
1.00	3	ES				Firm brown sandy CLAY with frequent relict root fragments. Sand is fine and medium. (WIGSTON SAND AND GRAVEL MEMBER)		
1.40-1.60	4	B					(1.10)	
1.50	5	D	$c_u=40$					
1.50		V						
1.90		V	$c_u=51$	↓			2.00	
						Firm brown slightly sandy silty CLAY with light grey inclusions. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER)		
2.50	6	D		↓			(1.70)	
2.90	7	D						
2.90		V	$c_u=60$					
3.50	8	D					3.70	
Trial pit terminated at 3.70m bgl.								

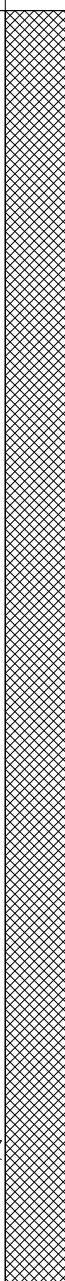
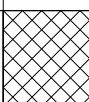
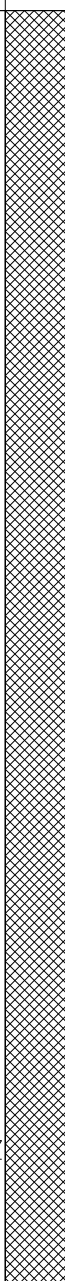
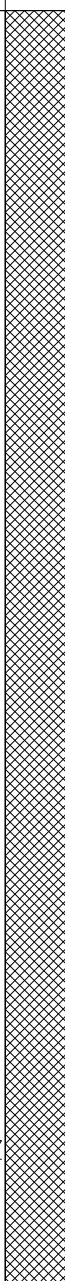
Plan (Not to Scale)		General Remarks		
		- Location scanned with GPR prior to breaking ground. No services encountered. - Trial pit remained stable during excavation. - Groundwater not encountered. - Trial pit backfilled with arisings upon completion.		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: IReid	Checked By:	

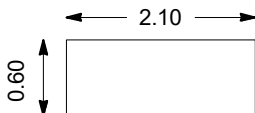
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP23
Contract Ref: 252719	Start: 19.07.22 End: 19.07.22	Ground Level: 112.66	National Grid Co-ordinate: E:446553.3 N:298279.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES				Brown slightly clayey very gravelly SAND with abundant roots. Sand is fine. Gravel is subrounded to rounded fine to coarse quartzite. (AGRICULTURAL TOPSOIL)	(0.40) 0.40	
0.60	2	ES				Brown slightly clayey very gravelly SAND. Sand is fine. Gravel is subrounded to rounded fine to coarse quartzite. (WIGSTON SAND AND GRAVEL MEMBER) ... light brown with fewer rootlets from 0.40m bgl.	(0.80) 1.20	
1.50	3	B				Reddish brown slightly clayey SAND. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)	(0.30) 1.50	
1.60	4	ES				Reddish brown very clayey SAND. Sand is fine to coarse. Dark grey brown to black banding. Slightly damp. (WIGSTON SAND AND GRAVEL MEMBER)	(0.90) 2.40	
2.50	5	B				Soft reddish brown slightly sandy CLAY. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER) ... becoming soft to firm from 2.80m bgl.	(0.60) 3.00	
2.50		V	$c_u=33/41/43$					
3.00	6	D				Trial pit terminated at 3.00m bgl.		
3.00		V	$c_u=50/57/55$					

Plan (Not to Scale)		General Remarks		
		- Location scanned with GPR prior to breaking ground. No services encountered. - Trial pit remained stable during excavation. - Groundwater seepage encountered at 1.60m bgl. - Trial pit backfilled with arisings upon completion.		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: JCB-3CX	Logged By: RMoore	Checked By:	

Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP24
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 112.76	National Grid Co-ordinate: E:446565.5 N:298244.3	Sheet: 1 of 1

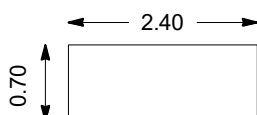
Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thick ness)	Material Graphic Legend			
Depth	No	Type	Results								
0.10	1	ES	c _u =50			Grass over light greyish brown slightly gravelly silty fine SAND with frequent rootlets and rare glass fragments. Gravel is subrounded and rounded fine and medium of flint and quartzite. (MADE GROUND)	(0.35)				
0.40-0.60	2	B				Light brown very sandy silty subangular to rounded fine and medium GRAVEL of flint and quartzite. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER)	0.35				
0.50	3	ES					(0.47)				
1.80-1.90	4	B				Orangish brown gravelly silty fine and medium SAND with occasional coarse gravel sized lenses of firm orangish brown clay. (WIGSTON SAND AND GRAVEL MEMBER)	2.50				
									(1.68)		
2.60-2.80	5	B				Firm orangish brown very sandy CLAY with rare fine gravel sized black carbonaceous inclusions. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER)			3.60		
2.70	6	D									(1.10)
2.70		V									
3.70-3.80	7	B				4.50					
								(0.90)			
4.50-4.70	8	B			Soft orangish brown very sandy CLAY. Sand is fine to coarse. (WIGSTON SAND AND GRAVEL MEMBER)	4.70					
Trial pit terminated at 4.70m bgl.											

Plan (Not to Scale)		General Remarks		
		- Location scanned with GPR prior to breaking ground. No services encountered. - Trial pit remained stable during excavation. - Groundwater encountered at 4.70m bgl. - Trial pit backfilled with arisings upon completion.		
Method Used: Machine dug		Plant Used: JCB-3CX		Logged By: IReid Checked By: 
		All dimensions in metres		Scale: 1:28

Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Trial Pit: TP25
Contract Ref: 252719	Start: 19.07.22 End: 19.07.22	Ground Level: 113.35	National Grid Co-ordinate: E:446617.0 N:298231.5		Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.45	1	ES				Brown slightly clayey gravelly SAND with rootlets. Sand is fine. Gravel is subrounded to rounded fine to coarse quartzite. (AGRICULTURAL TOPSOIL)	(0.40) 0.40	
1.00	2	B				Brown slightly clayey gravelly SAND. Sand is fine. Gravel is subrounded to rounded fine to coarse quartzite. (WIGSTON SAND AND GRAVEL MEMBER) ... no rootlets from 0.45m bgl. ... light brown from 0.60m bgl.	(0.60) 1.00	
3.30	3	V	$c_u=60/63/65$			Reddish brown clayey SAND. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)	(2.20) 3.20	
3.40	4	B				Firm reddish brown sandy CLAY. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)	(0.45)	
3.50		D				... becoming firm to stiff from 3.50m to 3.65m bgl.	3.65	
3.50		V	$c_u=80/70/77$					

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled with arisings upon completion.

All dimensions in metres

Scale: **1:25**

Method Used:

Machine dug

Plant Used:

JCB-3CX

Logged By:

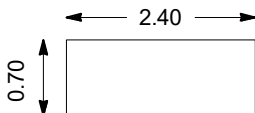
RMoore

Checked By:

AGS

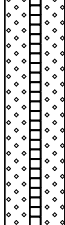
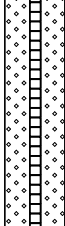
Contract: Leicester Road, Earl Shilton		Client: Gladman Developments Ltd		Trial Pit: TP26
Contract Ref: 252719	Start: 19.07.22 End: 19.07.22	Ground Level: 114.06	National Grid Co-ordinate: E:446595.2 N:298209.3	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.40	1	ES				Brown slightly clayey very gravelly SAND with abundant roots. (AGRICULTURAL TOPSOIL)	(0.40)	
0.75	2	ES				Brown slightly clayey very gravelly SAND. (WIGSTON SAND AND GRAVEL MEMBER)	(0.80)	
2.20	3	B				Orangish brown very clayey SAND. Sand is coarse. (WIGSTON SAND AND GRAVEL MEMBER) ... becoming very clayey with no gravel from 1.20m bgl.	(2.10)	
3.40	4	B				Firm reddish brown to brown with rare grey mottling sandy CLAY. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)	3.30	
3.50		V	$c_u=60/67/62$			Trial pit terminated at 3.50m bgl.	3.50	

Plan (Not to Scale) 		General Remarks 1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Trial pit remained stable during excavation. 3. Groundwater not encountered. 4. Trial pit backfilled with arisings upon completion.		
Method Used: Machine dug		Plant Used: JCB-3CX		Logged By: RMoore
All dimensions in metres		Scale: 1:25		
Checked By:		Checked By:		

WINDOW SAMPLE LOG

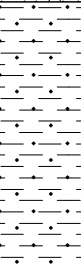
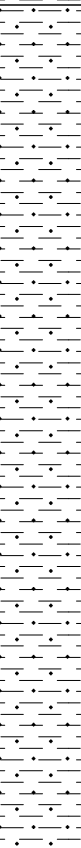
Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS01
Contract Ref: 252719	Start: 21.07.22 End: 21.07.22	Ground Level: 99.23	National Grid Co-ordinate: E:446743.6 N:298482.5		Sheet: 1 of 1

Progress	Samples / Tests				Water Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results				
	0.35	1	D			Brown slightly clayey gravelly SAND with abundant roots. Sand is fine. Gravel is fine to coarse subrounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	(0.30)	
	0.60	2	ES			Reddish brown slightly gravelly very clayey SAND. Sand is fine to medium. Gravel is fine to medium sub-rounded to rounded quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	0.30 0.40	
						Stiff to very stiff reddish brown slightly sandy CLAY. Sand is fine. (GUNTHORPE MEMBER) ... Friable clay at 1.00m bgl.	(0.60) 1.00	
	1.20-1.65 1.20	1 3	SPT ES	N=16		Medium dense reddish brown slightly gravelly very clayey SAND. Sand is fine to coarse. Gravel is fine to medium sub-rounded to rounded quartzite. (GUNTHORPE MEMBER)	(0.75)	
	1.90 2.00-2.45	4 2	D SPT	N=15		Firm reddish brown slightly sandy CLAY. Sand is fine. (GUNTHORPE MEMBER) ... Sand layer between 2.00m and 2.20m bgl.	1.75	
	2.80 3.00-3.45	5 3	D SPT	N=27		... Becoming stiff from 3.50m bgl.	(2.25)	
	3.80 4.00-4.34	6 4	D SPT	N:50 for 185mm		Borehole terminated at 4.00m bgl.	4.00	

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)	1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater not encountered. 4. On completion borehole installed with monitoring well to 4.00m bgl.			
Method Used: Inspection pit + Tracked window						All dimensions in metres		Scale: 1:25	
Plant Used: Premier 110			Drilled By: DSUK		Logged By: RMoore		Checked By:		

WINDOW SAMPLE LOG

Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS02
Contract Ref: 252719	Start: 21.07.22 End: 21.07.22	Ground Level: 102.36	National Grid Co-ordinate: E:446809.6 N:298438.3		Sheet: 1 of 1

Progress	Samples / Tests				Water Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results				
						Brown slightly clayey gravelly SAND. Sand is fine. Gravel is fine to coarse sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	(0.30) 0.30	
	0.40	1	ES			Stiff to very stiff reddish brown slightly sandy CLAY. Sand is fine (GUNTORPE MEMBER) ... Friable clay at 0.30m bgl.	(0.90) 1.20	
	1.20-1.65 1.30	1 2	SPT ES	N=14		Firm reddish brown slightly sandy CLAY. Sand is fine. (GUNTORPE MEMBER) ... Light grey mudstone lithorelicts present from 1.20m bgl. ... Rare light grey mottling from 1.30m bgl. ... Less sand from 1.55m bgl.	(2.80) 4.00	
	1.20 - 2.00 (75mm dia) 110% rec							
	1.80	3	D					
	2.00-2.45	2	SPT	N=17				
	2.00 - 3.00 (65mm dia) 95% rec							
	2.70	4	D					
	3.00-3.45	3	SPT	N=28				
	3.00 - 4.00 (65mm dia) 97% rec							
	3.80	5	D					
	4.00-4.33	4	SPT	N:50 for 180mm		Borehole terminated at 4.00m bgl.		

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)	1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater not encountered. 4. On completion borehole installed with monitoring well to 4.00m bgl.			
Method Used: Inspection pit + Tracked window						All dimensions in metres		Scale: 1:25	
Plant Used: Premier 110			Drilled By: DSUK		Logged By: RMoore	Checked By:			

WINDOW SAMPLE LOG

Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS03
Contract Ref: 252719	Start: 21.07.22 End: 21.07.22	Ground Level: 101.13	National Grid Co-ordinate: E:446737.3 N:298441.6		Sheet: 1 of 1

Progress	Samples / Tests				Water Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results				
						Brown slightly clayey gravelly SAND. Sand is fine. Gravel is fine to coarse sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	(0.30)	
	0.50	1	ES			Reddish brown gravelly very clayey SAND. Sand is fine to medium. Gravel is fine to medium sub-rounded to rounded quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	0.30	
	1.20-1.65	1	SPT	N=28				
	1.20	2	ES				(2.20)	
	1.20 - 2.00 (75mm dia) 110% rec							
	1.90	3	D					
	2.00-2.45	2	SPT	N=14				
	2.00 - 3.00 (75mm dia) 94% rec					... Damp between 2.35m and 2.50m bgl.	2.50	
	2.60	4	D			Firm reddish brown slightly sandy CLAY. Sand is fine. (GUNTORPE MEMBER)		
	3.00-3.45	3	SPT	N=20		... Light grey mottling from 2.90m bgl.	(1.50)	
	3.00 - 4.00 (65mm dia) 100% rec					... Becoming stiff from 3.65m bgl.		
	3.80	5	D				4.00	
	4.00-4.35	4	SPT	N:49 for 195mm		Borehole terminated at 4.00m bgl.		

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)	1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater seepage encountered at 2.35m bgl. 4. On completion borehole installed with monitoring well to 4.00m bgl.			
All dimensions in metres						Scale:	1:25		
Method Used:	Inspection pit + Tracked window		Plant Used:	Premier 110		Drilled By:	DSUK	Logged By:	RMoore
						Checked By:			AGS

WINDOW SAMPLE LOG

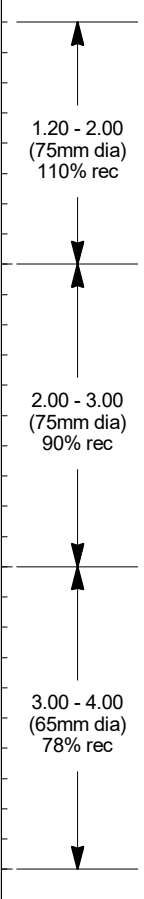
Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS04
Contract Ref: 252719	Start: 21.07.22 End: 21.07.22	Ground Level: 105.05	National Grid Co-ordinate: E:446787.3 N:298403.6		Sheet: 1 of 1

Progress Window Run	Samples / Tests				Water Backfill & Instru- mentation	Description of Strata	Depth (Thick- ness)	Material Graphic Legend
	Depth	No	Type	Results				
						Brown slightly clayey gravelly SAND with abundant roots. Sand is fine. Gravel is fine to medium sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	(0.50)	
						Brown slightly clayey gravelly SAND. Sand is fine. Gravel is fine to coarse sub-rounded to rounded quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.80)	
	0.70	1	ES					
	1.20-1.65	1	SPT	N=11			1.30	
	1.40	2	ES			Soft reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to medium sub-rounded to rounded quartzite. (GUNTORPE MEMBER)	(0.50)	
	1.50	3	D				1.80	
	2.00-2.45	2	SPT	N=15		Firm reddish brown mottled light grey slightly sandy CLAY. Sand is fine. (GUNTORPE MEMBER)		
	2.00 - 3.00 (75mm dia) 110% rec					... rare coarse rounded quartzite gravel present from 2.00m bgl.		
	2.50	4	D			... No light grey mottling from 2.40m bgl.		
	3.00-3.45	3	SPT	N=18				
	3.00 - 4.00 (65mm dia) 90% rec						(3.20)	
	3.50	5	D			... Light grey reduction spots from 3.90m bgl.		
	4.00-4.45	4	SPT	N=23		... Mudstone lithorelicts present from 4.20m.		
	4.00 - 5.00 (65mm dia) 95% rec					... Becoming stiff from 4.35m bgl.		
	4.70	6	D				5.00	
	5.00-5.35	5	SPT	N:50 for 195mm		Borehole terminated at 5.00m bgl.		

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)				
						1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater not encountered. 4. On completion borehole installed with monitoring well to 5.00m bgl.			
Method Used: Inspection pit + Tracked window						All dimensions in metres		Scale: 1:31	
Plant Used: Premier 110			Drilled By: DSUK		Logged By: RMoore	Checked By:			

WINDOW SAMPLE LOG

Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS05
Contract Ref: 252719	Start: 21.07.22 End: 21.07.22	Ground Level: 104.59	National Grid Co-ordinate: E:446712.6 N:298365.0		Sheet: 1 of 1

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Brown slightly clayey gravelly SAND with abundant roots. Sand is fine. Gravel is fine to medium sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	(0.40)	
	0.60	1	ES				Reddish brown mottled brown very clayey SAND. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)	(0.60)	
	1.20-1.65	1	SPT	N=15			Firm reddish brown mottled light grey slightly sandy CLAY. Sand is fine. (GUNTHORPE MEMBER)		
	1.40	2	ES				... Sand interval between 1.30m and 1.37m bgl.		
	1.70	3	D						
	2.00-2.45	2	SPT	N=15			... No light grey mottling from 2.00m bgl. ... Mudstone lithorelicts present from 2.10m bgl.		
	2.90	4	D				... Light grey reduction spots from 2.70m bgl.	(3.00)	
	3.00-3.45	3	SPT	N=31					
	4.00-4.39	4	SPT	N:50 for 235mm				4.00	
	4.00	5	D				Borehole terminated at 4.00m bgl.		

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)	1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater not encountered. 4. On completion borehole backfilled with arisings.			
						All dimensions in metres Scale: 1:25			
Method Used: Inspection pit + Tracked window	Plant Used: Premier 110		Drilled By: DSUK		Logged By: RMoore		Checked By: AGS		

WINDOW SAMPLE LOG

Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS06
Contract Ref: 252719	Start: 21.07.22 End: 21.07.22	Ground Level: 101.85	National Grid Co-ordinate: E:446646.7 N:298404.1		Sheet: 1 of 1

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Brown gravelly very clayey SAND with abundant roots. Sand is fine to medium. Gravel is fine to medium sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	(0.30)	
							Soft grey slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is fine to coarse sub-rounded to rounded quartzite. (GUNTORPE MEMBER)	0.30	
	0.50	1	ES					(0.60)	
							Firm reddish brown slightly sandy CLAY. Sand is fine. (GUNTORPE MEMBER)	0.90	
	1.20-1.65	1	SPT	N=13					
	1.20	2	ES						
	1.20 - 2.00 (85mm dia) 120% rec								
	1.60	3	D						
	2.00-2.45	2	SPT	N=21			... Becoming stiff from 2.00m bgl.		
							... Mudstone lithorelicts present from 2.10m bgl.		
							... Grey reduction spots from 2.20m bgl.		
	2.30	4	D						
	2.00 - 3.00 (75mm dia) 100% rec								
	3.00-3.45	3	SPT	N=37			... Light grey clay between 2.50m and 2.70m bgl.	(3.10)	
	3.50	5	D						
	3.00 - 4.00 (65mm dia) 85% rec								
	4.00-4.38	4	SPT	N:50 for 230mm				4.00	
							Borehole terminated at 4.00m bgl.		

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)	1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater not encountered. 4. On completion borehole backfilled with arisings.			
						All dimensions in metres		Scale: 1:25	
Method Used: Inspection pit + Tracked window	Plant Used: Premier 110			Drilled By: DSUK	Logged By: RMoore	Checked By:			

WINDOW SAMPLE LOG

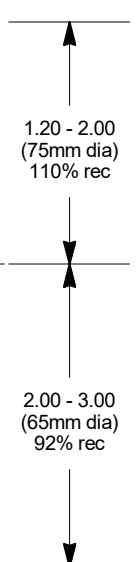
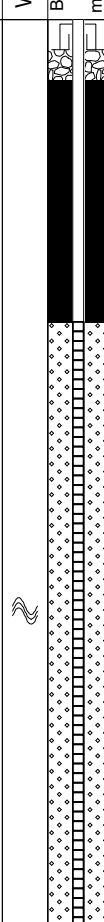
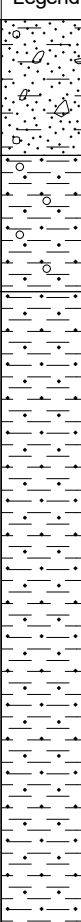
Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS07
Contract Ref: 252719	Start: 21.07.22 End: 21.07.22	Ground Level: 103.07	National Grid Co-ordinate: E:446674.3 N:298383.5		Sheet: 1 of 1

Progress		Samples / Tests			Water Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results				
						Brown slightly clayey gravelly SAND. Sand is fine. Gravel is fine to coarse sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	(0.40)	
						Stiff reddish brown sandy CLAY. Sand is fine. (GUNTORPE MEMBER)	0.40	
						Firm reddish brown mottled light grey slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is fine sub-rounded to rounded quartzite. (GUNTORPE MEMBER)	0.60	
	1.00	1	ES					
	1.20-1.65	1	SPT	N=15				
	1.20 - 2.00 (75mm dia) 120% rec	2	D					
	2.00-2.45	2	SPT	N=11				
	2.00 - 3.00 (75mm dia) 80% rec	3	D			... Light grey mottling increases between 2.10m and 2.25m bgl.		
	2.70	3	D			... Mudstone lithorelicts present from 2.80m bgl.	(4.40)	
	3.00-3.45	3	SPT	N=18		... Becoming stiff from 3.30m bgl.		
	3.80	4	D					
	4.00-4.45	4	SPT	N=23				
	5.00-5.35	5	SPT	N:50 for 195mm		Borehole terminated at 5.00m bgl.	5.00	

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)	1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater not encountered. 4. On completion borehole installed with monitoring well to 4.00m bgl.			
All dimensions in metres						Scale:	1:31		
Method Used:	Inspection pit + Tracked window		Plant Used:	Premier 110		Drilled By:	DSUK	Logged By:	RMooore
						Checked By:			

WINDOW SAMPLE LOG

Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS08
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 103.51	National Grid Co-ordinate: E:446631.6 N:298370.3		Sheet: 1 of 1

Progress	Samples / Tests				Water Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results				
						Brown slightly clayey gravelly SAND with abundant roots. Sand is fine to medium sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	(0.45)	
	0.60	1	ES			Stiff to very stiff friable reddish brown slightly sandy slightly gravelly CLAY. (GUNTORPE MEMBER)	(0.45)	
	1.00	2	ES			Firm to stiff reddish brown mottled grey slightly sandy CLAY. Sand is fine. (GUNTORPE MEMBER)	0.90	
	1.20-1.65	1	SPT	N=16				
	1.50	3	D			... Light grey mudstone lithorelicts present from 1.40m bgl		
	2.00-2.45	2	SPT	N=21		... Slightly damp between 2.00m and 2.10m bgl.	(2.10)	
	2.70	4	D					
	3.00-3.38	3	SPT	N:50 for 230mm		Borehole terminated at 3.00m bgl.	3.00	

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)				
						1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater seepage encountered at 2.00m bgl. 4. On completion borehole installed with monitoring well to 3.00m bgl.			
All dimensions in metres						Scale:	1:25		
Method Used:	Inspection pit + Tracked window		Plant Used:	Premier 110		Drilled By:	DSUK	Logged By:	RMoore
						Checked By:			

WINDOW SAMPLE LOG

Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS09
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 110.59	National Grid Co-ordinate: E:446560.7 N:298339.8		Sheet: 1 of 2

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Brown slightly clayey gravelly SAND with abundant roots. Sand is fine. Gravel is fine to coarse sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	(0.40)	
	0.50	1	ES				Light orangish brown clayey SAND. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)	0.40	
	1.20-1.65 1.20-2.00	1 2	SPT B	N=9				(2.15)	
1.20 - 2.00 (85mm dia) 110% rec									
	2.00-2.45	2	SPT	N=5			... Becoming fine sand from 2.00m bgl. ... soils damp between 2.00m and 2.40m bgl.	2.55	
2.00 - 3.00 (75mm dia) 90% rec									
	2.70	3	D				Soft reddish brown sandy CLAY. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER)	(0.45)	
	3.00-3.45	3	SPT	N=2				3.00	
3.00 - 4.00 (65mm dia) 100% rec									
	4.00-4.45	4	SPT	N=6			Loose light orangish brown clayey SAND. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)	(1.60)	
4.00 - 5.00 (55mm dia) 89% rec								4.60	
	5.00-5.45	5	SPT	N=6			Soft reddish brown sandy CLAY. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER)	(0.40)	
5.00 - 6.00 (55mm dia) 0% rec								5.00	
	6.00-6.45	6	SPT	N=29			Loose to medium dense light orangish brown clayey SAND. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)	(1.45)	
								6.45	

Borehole terminated at 6.45m bgl.

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)	1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater encountered at 2.60m bgl. 4. On completion borehole backfilled with arisings.			
Method Used: Inspection pit + Tracked window						All dimensions in metres		Scale: 1:36	
Plant Used: Premier 110			Drilled By: DSUK		Logged By: RMoore	Checked By:			

WINDOW SAMPLE LOG

Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS09
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 110.59	National Grid Co-ordinate: E:446560.7 N:298339.8		Sheet: 2 of 2

[illegible]

Drilling Progress and Water Observations						General Remarks				
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)					
All dimensions in metres						Scale:	1:36			
Method Used:	Inspection pit + Tracked window sampling		Plant Used:	Premier 110	Drilled By:	DSUK	Logged By:	RMoore	Checked By:	

WINDOW SAMPLE LOG

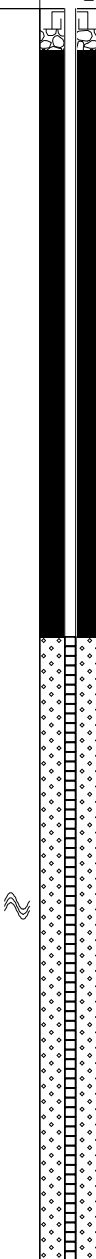
Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS10
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 109.54	National Grid Co-ordinate: E:446584.9 N:298288.3		Sheet: 1 of 1

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.40	1	ES				Brown slightly clayey gravelly SAND with abundant roots. Sand is fine. Gravel is fine to coarse sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	0.25	
							Light brown slightly clayey gravelly SAND. Sand is fine. Gravel is fine to coarse sub-rounded to rounded quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(1.05)	
	1.20-1.65 1.30-1.90	1 2	SPT B	N=14			Loose to medium dense light orangish brown clayey SAND. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER)	1.30	
1.20 - 2.00 (75mm dia) 110% rec							Medium dense orangish brown clayey SAND. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER) ... soils damp between 1.90m and 2.25m bgl. ... Becoming loose from 2.00m bgl.	(0.60)	
	1.90-3.77 2.00-2.45	3 2	B SPT	N=10				1.90	
2.00 - 3.00 (75mm dia) 100% rec									
	3.00-3.45	3	SPT	N=5					
3.00 - 4.00 (65mm dia) 110% rec									
	4.00-4.45 4.00	4 4	SPT D	N=9			... band of soft reddish brown mottled grey sandy clay between 3.77m and 3.90m bgl.	(3.70)	
4.00 - 5.00 (55mm dia) 97% rec							... Soft reddish brown sandy clay between 4.70m and 5.00m bgl.		
	5.00-5.45 5.00	5 5	SPT D	N=8				5.60	
5.00 - 6.00 (55mm dia) 100% rec							Very soft to soft reddish brown slightly sandy CLAY. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER) ... Becoming stiff from 5.85m bgl.	(0.40)	
	6.00-6.45	6	SPT	N=30			Borehole terminated at 6.00m bgl.	6.00	

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)	1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater encountered at 2.25m bgl. 4. On completion borehole backfilled with arisings.			
						All dimensions in metres		Scale: 1:36	
Method Used: Inspection pit + Tracked window	Plant Used: Premier 110			Drilled By: DSUK	Logged By: RMoore	Checked By:			

WINDOW SAMPLE LOG

Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS11
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 113.42	National Grid Co-ordinate: E:446569.4 N:298232.2		Sheet: 1 of 1

Progress	Samples / Tests				Water Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results				
	0.40	1	ES			Brown slightly clayey gravelly SAND with abundant roots. Sand is fine. Gravel is fine to coarse sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	0.30	
						Light brown gravelly clayey SAND. Sand is fine to medium. Gravel is fine sub-rounded to rounded quartzite. (WIGSTON SAND AND GRAVEL MEMBER)	(0.70)	
						Soft reddish brown sandy CLAY. Sand is fine. Rare fine subrounded quartzite gravel. (WIGSTON SAND AND GRAVEL MEMBER)	1.00	
							(0.75)	
							1.75	
						Loose light orangish brown slightly clayey SAND. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)	(0.90)	
							2.65	
						Soft light reddish brown sandy CLAY. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER)	3.00	
						Medium dense reddish brown very clayey SAND. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)	3.35	
						Soft light reddish brown sandy CLAY. Sand is fine. (WIGSTON SAND AND GRAVEL MEMBER)	(0.40)	
							3.75	
						Loose reddish brown very clayey SAND. Sand is fine to medium. (WIGSTON SAND AND GRAVEL MEMBER)		
						... soils damp between 4.35m and 5.00m bgl.	(2.25)	
							6.00	
						Borehole terminated at 6.00m bgl.		

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)	1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater seepage encountered at 4.35m bgl. 4. On completion borehole installed with monitoring well to 6.00m bgl.			
All dimensions in metres						Scale:	1:36		
Method Used:	Inspection pit + Tracked window		Plant Used:	Premier 110		Drilled By:	DSUK	Logged By:	RMoore
						Checked By:			

WINDOW SAMPLE LOG

Contract: Leicester Road, Earl Shilton			Client: Gladman Developments Ltd		Window Sample: WS12
Contract Ref: 252719	Start: 22.07.22 End: 22.07.22	Ground Level: 115.63	National Grid Co-ordinate: E:446617.9 N:298196.9		Sheet: 1 of 1

Progress	Samples / Tests				Water Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results				
						Brown slightly clayey gravelly SAND. Sand is fine. Gravel is fine to coarse sub-rounded to rounded quartzite. (AGRICULTURAL TOPSOIL)	0.30	
	0.60	1	ES			Loose light brown slightly clayey gravelly SAND. Sand is fine to medium. Gravel is fine to medium sub-rounded to rounded quartzite. (WIGSTON SAND AND GRAVEL MEMBER)		
	1.20-1.65	1	SPT	N=4				
	1.40-2.55	2	B					
1.20 - 2.00 (75mm dia) 100% rec						... No gravel from 1.60m bgl. ... Becoming clayey between 1.70m bgl and 1.78m bgl.		
	2.00-2.45	2	SPT	N=11		... Becoming clayey between 1.94m bgl and 2.00m bgl.		
2.00 - 3.00 (65mm dia) 78% rec								
	2.80	3	D			... Slightly damp from 2.55m bgl. ... Soft sandy clay interval between 2.55m and 3.00m bgl. Sand is fine.	(4.70)	
	3.00-3.45	3	SPT	N=12				
3.00 - 4.00 (65mm dia) 76% rec								
	4.00-4.45	4	SPT	N=9				
4.00 - 5.00 (65mm dia) 72% rec						... Firm slightly sandy clay interval between 4.40m and 4.55m bgl.		
	4.40	4	D					
	5.00-5.45	5	SPT	N=24		Borehole terminated at 5.00m bgl.	5.00	

Drilling Progress and Water Observations						General Remarks			
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)				
						1. Location scanned with GPR prior to breaking ground. No services encountered. 2. Inspection pit hand dug to 1.2m depth. 3. Groundwater seepage encountered at 2.55m bgl. 4. On completion borehole installed with monitoring well to 3.00m bgl.			
All dimensions in metres						Scale:	1:31		
Method Used:	Inspection pit + Tracked window		Plant Used:	Premier 110		Drilled By:	DSUK	Logged By:	RMoore
						Checked By:			

FULL SCALE SOAKAWAY TEST

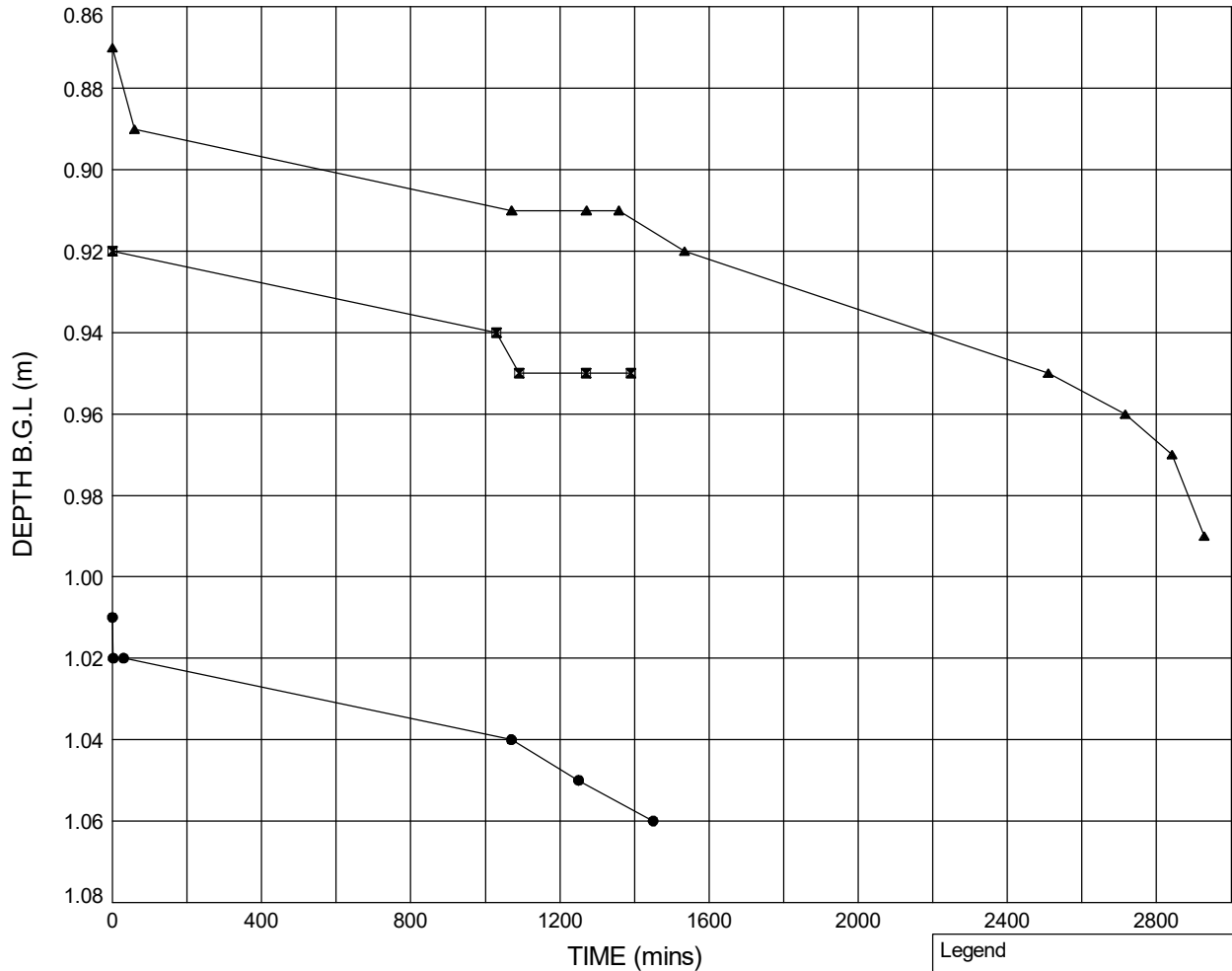
In accordance with BRE Digest 365

Soakaway Test - Position ID : **TP05**

Ground Level: ---

Co-ordinates: ---

Plot of Depth of Water Below Ground Level Against Time

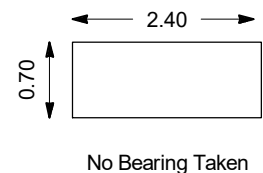


		Test 1	Test 2	Test 3	
Pit start depth:	=	1.01	0.92	0.87	m
Pit final depth:	=	2.00	2.00	2.00	m
Effective depth, D_e	=	0.99	1.08	1.13	m
Fill Porosity	=	0.23	0.23	0.23	%
Effective storage volume, V_{p75-25}	=	0.8316	0.9072	0.9492	m ³
Surface area, a_{s50}	=	4.7490	5.0280	5.1830	m ²
Time, t_{p75-25}	=	N/A	N/A	N/A	secs
Infiltration rate, f	=	N/A	N/A	N/A	m/s

Legend

- Test 1 (18.07.22)
- Test 2 (19.07.22)
- ▲ Test 3 (20.07.22)

Plan (Not to scale)



Compiled By

Date

Checked By

Date

READ

01/08/22

Contract

Contract Ref:

Leicester Road Earl Shilton

252719

FULL SCALE SOAKAWAY TEST

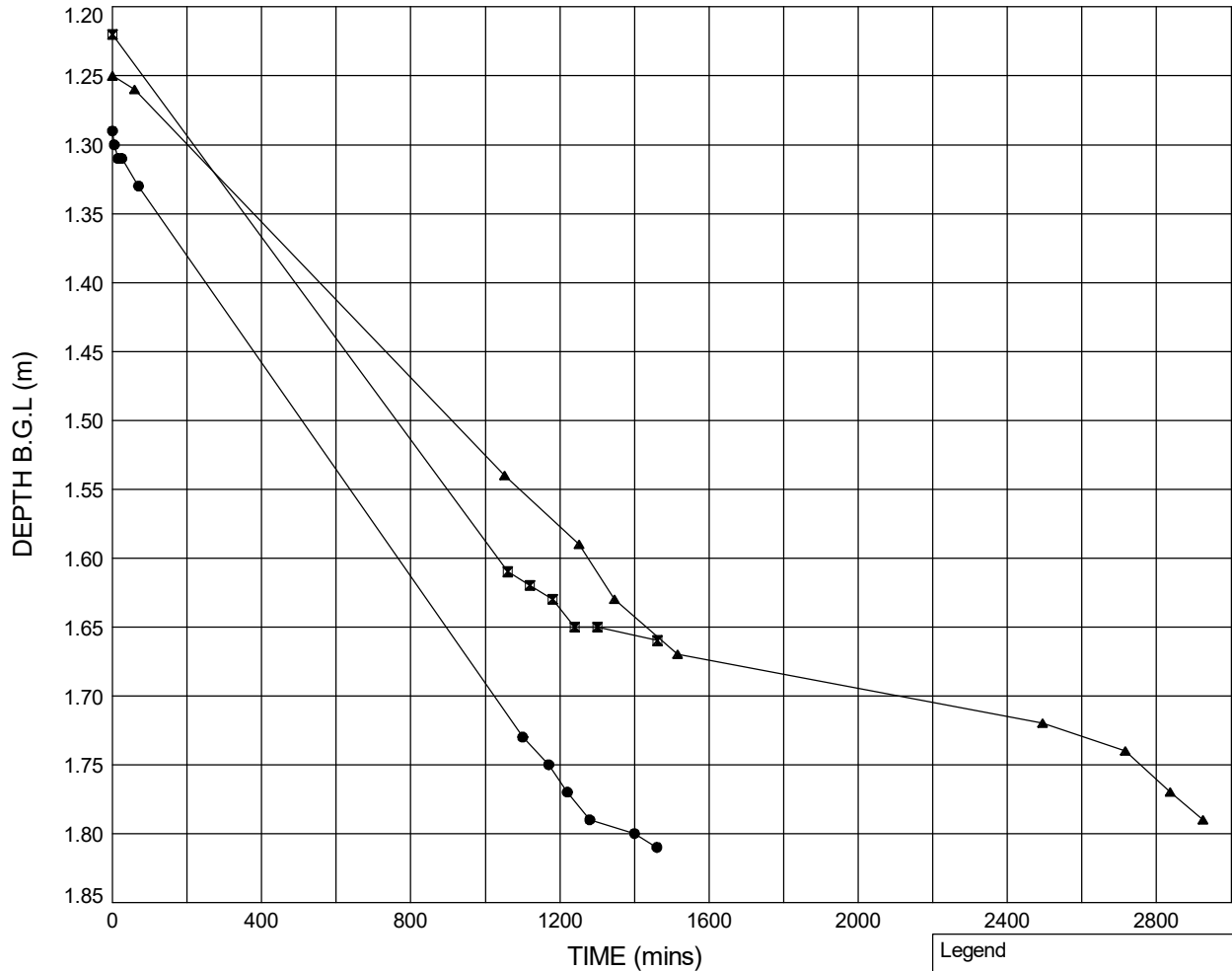
In accordance with BRE Digest 365

Soakaway Test - Position ID : **TP09**

Ground Level: ---

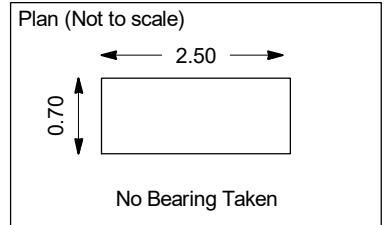
Co-ordinates: ---

Plot of Depth of Water Below Ground Level Against Time



		Test 1	Test 2	Test 3	
Pit start depth:	=	1.29	1.22	1.25	m
Pit final depth:	=	2.80	2.80	2.80	m
Effective depth, D_e	=	1.51	1.58	1.55	m
Fill Porosity	=	0.23	0.23	0.23	%
Effective storage volume, V_{p75-25}	=	1.3213	1.3825	1.3563	m ³
Surface area, a_{s50}	=	6.5820	6.8060	6.7100	m ²
Time, t_{p75-25}	=	N/A	N/A	N/A	secs
Infiltration rate, f	=	N/A	N/A	N/A	m/s

Legend		
●	Test 1	(18.07.22)
■	Test 2	(19.07.22)
▲	Test 3	(20.07.22)



Compiled By

Date

Checked By

Date

READ

01/08/22

Contract

Contract Ref:

Leicester Road Earl Shilton

252719

FULL SCALE SOAKAWAY TEST

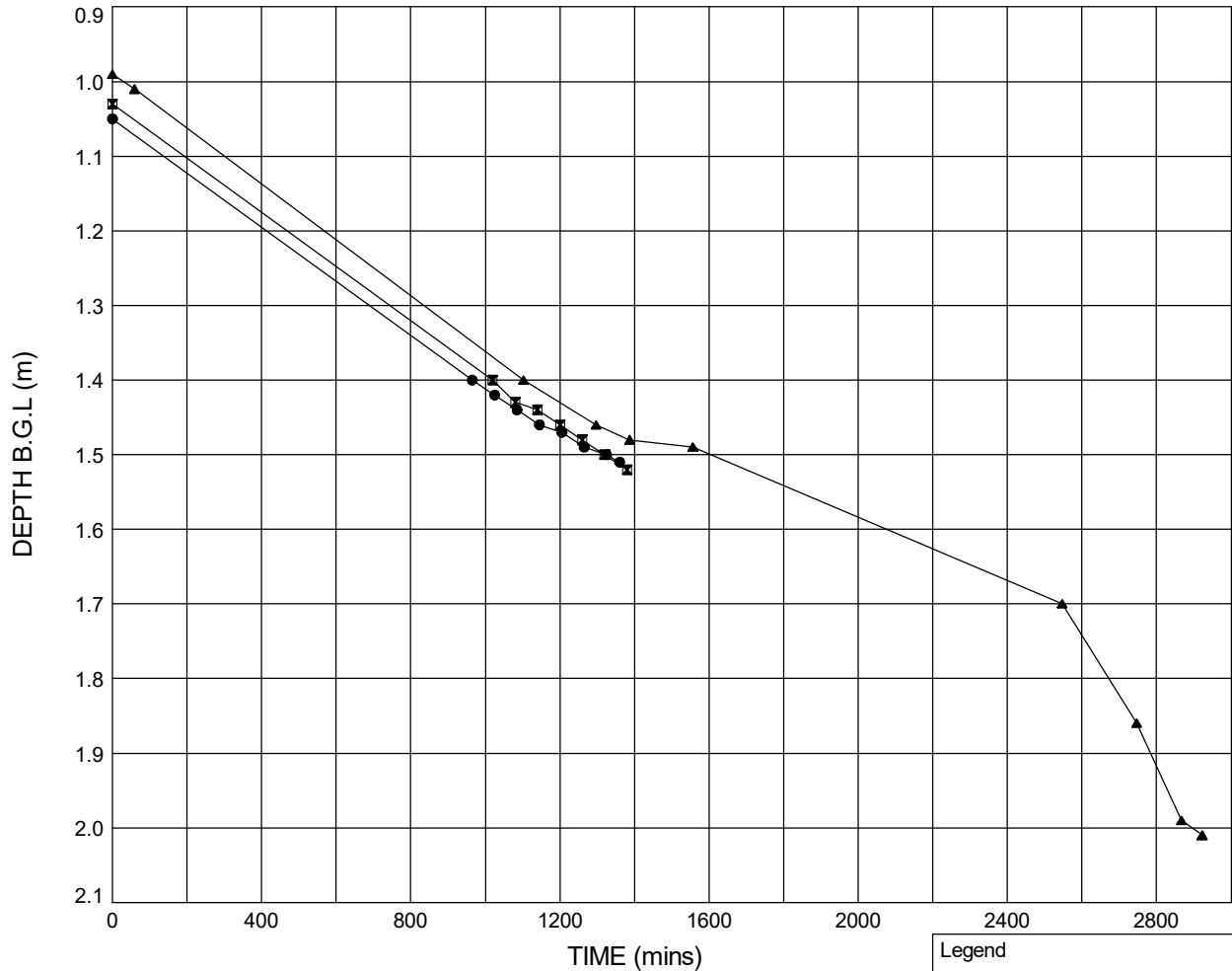
In accordance with BRE Digest 365

Soakaway Test - Position ID : **TP15**

Ground Level: ---

Co-ordinates: ---

Plot of Depth of Water Below Ground Level Against Time

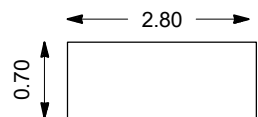


	Test 1	Test 2	Test 3	
Pit start depth:	= 1.05	1.03	0.99	m
Pit final depth:	= 2.20	2.20	2.20	m
Effective depth, D_e	= 1.15	1.17	1.21	m
Effective storage volume, V_{p75-25}	= 1.1270	1.1466	1.1858	m ³
Surface area, a_{s50}	= 5.9850	6.0550	6.1950	m ²
Time, t_{p75-25}	= N/A	N/A	118010	secs
Infiltration rate, f	= N/A	N/A	1.62×10^{-6}	m/s

Legend

- Test 1 (18.07.22)
- Test 2 (19.07.22)
- ▲ Test 3 (20.07.22)

Plan (Not to scale)



No Bearing Taken



Compiled By

Date

Checked By

Date

READ

01/08/22

Contract

Contract Ref:

Leicester Road Earl Shilton

252719



Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377: Part 9 : 1990: Clause 4.3

Report No: 8232-4

Report Date: 20/07/2022

Client: RSK Environment Limited

Address: Abbey Park
Humber Road
Coventry
CV3 4AQ

Site: Keats Lane, Earl Shilton, LE9 7DB

Test Details

Test Location: TP08

Layer/Depth: 0.5m BGL

Material Class: Formation

Date of Test: 19/07/2022

Weather Conditions: Dry/Sunny

Surcharge mass (kg): 9

Equivalent overburden pressure (kPa): 1.9

Particles >20mm below plunger: No

Water content test method: BS EN ISO 17892-1

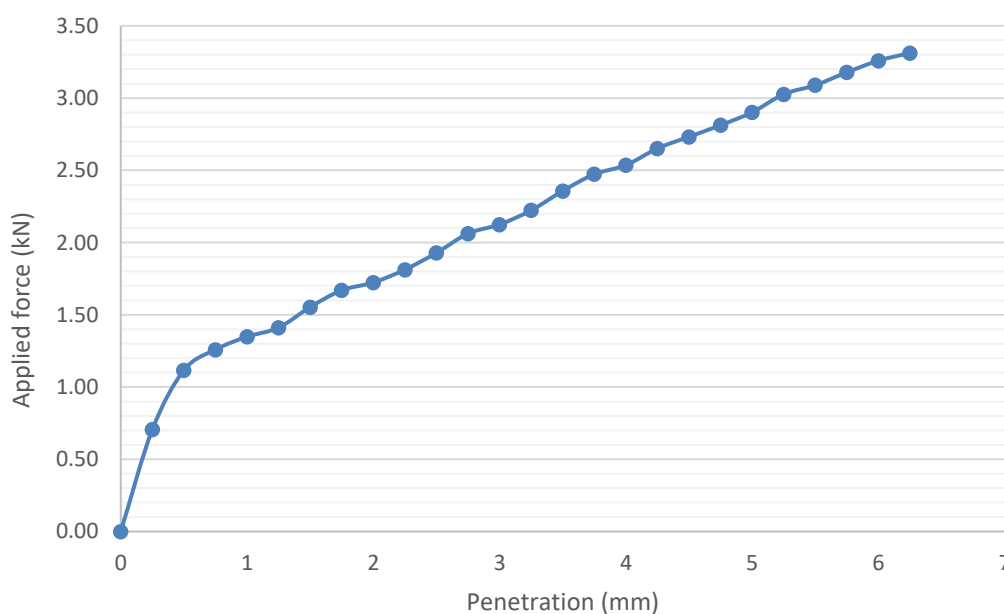
Description: Brown slightly gravelly SAND with occasional rootlets

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

CBR Value (%):	15
Water Content (%):	3.7

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



Issued subject to Hixtra Terms and Conditions available at www.hixtra.com

HU-SOI-05, Issue 7, Jun 21



Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to
BS 1377: Part 9 : 1990: Clause 4.3

Report No: 8232-3

Report Date: 20/07/2022

Client: RSK Environment Limited

Address: Abbey Park
Humber Road
Coventry
CV3 4AQ

Site: Keats Lane, Earl Shilton, LE9 7DB

Test Details

Test Location: TP12

Layer/Depth: 0.5m BGL

Material Class: Formation

Date of Test: 19/07/2022

Weather Conditions: Dry/Sunny

Surcharge mass (kg): 9

Equivalent overburden pressure (kPa): 1.9

Particles >20mm below plunger: No

Water content test method: BS EN ISO 17892-1

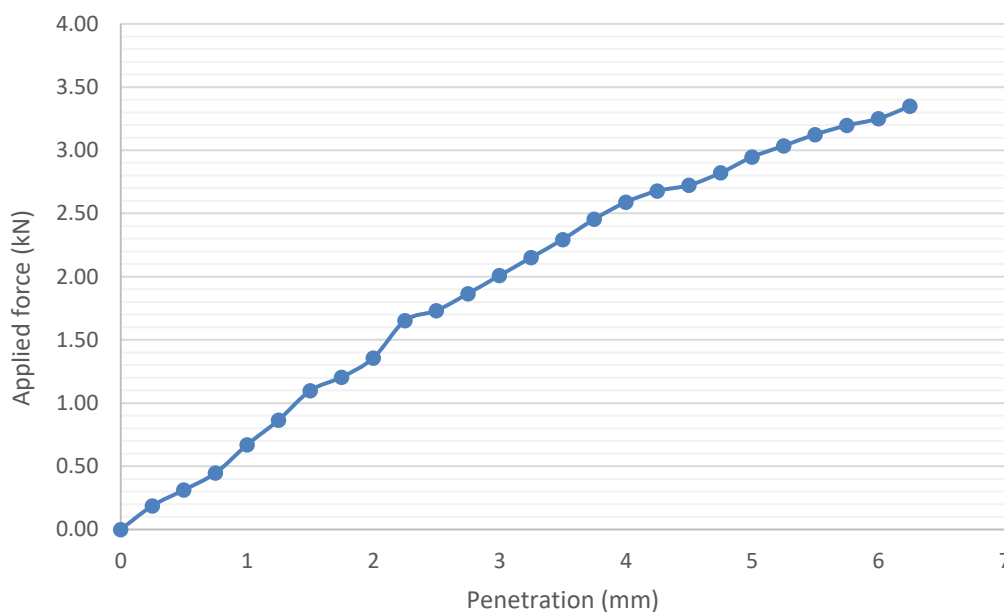
Description: Brown slightly gravelly SAND with occasional rootlets

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

CBR Value (%):	15
Water Content (%):	4.0

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



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HU-SOI-05, Issue 7, Jun 21



Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to
BS 1377: Part 9 : 1990: Clause 4.3

Report No: 8232-5

Report Date: 20/07/2022

Client: RSK Environment Limited

Address: Abbey Park
Humber Road
Coventry
CV3 4AQ

Site: Keats Lane, Earl Shilton, LE9 7DB

Test Details

Test Location: TP17

Layer/Depth: 0.5m BGL

Material Class: Formation

Date of Test: 19/07/2022

Weather Conditions: Dry/Sunny

Surcharge mass (kg): 9

Equivalent overburden pressure (kPa): 1.9

Particles >20mm below plunger: No

Water content test method: BS EN ISO 17892-1

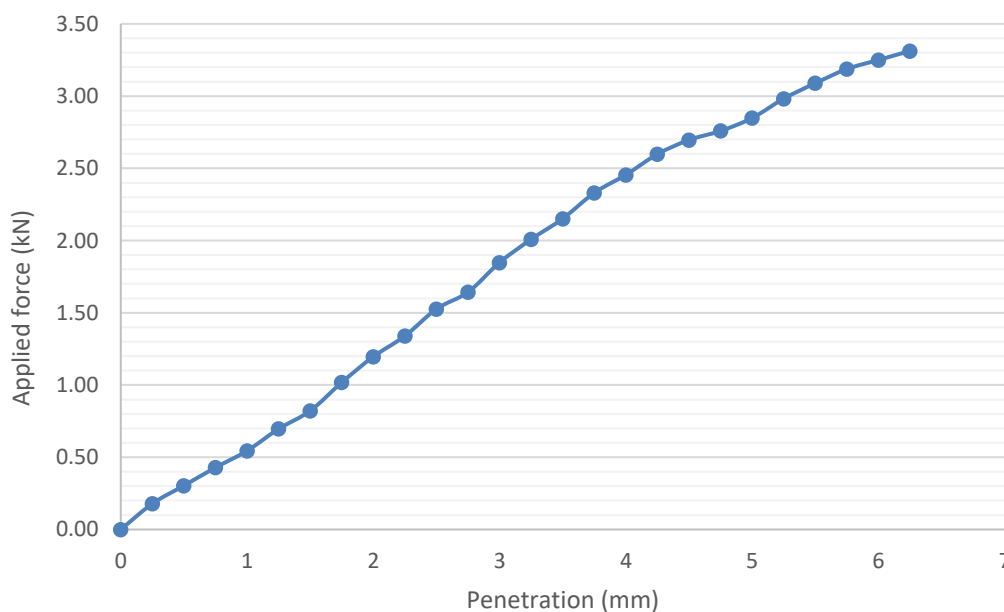
Description: Brown slightly gravelly SAND with occasional rootlets

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

CBR Value (%):	14
Water Content (%):	5.8

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory





Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to
BS 1377: Part 9 : 1990: Clause 4.3

Report No: 8232-6

Report Date: 20/07/2022

Client: RSK Environment Limited

Address: Abbey Park
Humber Road
Coventry
CV3 4AQ

Site: Keats Lane, Earl Shilton, LE9 7DB

Test Details

Test Location: TP18

Layer/Depth: 0.5m BGL

Material Class: Formation

Date of Test: 19/07/2022

Weather Conditions: Dry/Sunny

Surcharge mass (kg): 9

Equivalent overburden pressure (kPa): 1.9

Particles >20mm below plunger: No

Water content test method: BS EN ISO 17892-1

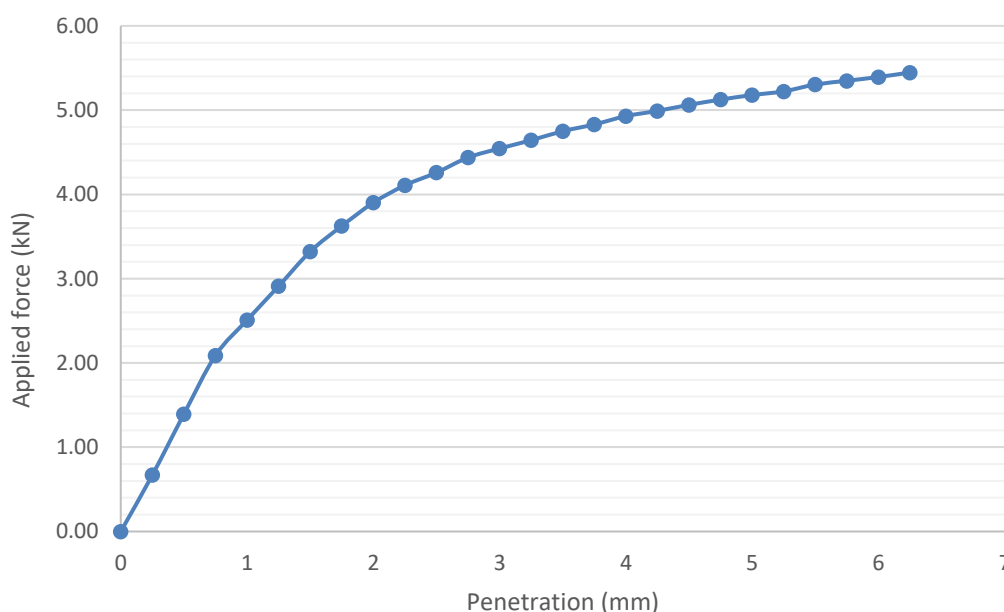
Description: Brown slightly gravelly SAND with occasional rootlets

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

CBR Value (%):	32
Water Content (%):	4.6

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



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HU-SOI-05, Issue 7, Jun 21



Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to
BS 1377 Part 9 : 1990 Clause 4.3

Report No: 8232-2

Report Date: 20/07/2022

Client: RSK Environment Limited

Address: Abbey Park
Humber Road
Coventry
CV3 4AQ

Site: Keats Lane, Earl Shilton, LE9 7DB

Test Details

Test Location: TP23

Layer/Depth: 0.5m BGL

Material Class: Formation

Date of Test: 19/07/2022

Weather Conditions: Dry/Sunny

Surcharge mass (kg): 9

Equivalent overburden pressure (kPa): 1.9

Particles >20mm below plunger: No

Water content test method: BS EN ISO 17892-1

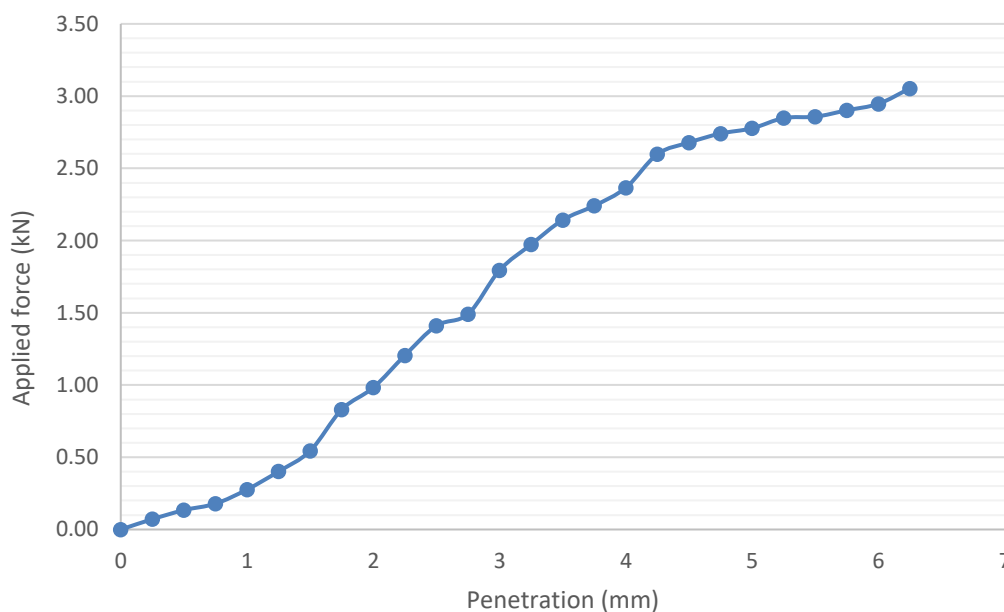
Description: Brown slightly gravelly SAND with occasional rootlets

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

CBR Value (%):	14
Water Content (%):	3.0

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



Issued subject to Hixtra Terms and Conditions available at www.hixtra.com

HU-SOI-05, Issue 7, Jun 21



Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to
BS 1377: Part 9 : 1990: Clause 4.3

Report No: 8232-1

Report Date: 20/07/2022

Client: RSK Environment Limited

Address: Abbey Park
Humber Road
Coventry
CV3 4AQ

Site: Keats Lane, Earl Shilton, LE9 7DB

Test Details

Test Location: TP25

Layer/Depth: 0.5m BGL

Material Class: Formation

Date of Test: 19/07/2022

Weather Conditions: Dry/Sunny

Surcharge mass (kg): 9

Equivalent overburden pressure (kPa): 1.9

Particles >20mm below plunger: No

Water content test method: BS EN ISO 17892-1

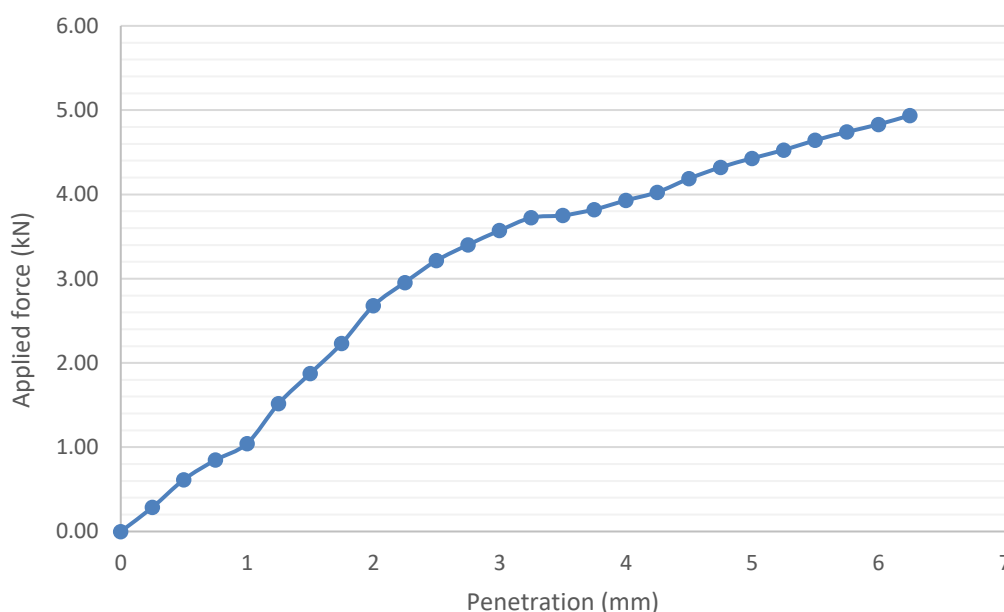
Description: Brown slightly gravelly SAND with occasional rootlets

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

CBR Value (%):	24
Water Content (%):	5.5

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



Issued subject to Hixtra Terms and Conditions available at www.hixtra.com

HU-SOI-05, Issue 7, Jun 21

APPENDIX F

GROUND GAS MONITORING DATA AND SITE CONDITIONS

IN-SITU GAS MONITORING RESULTS

	Start Date	End Date	Pressures		Start	End	Equipment Used & Remarks
			Previous	During			
Round 1	28/07/2022	28/07/2022	-	-	1005	1007	Weather: Overcast Ground: Dry Air Temp: 19°C
Round 2	04/08/2022	04/08/2022	-	-	1005	1004	Weather: Sunny Ground: Dry Air Temp: 19°C
Round 3	08/08/2022	08/08/2022	-	-	1017	1015	Weather: Sunny Ground: Dry Air Temp: 18°C
Round 4	16/08/2022	16/08/2022	-	-	996	995	Weather: Overcast Ground: Dry Air Temp: 18°C
Round 5	26/08/2022	26/08/2022	-	-	1009	1007	Weather: Overcast Ground: Dry Air Temp: 18°C
Round 6	02/09/2022	02/09/2022	-	-	1003	1004	Weather: Overcast Ground: Dry Air Temp: 18°C

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS01	1	50	1	4.00	4.01	1.00 to 4.00	28/07/2022 10:32:00	1008	1007	0.0 _(I)	DRY	0.1	0.0	20.9	0	0	
WS01	1	50	1	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.2	0.0	19.9	23	0	
WS01	1	50	1	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.1	0.0	19.8	10	0	
WS01	1	50	1	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.1	0.0	19.8	8	0	
WS01	1	50	1	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.1	0.0	19.9	8	0	
WS01	1	50	1	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.1	0.0	19.9	8	0	
WS01	1	50	1	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.1	0.0	19.9	6	0	
WS01	1	50	1	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.1	0.0	19.9	5	0	
WS01	1	50	1	---	---	1.00 to 4.00	300 secs	-	-	-	-	1.1	0.0	19.9	5	0	
WS01	1	50	2	4.00	4.01	1.00 to 4.00	04/08/2022 12:33:00	1007	1006	0.0 _(I)	DRY	0.1	0.0	21.7	1	0	
WS01	1	50	2	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.0	0.0	20.8	18	0	
WS01	1	50	2	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.0	0.0	20.7	7	0	
WS01	1	50	2	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.0	0.0	20.7	7	0	
WS01	1	50	2	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.0	0.0	20.8	5	0	
WS01	1	50	2	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.0	0.0	20.7	8	0	
WS01	1	50	2	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.0	0.0	20.6	4	0	
WS01	1	50	2	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.1	0.0	20.6	2	0	
WS01	1	50	2	---	---	1.00 to 4.00	300 secs	-	-	-	-	1.1	0.0	20.6	2	0	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
		08/09/2022			252719
	Contract: Leicester Road, Earl Shilton				Page: 1 of 18 

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS01	1	50	2	---	---	1.00 to 4.00	360 secs	-	-	-	-	1.1	0.0	20.6	2	0	
WS01	1	50	2	---	---	1.00 to 4.00	420 secs	-	-	-	-	1.1	0.0	20.6	2	0	
WS01	1	50	2	---	---	1.00 to 4.00	480 secs	-	-	-	-	1.1	0.0	20.6	1	0	
WS01	1	50	2	---	---	1.00 to 4.00	540 secs	-	-	-	-	1.1	0.0	20.5	1	0	
WS01	1	50	2	---	---	1.00 to 4.00	600 secs	-	-	-	-	1.1	0.0	20.5	0	0	
WS01	1	50	2	---	---	1.00 to 4.00	660 secs	-	-	-	-	1.1	0.0	20.6	1	0	
WS01	1	50	2	---	---	1.00 to 4.00	720 secs	-	-	-	-	1.0	0.0	20.8	0	0	
WS01	1	50	3	4.00	4.01	1.00 to 4.00	08/08/2022 09:50:00	1018	1017	0.0 _(l)	DRY	0.1	0.0	19.6	2	1	
WS01	1	50	3	---	---	1.00 to 4.00	15 secs	-	-	0.1 _(ss)	-	1.0	0.0	18.9	3	1	
WS01	1	50	3	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.0	0.0	18.8	3	1	
WS01	1	50	3	---	---	1.00 to 4.00	60 secs	-	-	-	-	0.9	0.0	18.9	3	1	
WS01	1	50	3	---	---	1.00 to 4.00	120 secs	-	-	-	-	0.9	0.0	18.9	3	1	
WS01	1	50	3	---	---	1.00 to 4.00	180 secs	-	-	-	-	0.9	0.0	18.9	3	1	
WS01	1	50	3	---	---	1.00 to 4.00	240 secs	-	-	-	-	0.9	0.0	19.0	3	1	
WS01	1	50	3	---	---	1.00 to 4.00	300 secs	-	-	-	-	0.9	0.0	19.1	3	1	
WS01	1	50	3	---	---	1.00 to 4.00	360 secs	-	-	-	-	0.9	0.0	19.1	3	1	
WS01	1	50	4	4.00	4.01	1.00 to 4.00	16/08/2022 08:35:00	997	997	0.0 _(l)	DRY	0.1	0.0	20.8	0	0	
WS01	1	50	4	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(ss)	-	1.1	0.0	19.8	1	0	
WS01	1	50	4	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.0	0.0	19.6	1	0	
WS01	1	50	4	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.0	0.0	19.6	1	0	
WS01	1	50	4	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.0	0.0	19.6	1	0	
WS01	1	50	4	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.0	0.0	19.6	1	0	
WS01	1	50	4	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.0	0.0	19.6	1	0	
WS01	1	50	4	---	---	1.00 to 4.00	300 secs	-	-	-	-	1.0	0.0	19.6	1	0	
WS01	1	50	4	---	---	1.00 to 4.00	360 secs	-	-	-	-	1.0	0.0	19.6	1	0	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
		08/09/2022			252719
	Contract: Leicester Road, Earl Shilton				Page: 2 of 18 

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS01	1	50	5	4.00	4.01	1.00 to 4.00	26/08/2022 09:13:00	1009	1009	0.0 _(I)	DRY	0.1	0.0	20.7	0	0	
WS01	1	50	5	---	---	1.00 to 4.00	15 secs	-	-	0.1 _(SS)	-	1.1	0.0	19.7	0	0	
WS01	1	50	5	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.1	0.0	19.6	1	0	
WS01	1	50	5	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.1	0.0	19.6	1	1	
WS01	1	50	5	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.1	0.0	19.6	1	1	
WS01	1	50	5	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.1	0.0	19.5	1	1	
WS01	1	50	5	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.0	0.0	19.4	1	1	
WS01	1	50	5	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.0	0.0	19.4	1	1	
WS01	1	50	6	4.00	4.01	1.00 to 4.00	02/09/2022 11:32:00	1005	1004	0.0 _(I)	DRY	0.1	0.0	20.3	1	1	
WS01	1	50	6	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.0	0.0	19.4	1	1	
WS01	1	50	6	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.0	0.0	19.4	1	1	
WS01	1	50	6	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.0	0.0	19.4	1	1	
WS01	1	50	6	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.0	0.0	19.4	1	1	
WS01	1	50	6	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.0	0.0	19.5	1	1	
WS01	1	50	6	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.0	0.0	19.5	1	1	
WS01	1	50	6	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.0	0.0	19.5	1	1	
WS01	1	50	6	---	---	1.00 to 4.00	300 secs	-	-	-	-	-	-	-	-	-	
WS02	1	50	1	4.00	4.08	1.00 to 4.00	28/07/2022 11:20:00	1009	1007	0.0 _(I)	DRY	0.0	0.0	20.0	1	0	
WS02	1	50	1	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.1	0.0	19.1	3	0	
WS02	1	50	1	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.2	0.0	19.0	5	0	
WS02	1	50	1	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.2	0.0	19.0	5	0	
WS02	1	50	1	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.2	0.0	18.9	5	0	
WS02	1	50	1	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.2	0.0	18.9	5	1	
WS02	1	50	1	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.2	0.0	18.9	5	1	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
		08/09/2022			252719
	Contract: Leicester Road, Earl Shilton				Page: 3 of 18 

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS02	1	50	1	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.2	0.0	18.9	5	1	
WS02	1	50	1	---	---	1.00 to 4.00	300 secs	-	-	-	-	1.2	0.0	18.9	5	1	
WS02	1	50	2	4.00	4.08	1.00 to 4.00	04/08/2022 12:07:00	1006	1005	0.0 _(I)	DRY	0.0	0.0	20.7	1	1	
WS02	1	50	2	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.5	0.0	19.6	5	1	
WS02	1	50	2	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.5	0.0	19.4	2	0	
WS02	1	50	2	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.5	0.0	19.4	2	1	
WS02	1	50	2	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.4	0.0	19.4	2	1	
WS02	1	50	2	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.4	0.0	19.4	2	1	
WS02	1	50	2	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.4	0.0	19.4	2	1	
WS02	1	50	2	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.4	0.0	19.5	2	1	
WS02	1	50	2	---	---	1.00 to 4.00	300 secs	-	-	-	-	1.4	0.0	19.5	2	1	
WS02	1	50	3	4.00	4.08	1.00 to 4.00	08/08/2022 09:27:00	1018	1017	0.0 _(I)	DRY	0.1	0.0	19.4	1	1	
WS02	1	50	3	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.3	0.0	18.7	2	1	
WS02	1	50	3	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.3	0.0	18.5	2	1	
WS02	1	50	3	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.3	0.0	18.5	1	1	
WS02	1	50	3	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.3	0.0	18.5	2	1	
WS02	1	50	3	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.2	0.0	18.5	2	1	
WS02	1	50	3	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.2	0.0	18.5	2	1	
WS02	1	50	3	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.2	0.0	18.5	2	1	
WS02	1	50	3	---	---	1.00 to 4.00	300 secs	-	-	-	-	1.1	0.0	18.5	2	1	
WS02	1	50	4	4.00	4.08	1.00 to 4.00	16/08/2022 08:23:00	996	996	0.0 _(I)	DRY	0.1	0.0	20.7	0	0	
WS02	1	50	4	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	0.1	0.0	20.7	1	0	
WS02	1	50	4	---	---	1.00 to 4.00	30 secs	-	-	-	-	0.1	0.0	20.7	0	0	
WS02	1	50	4	---	---	1.00 to 4.00	60 secs	-	-	-	-	0.1	0.0	20.7	0	0	
WS02	1	50	4	---	---	1.00 to 4.00	90 secs	-	-	-	-	0.1	0.0	20.7	1	0	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
		08/09/2022			252719
	Contract: Leicester Road, Earl Shilton				Page: 4 of 18 

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS02	1	50	4	---	---	1.00 to 4.00	120 secs	-	-	-	-	0.1	0.0	20.7	0	0	
WS02	1	50	4	---	---	1.00 to 4.00	180 secs	-	-	-	-	0.1	0.0	20.7	0	0	
WS02	1	50	4	---	---	1.00 to 4.00	240 secs	-	-	-	-	0.1	0.0	20.7	0	0	
WS02	1	50	4	---	---	1.00 to 4.00	300 secs	-	-	-	-	0.1	0.0	20.8	0	0	
WS02	1	50	5	4.00	4.08	1.00 to 4.00	26/08/2022 09:34:00	1010	1009	0.0 _(I)	DRY	0.1	0.0	19.1	1	1	
WS02	1	50	5	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.0	0.0	18.4	1	1	
WS02	1	50	5	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.1	0.0	18.3	1	1	
WS02	1	50	5	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.1	0.0	18.3	1	1	
WS02	1	50	5	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.1	0.0	18.3	1	1	
WS02	1	50	5	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.1	0.0	18.2	1	1	
WS02	1	50	5	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.1	0.0	18.2	1	1	
WS02	1	50	5	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.1	0.0	18.2	1	1	
WS02	1	50	6	4.00	4.08	1.00 to 4.00	02/09/2022 11:21:00	1005	1004	0.0 _(I)	DRY	0.1	0.0	20.4	0	0	
WS02	1	50	6	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.1	0.0	19.8	0	1	
WS02	1	50	6	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.1	0.0	19.7	0	1	
WS02	1	50	6	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.2	0.0	19.7	1	1	
WS02	1	50	6	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.2	0.0	19.7	1	1	
WS02	1	50	6	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.2	0.0	19.6	0	1	
WS02	1	50	6	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.2	0.0	19.6	1	1	
WS02	1	50	6	---	---	1.00 to 4.00	303 secs	-	-	-	-	1.1	0.0	19.8	0	1	
WS03	1	50	1	4.00	3.93	1.00 to 4.00	28/07/2022 10:13:00	1008	1007	0.0 _(I)	DRY	0.2	0.0	20.4	2	0	
WS03	1	50	1	---	---	1.00 to 4.00	15 secs	-	-	-0.1 _(SS)	-	1.0	0.0	19.9	10	0	
WS03	1	50	1	---	---	1.00 to 4.00	30 secs	-	-	-	-	0.9	0.0	19.8	5	0	
WS03	1	50	1	---	---	1.00 to 4.00	60 secs	-	-	-	-	0.9	0.0	19.9	4	0	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS03	1	50	1	---	---	1.00 to 4.00	90 secs	-	-	-	-	0.9	0.0	19.9	4	0	
WS03	1	50	1	---	---	1.00 to 4.00	120 secs	-	-	-	-	0.9	0.0	19.9	4	0	
WS03	1	50	1	---	---	1.00 to 4.00	180 secs	-	-	-	-	0.9	0.0	19.9	4	0	
WS03	1	50	1	---	---	1.00 to 4.00	240 secs	-	-	-	-	0.9	0.0	19.9	4	0	
WS03	1	50	1	---	---	1.00 to 4.00	300 secs	-	-	-	-	0.9	0.0	19.9	4	0	
WS03	1	50	2	4.00	3.93	1.00 to 4.00	04/08/2022 12:21:00	1006	1005	0.0 _(I)	DRY	0.1	0.0	21.2	1	0	
WS03	1	50	2	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	0.9	0.0	20.6	5	0	
WS03	1	50	2	---	---	1.00 to 4.00	30 secs	-	-	-	-	0.9	0.0	20.5	2	0	
WS03	1	50	2	---	---	1.00 to 4.00	60 secs	-	-	-	-	0.9	0.0	20.6	2	0	
WS03	1	50	2	---	---	1.00 to 4.00	90 secs	-	-	-	-	0.9	0.0	20.6	2	0	
WS03	1	50	2	---	---	1.00 to 4.00	120 secs	-	-	-	-	0.9	0.0	20.7	2	0	
WS03	1	50	2	---	---	1.00 to 4.00	180 secs	-	-	-	-	0.8	0.0	20.7	2	0	
WS03	1	50	2	---	---	1.00 to 4.00	240 secs	-	-	-	-	0.8	0.0	20.8	2	0	
WS03	1	50	2	---	---	1.00 to 4.00	300 secs	-	-	-	-	0.8	0.0	20.9	2	0	
WS03	1	50	3	4.00	3.93	1.00 to 4.00	08/08/2022 09:40:00	1018	1017	0.0 _(I)	DRY	0.1	0.0	19.2	2	1	
WS03	1	50	3	---	---	1.00 to 4.00	15 secs	-	-	-0.1 _(SS)	-	0.9	0.0	18.8	3	1	
WS03	1	50	3	---	---	1.00 to 4.00	30 secs	-	-	-	-	0.8	0.0	18.7	2	1	
WS03	1	50	3	---	---	1.00 to 4.00	60 secs	-	-	-	-	0.8	0.0	18.8	2	1	
WS03	1	50	3	---	---	1.00 to 4.00	90 secs	-	-	-	-	0.8	0.0	18.8	2	1	
WS03	1	50	3	---	---	1.00 to 4.00	120 secs	-	-	-	-	0.8	0.0	18.8	2	1	
WS03	1	50	3	---	---	1.00 to 4.00	180 secs	-	-	-	-	0.8	0.0	18.9	2	1	
WS03	1	50	3	---	---	1.00 to 4.00	240 secs	-	-	-	-	0.8	0.0	18.9	2	1	
WS03	1	50	3	---	---	1.00 to 4.00	300 secs	-	-	-	-	0.7	0.0	18.9	2	1	
WS03	1	50	4	4.00	3.93	1.00 to 4.00	16/08/2022 08:45:00	998	997	0.0 _(I)	DRY	0.1	0.0	20.9	0	0	
WS03	1	50	4	---	---	1.00 to 4.00	15 secs	-	-	0.1 _(SS)	-	0.9	0.0	20.4	1	0	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS03	1	50	4	---	---	1.00 to 4.00	30 secs	-	-	-	-	0.9	0.0	20.3	1	0	
WS03	1	50	4	---	---	1.00 to 4.00	60 secs	-	-	-	-	0.9	0.0	20.3	1	0	
WS03	1	50	4	---	---	1.00 to 4.00	90 secs	-	-	-	-	0.9	0.0	20.3	1	0	
WS03	1	50	4	---	---	1.00 to 4.00	120 secs	-	-	-	-	0.9	0.0	20.3	1	0	
WS03	1	50	4	---	---	1.00 to 4.00	180 secs	-	-	-	-	0.9	0.0	20.3	1	0	
WS03	1	50	4	---	---	1.00 to 4.00	240 secs	-	-	-	-	0.9	0.0	20.3	1	0	
WS03	1	50	4	---	---	1.00 to 4.00	300 secs	-	-	-	-	0.9	0.0	20.3	1	0	
WS03	1	50	5	4.00	3.95	1.00 to 4.00	26/08/2022 09:23:00	1009	1009	0.0 _(I)	DRY	0.1	0.0	19.9	1	0	
WS03	1	50	5	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.2	0.0	19.0	1	1	
WS03	1	50	5	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.2	0.0	19.0	1	1	
WS03	1	50	5	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.2	0.0	18.9	1	1	
WS03	1	50	5	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.2	0.0	18.9	1	1	
WS03	1	50	5	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.2	0.0	18.8	1	1	
WS03	1	50	5	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.2	0.0	18.7	1	1	
WS03	1	50	5	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.2	0.0	18.7	1	1	
WS03	1	50	6	4.00	3.95	1.00 to 4.00	02/09/2022 11:42:00	1005	1004	0.0 _(I)	DRY	0.1	0.0	20.3	1	1	
WS03	1	50	6	---	---	1.00 to 4.00	15 secs	-	-	0.2 _(SS)	-	1.1	0.0	19.5	1	1	
WS03	1	50	6	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.1	0.0	19.5	1	1	
WS03	1	50	6	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.1	0.0	19.5	1	1	
WS03	1	50	6	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.1	0.0	19.5	1	1	
WS03	1	50	6	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.1	0.0	19.5	1	1	
WS03	1	50	6	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.1	0.0	19.5	1	1	
WS03	1	50	6	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.1	0.0	19.5	1	1	
WS04	1	50	1	5.00	5.01	2.00 to 5.00	28/07/2022 11:33:00	1009	1007	0.0 _(I)	DRY	0.0	0.0	20.0	1	0	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS04	1	50	1	---	---	2.00 to 5.00	15 secs	-	-	0.0 _(SS)	-	0.1	0.0	20.0	2	0	
WS04	1	50	1	---	---	2.00 to 5.00	30 secs	-	-	-	-	0.1	0.0	20.0	2	0	
WS04	1	50	1	---	---	2.00 to 5.00	60 secs	-	-	-	-	0.1	0.0	20.0	2	0	
WS04	1	50	1	---	---	2.00 to 5.00	90 secs	-	-	-	-	0.1	0.0	20.1	2	0	
WS04	1	50	1	---	---	2.00 to 5.00	120 secs	-	-	-	-	0.1	0.0	20.1	2	0	
WS04	1	50	1	---	---	2.00 to 5.00	180 secs	-	-	-	-	0.1	0.0	20.2	2	0	
WS04	1	50	1	---	---	2.00 to 5.00	240 secs	-	-	-	-	0.1	0.0	20.2	2	0	
WS04	1	50	1	---	---	2.00 to 5.00	300 secs	-	-	-	-	0.1	0.0	20.3	2	0	
WS04	1	50	2	5.00	5.01	2.00 to 5.00	04/08/2022 11:51:00	1006	1005	0.0 _(I)	DRY	0.1	0.0	20.7	1	1	
WS04	1	50	2	---	---	2.00 to 5.00	15 secs	-	-	0.0 _(SS)	-	0.1	0.0	20.8	1	0	
WS04	1	50	2	---	---	2.00 to 5.00	30 secs	-	-	-	-	0.1	0.0	20.6	1	0	
WS04	1	50	2	---	---	2.00 to 5.00	60 secs	-	-	-	-	0.1	0.0	20.6	1	1	
WS04	1	50	2	---	---	2.00 to 5.00	90 secs	-	-	-	-	0.1	0.0	20.6	1	1	
WS04	1	50	2	---	---	2.00 to 5.00	120 secs	-	-	-	-	0.1	0.0	20.6	1	1	
WS04	1	50	2	---	---	2.00 to 5.00	180 secs	-	-	-	-	0.1	0.0	20.6	1	1	
WS04	1	50	2	---	---	2.00 to 5.00	240 secs	-	-	-	-	0.1	0.0	20.6	1	1	
WS04	1	50	2	---	---	2.00 to 5.00	300 secs	-	-	-	-	0.1	0.0	20.6	1	1	
WS04	1	50	3	5.00	5.01	2.00 to 5.00	08/08/2022 09:13:00	1018	1017	0.0 _(I)	DRY	0.2	0.0	19.9	1	1	
WS04	1	50	3	---	---	2.00 to 5.00	15 secs	-	-	0.0 _(SS)	-	0.1	0.0	19.9	1	1	
WS04	1	50	3	---	---	2.00 to 5.00	30 secs	-	-	-	-	0.1	0.0	19.9	1	1	
WS04	1	50	3	---	---	2.00 to 5.00	60 secs	-	-	-	-	0.1	0.0	19.9	1	1	
WS04	1	50	3	---	---	2.00 to 5.00	90 secs	-	-	-	-	0.1	0.0	19.8	1	1	
WS04	1	50	3	---	---	2.00 to 5.00	120 secs	-	-	-	-	0.1	0.0	19.8	1	1	
WS04	1	50	3	---	---	2.00 to 5.00	180 secs	-	-	-	-	0.1	0.0	19.8	1	1	
WS04	1	50	3	---	---	2.00 to 5.00	240 secs	-	-	-	-	0.1	0.0	19.8	1	1	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS04	1	50	3	---	---	2.00 to 5.00	300 secs	-	-	-	-	0.1	0.0	19.7	1	1	
WS04	1	50	4	5.00	5.03	2.00 to 5.00	16/08/2022 08:11:00	996	996	0.0 _(l)	DRY	0.2	0.0	20.6	0	0	
WS04	1	50	4	---	---	2.00 to 5.00	15 secs	-	-	0.0 _(ss)	-	0.1	0.0	20.6	0	1	
WS04	1	50	4	---	---	2.00 to 5.00	30 secs	-	-	-	-	0.1	0.0	20.6	0	0	
WS04	1	50	4	---	---	2.00 to 5.00	60 secs	-	-	-	-	0.1	0.0	20.6	1	0	
WS04	1	50	4	---	---	2.00 to 5.00	90 secs	-	-	-	-	0.1	0.0	20.6	1	0	
WS04	1	50	4	---	---	2.00 to 5.00	120 secs	-	-	-	-	0.1	0.0	20.6	0	0	
WS04	1	50	4	---	---	2.00 to 5.00	180 secs	-	-	-	-	0.1	0.0	20.6	0	0	
WS04	1	50	4	---	---	2.00 to 5.00	240 secs	-	-	-	-	0.1	0.0	20.6	0	0	
WS04	1	50	4	---	---	2.00 to 5.00	300 secs	-	-	-	-	0.1	0.0	20.6	1	0	
WS04	1	50	5	5.00	4.55	2.00 to 5.00	26/08/2022 09:45:00	1010	1009	0.0 _(l)	DRY	0.1	0.0	18.9	1	1	
WS04	1	50	5	---	---	2.00 to 5.00	15 secs	-	-	0.0 _(ss)	-	0.1	0.0	18.8	2	1	
WS04	1	50	5	---	---	2.00 to 5.00	30 secs	-	-	-	-	0.1	0.0	18.8	2	1	
WS04	1	50	5	---	---	2.00 to 5.00	60 secs	-	-	-	-	0.1	0.0	18.8	2	1	
WS04	1	50	5	---	---	2.00 to 5.00	90 secs	-	-	-	-	0.1	0.0	18.8	2	1	
WS04	1	50	5	---	---	2.00 to 5.00	120 secs	-	-	-	-	0.1	0.0	18.9	2	1	
WS04	1	50	5	---	---	2.00 to 5.00	180 secs	-	-	-	-	0.1	0.0	18.9	2	1	
WS04	1	50	5	---	---	2.00 to 5.00	240 secs	-	-	-	-	0.1	0.0	18.9	2	1	
WS04	1	50	6	5.00	5.03	2.00 to 5.00	02/09/2022 11:10:00	1004	1004	0.0 _(l)	DRY	0.1	0.0	20.6	0	0	
WS04	1	50	6	---	---	2.00 to 5.00	15 secs	-	-	0.0 _(ss)	-	0.8	0.0	18.9	0	0	
WS04	1	50	6	---	---	2.00 to 5.00	30 secs	-	-	-	-	0.8	0.0	18.7	1	0	
WS04	1	50	6	---	---	2.00 to 5.00	60 secs	-	-	-	-	0.8	0.0	18.7	1	1	
WS04	1	50	6	---	---	2.00 to 5.00	90 secs	-	-	-	-	0.8	0.0	18.7	0	1	
WS04	1	50	6	---	---	2.00 to 5.00	120 secs	-	-	-	-	0.8	0.0	18.7	1	1	
WS04	1	50	6	---	---	2.00 to 5.00	180 secs	-	-	-	-	0.8	0.0	18.7	0	1	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS04	1	50	6	---	---	2.00 to 5.00	240 secs	-	-	-	-	0.8	0.0	18.8	0	1	
WS04	1	50	6	---	---	2.00 to 5.00	300 secs	-	-	-	-	-	-	-	-	-	
WS07	1	50	1	4.00	4.06	1.00 to 4.00	28/07/2022 11:49:00	1008	1007	0.0 _(I)	DRY	0.0	0.0	20.9	2	0	
WS07	1	50	1	---	---	1.00 to 4.00	15 secs	-	-	0.1 _(SS)	-	1.1	0.0	20.0	2	0	
WS07	1	50	1	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.0	0.0	19.9	3	0	
WS07	1	50	1	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.0	0.0	20.0	3	0	
WS07	1	50	1	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.0	0.0	20.0	3	0	
WS07	1	50	1	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.0	0.0	20.0	3	0	
WS07	1	50	1	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.0	0.0	20.1	3	0	
WS07	1	50	1	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.0	0.0	20.2	2	0	
WS07	1	50	1	---	---	1.00 to 4.00	300 secs	-	-	-	-	1.0	0.0	20.2	2	0	
WS07	1	50	2	4.00	4.06	1.00 to 4.00	04/08/2022 11:30:00	1006	1005	0.0 _(I)	DRY	0.1	0.0	20.3	0	1	
WS07	1	50	2	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.3	0.0	19.4	1	0	
WS07	1	50	2	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.3	0.0	19.2	1	0	
WS07	1	50	2	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.2	0.0	19.2	1	1	
WS07	1	50	2	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.2	0.0	19.3	1	1	
WS07	1	50	2	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.2	0.0	19.3	1	1	
WS07	1	50	2	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.2	0.0	19.3	1	1	
WS07	1	50	2	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.2	0.0	19.4	1	1	
WS07	1	50	2	---	---	1.00 to 4.00	300 secs	-	-	-	-	1.2	0.0	19.4	1	1	
WS07	1	50	3	4.00	4.06	1.00 to 4.00	08/08/2022 08:59:00	1017	1017	0.0 _(I)	DRY	0.1	0.0	20.1	0	0	
WS07	1	50	3	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.3	0.0	19.5	1	0	
WS07	1	50	3	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.2	0.0	19.2	0	0	
WS07	1	50	3	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.2	0.0	19.2	0	1	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS07	1	50	3	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.2	0.0	19.2	0	1	
WS07	1	50	3	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.2	0.0	19.2	0	1	
WS07	1	50	3	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.2	0.0	19.2	0	1	
WS07	1	50	3	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.1	0.0	19.2	1	1	
WS07	1	50	3	---	---	1.00 to 4.00	300 secs	-	-	-	-	1.1	0.0	19.2	1	1	
WS07	1	50	4	4.00	3.92	1.00 to 4.00	16/08/2022 07:58:00	996	996	0.0 _(I)	DRY	0.1	0.0	20.7	0	0	
WS07	1	50	4	---	---	1.00 to 4.00	15 secs	-	-	0.1 _(SS)	-	1.3	0.0	19.9	1	0	
WS07	1	50	4	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.3	0.0	19.5	1	0	
WS07	1	50	4	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.3	0.0	19.5	0	0	
WS07	1	50	4	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.3	0.0	19.5	0	0	
WS07	1	50	4	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.2	0.0	19.5	1	0	
WS07	1	50	4	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.2	0.0	19.5	1	0	
WS07	1	50	4	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.2	0.0	19.5	1	0	
WS07	1	50	4	---	---	1.00 to 4.00	300 secs	-	-	-	-	1.2	0.0	19.5	1	0	
WS07	1	50	5	4.00	3.89	1.00 to 4.00	26/08/2022 10:01:00	1010	1009	0.0 _(I)	DRY	0.1	0.0	19.5	2	1	
WS07	1	50	5	---	---	1.00 to 4.00	15 secs	-	-	0.1 _(SS)	-	1.4	0.0	18.4	2	1	
WS07	1	50	5	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.4	0.0	18.4	2	1	
WS07	1	50	5	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.4	0.0	18.4	2	1	
WS07	1	50	5	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.4	0.0	18.4	2	1	
WS07	1	50	5	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.4	0.0	18.5	2	1	
WS07	1	50	5	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.4	0.0	18.5	2	1	
WS07	1	50	5	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.4	0.0	18.5	2	1	
WS07	1	50	6	4.00	3.89	1.00 to 4.00	02/09/2022 10:59:00	1004	1004	0.0 _(I)	DRY	0.1	0.0	20.5	0	0	
WS07	1	50	6	---	---	1.00 to 4.00	15 secs	-	-	0.0 _(SS)	-	1.4	0.0	19.4	0	1	
WS07	1	50	6	---	---	1.00 to 4.00	30 secs	-	-	-	-	1.4	0.0	19.4	0	1	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS07	1	50	6	---	---	1.00 to 4.00	60 secs	-	-	-	-	1.4	0.0	19.4	0	1	
WS07	1	50	6	---	---	1.00 to 4.00	90 secs	-	-	-	-	1.4	0.0	19.4	0	1	
WS07	1	50	6	---	---	1.00 to 4.00	120 secs	-	-	-	-	1.4	0.0	19.4	0	1	
WS07	1	50	6	---	---	1.00 to 4.00	180 secs	-	-	-	-	1.4	0.0	19.4	0	1	
WS07	1	50	6	---	---	1.00 to 4.00	240 secs	-	-	-	-	1.4	0.0	19.4	0	1	
WS08	1	50	1	3.00	3.00	1.00 to 3.00	28/07/2022 09:48:00	1008	1007	0.0 _(I)	DRY	0.3	0.0	20.5	2	0	
WS08	1	50	1	---	---	1.00 to 3.00	15 secs	-	-	0.0 _(SS)	-	1.4	0.0	19.8	22	0	
WS08	1	50	1	---	---	1.00 to 3.00	30 secs	-	-	-	-	1.3	0.0	19.7	4	0	
WS08	1	50	1	---	---	1.00 to 3.00	60 secs	-	-	-	-	1.3	0.0	19.8	5	0	
WS08	1	50	1	---	---	1.00 to 3.00	90 secs	-	-	-	-	1.3	0.0	19.8	4	0	
WS08	1	50	1	---	---	1.00 to 3.00	120 secs	-	-	-	-	1.3	0.0	19.8	4	0	
WS08	1	50	1	---	---	1.00 to 3.00	180 secs	-	-	-	-	1.3	0.0	19.8	4	0	
WS08	1	50	1	---	---	1.00 to 3.00	240 secs	-	-	-	-	1.3	0.0	19.8	4	0	
WS08	1	50	1	---	---	1.00 to 3.00	300 secs	-	-	-	-	1.3	0.0	19.8	4	0	
WS08	1	50	2	3.00	3.00	1.00 to 3.00	04/08/2022 12:56:00	1006	1005	0.1 _(I)	DRY	0.0	0.0	20.7	0	0	
WS08	1	50	2	---	---	1.00 to 3.00	15 secs	-	-	0.2 _(SS)	-	1.2	0.0	20.0	2	0	
WS08	1	50	2	---	---	1.00 to 3.00	30 secs	-	-	-	-	1.1	0.0	19.9	1	0	
WS08	1	50	2	---	---	1.00 to 3.00	60 secs	-	-	-	-	1.1	0.0	19.9	1	0	
WS08	1	50	2	---	---	1.00 to 3.00	90 secs	-	-	-	-	1.1	0.0	19.9	1	0	
WS08	1	50	2	---	---	1.00 to 3.00	120 secs	-	-	-	-	1.1	0.0	19.9	1	0	
WS08	1	50	2	---	---	1.00 to 3.00	180 secs	-	-	-	-	1.1	0.0	19.8	1	0	
WS08	1	50	2	---	---	1.00 to 3.00	240 secs	-	-	-	-	1.1	0.0	19.8	1	0	
WS08	1	50	2	---	---	1.00 to 3.00	300 secs	-	-	-	-	1.1	0.0	19.8	1	0	
WS08	1	50	3	3.00	3.00	1.00 to 3.00	08/08/2022 10:04:00	1018	1017	0.0 _(I)	DRY	0.1	0.0	20.3	3	1	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS08	1	50	3	---	---	1.00 to 3.00	15 secs	-	-	0.0 _(SS)	-	1.1	0.0	19.8	3	1	
WS08	1	50	3	---	---	1.00 to 3.00	30 secs	-	-	-	-	1.1	0.0	19.8	3	1	
WS08	1	50	3	---	---	1.00 to 3.00	60 secs	-	-	-	-	1.0	0.0	19.9	3	1	
WS08	1	50	3	---	---	1.00 to 3.00	90 secs	-	-	-	-	1.0	0.0	19.9	3	1	
WS08	1	50	3	---	---	1.00 to 3.00	120 secs	-	-	-	-	1.0	0.0	19.9	3	1	
WS08	1	50	3	---	---	1.00 to 3.00	180 secs	-	-	-	-	1.0	0.0	20.0	3	1	
WS08	1	50	3	---	---	1.00 to 3.00	240 secs	-	-	-	-	1.0	0.0	20.1	3	1	
WS08	1	50	3	---	---	1.00 to 3.00	300 secs	-	-	-	-	1.0	0.0	20.2	3	1	
WS08	1	50	4	3.00	3.03	1.00 to 3.00	16/08/2022 08:56:00	997	996	0.0 _(I)	DRY	0.1	0.0	20.9	1	0	
WS08	1	50	4	---	---	1.00 to 3.00	15 secs	-	-	0.0 _(SS)	-	0.1	0.0	21.0	1	0	
WS08	1	50	4	---	---	1.00 to 3.00	30 secs	-	-	-	-	0.1	0.0	20.9	1	0	
WS08	1	50	4	---	---	1.00 to 3.00	60 secs	-	-	-	-	0.1	0.0	20.9	1	0	
WS08	1	50	4	---	---	1.00 to 3.00	90 secs	-	-	-	-	0.1	0.0	21.0	1	0	
WS08	1	50	4	---	---	1.00 to 3.00	120 secs	-	-	-	-	0.1	0.0	21.0	1	0	
WS08	1	50	4	---	---	1.00 to 3.00	180 secs	-	-	-	-	0.0	0.0	21.0	1	0	
WS08	1	50	4	---	---	1.00 to 3.00	240 secs	-	-	-	-	0.1	0.0	21.0	1	0	
WS08	1	50	4	---	---	1.00 to 3.00	300 secs	-	-	-	-	0.0	0.0	21.0	1	0	
WS08	1	50	5	3.00	3.04	1.00 to 3.00	26/08/2022 10:17:00	1010	1009	0.0 _(I)	DRY	0.2	0.0	20.0	3	1	
WS08	1	50	5	---	---	1.00 to 3.00	15 secs	-	-	0.0 _(SS)	-	1.2	0.0	19.3	2	1	
WS08	1	50	5	---	---	1.00 to 3.00	30 secs	-	-	-	-	1.2	0.0	19.3	2	1	
WS08	1	50	5	---	---	1.00 to 3.00	60 secs	-	-	-	-	1.2	0.0	19.3	2	1	
WS08	1	50	5	---	---	1.00 to 3.00	90 secs	-	-	-	-	1.2	0.0	19.3	2	1	
WS08	1	50	5	---	---	1.00 to 3.00	120 secs	-	-	-	-	1.2	0.0	19.3	2	1	
WS08	1	50	5	---	---	1.00 to 3.00	180 secs	-	-	-	-	1.2	0.0	19.3	2	1	
WS08	1	50	5	---	---	1.00 to 3.00	240 secs	-	-	-	-	1.2	0.0	19.2	2	1	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
		08/09/2022			252719
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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS08	1	50	6	3.00	3.04	1.00 to 3.00	02/09/2022 10:48:00	1004	1004	0.0 _(I)	DRY	0.1	0.0	20.8	0	0	
WS08	1	50	6	---	---	1.00 to 3.00	15 secs	-	-	0.1 _(SS)	-	1.3	0.0	20.0	0	0	
WS08	1	50	6	---	---	1.00 to 3.00	30 secs	-	-	-	-	1.3	0.0	20.0	0	0	
WS08	1	50	6	---	---	1.00 to 3.00	60 secs	-	-	-	-	1.3	0.0	20.0	0	0	
WS08	1	50	6	---	---	1.00 to 3.00	90 secs	-	-	-	-	1.3	0.0	20.0	0	0	
WS08	1	50	6	---	---	1.00 to 3.00	120 secs	-	-	-	-	1.3	0.0	19.9	0	1	
WS08	1	50	6	---	---	1.00 to 3.00	180 secs	-	-	-	-	1.2	0.0	19.9	0	1	
WS08	1	50	6	---	---	1.00 to 3.00	240 secs	-	-	-	-	1.2	0.0	19.9	0	1	
WS11	1	50	1	6.00	5.83	3.00 to 6.00	28/07/2022 09:21:00	1007	1006	0.0 _(I)	4.72	0.1	0.0	20.6	1	0	
WS11	1	50	1	---	---	3.00 to 6.00	15 secs	-	-	0.0 _(SS)	-	1.6	0.0	19.8	10	0	
WS11	1	50	1	---	---	3.00 to 6.00	30 secs	-	-	-	-	1.6	0.0	19.6	3	0	
WS11	1	50	1	---	---	3.00 to 6.00	60 secs	-	-	-	-	1.6	0.0	19.6	3	0	
WS11	1	50	1	---	---	3.00 to 6.00	90 secs	-	-	-	-	1.6	0.0	19.6	3	0	
WS11	1	50	1	---	---	3.00 to 6.00	120 secs	-	-	-	-	1.6	0.0	19.6	3	0	
WS11	1	50	1	---	---	3.00 to 6.00	180 secs	-	-	-	-	1.5	0.0	19.6	3	0	
WS11	1	50	1	---	---	3.00 to 6.00	240 secs	-	-	-	-	1.5	0.0	19.7	3	0	
WS11	1	50	1	---	---	3.00 to 6.00	300 secs	-	-	-	-	1.5	0.0	19.7	3	0	
WS11	1	50	2	6.00	5.83	3.00 to 6.00	04/08/2022 13:13:00	1005	1004	0.0 _(I)	4.72	0.2	0.0	20.3	1	1	
WS11	1	50	2	---	---	3.00 to 6.00	15 secs	-	-	0.0 _(SS)	-	1.4	0.0	19.5	4	1	
WS11	1	50	2	---	---	3.00 to 6.00	30 secs	-	-	-	-	1.4	0.0	19.4	2	1	
WS11	1	50	2	---	---	3.00 to 6.00	60 secs	-	-	-	-	1.4	0.0	19.4	2	1	
WS11	1	50	2	---	---	3.00 to 6.00	90 secs	-	-	-	-	1.4	0.0	19.4	2	1	
WS11	1	50	2	---	---	3.00 to 6.00	120 secs	-	-	-	-	1.4	0.0	19.4	2	1	
WS11	1	50	2	---	---	3.00 to 6.00	180 secs	-	-	-	-	1.3	0.0	19.4	2	1	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS11	1	50	2	---	---	3.00 to 6.00	240 secs	-	-	-	-	1.3	0.0	19.4	2	1	
WS11	1	50	2	---	---	3.00 to 6.00	300 secs	-	-	-	-	1.3	0.0	19.4	2	1	
WS11	1	50	3	6.00	5.83	3.00 to 6.00	08/08/2022 10:25:00	1017	1016	0.0 _(I)	4.73	0.0	0.0	21.1	3	0	
WS11	1	50	3	---	---	3.00 to 6.00	15 secs	-	-	0.0 _(SS)	-	1.5	0.0	20.1	4	0	
WS11	1	50	3	---	---	3.00 to 6.00	30 secs	-	-	-	-	1.5	0.0	20.0	3	0	
WS11	1	50	3	---	---	3.00 to 6.00	60 secs	-	-	-	-	1.5	0.0	20.0	3	0	
WS11	1	50	3	---	---	3.00 to 6.00	90 secs	-	-	-	-	1.5	0.0	20.1	3	0	
WS11	1	50	3	---	---	3.00 to 6.00	120 secs	-	-	-	-	1.5	0.0	20.1	3	0	
WS11	1	50	3	---	---	3.00 to 6.00	180 secs	-	-	-	-	1.4	0.0	20.1	3	0	
WS11	1	50	3	---	---	3.00 to 6.00	240 secs	-	-	-	-	1.4	0.0	20.1	3	0	
WS11	1	50	3	---	---	3.00 to 6.00	300 secs	-	-	-	-	1.4	0.0	20.1	3	0	
WS11	1	50	4	6.00	5.85	3.00 to 6.00	16/08/2022 09:10:00	996	995	0.0 _(I)	4.73	0.1	0.0	21.0	1	0	
WS11	1	50	4	---	---	3.00 to 6.00	15 secs	-	-	0.0 _(SS)	-	2.0	0.0	20.0	3	0	
WS11	1	50	4	---	---	3.00 to 6.00	30 secs	-	-	-	-	2.0	0.0	19.8	1	0	
WS11	1	50	4	---	---	3.00 to 6.00	60 secs	-	-	-	-	1.9	0.0	19.8	1	0	
WS11	1	50	4	---	---	3.00 to 6.00	90 secs	-	-	-	-	1.9	0.0	19.8	1	0	
WS11	1	50	4	---	---	3.00 to 6.00	120 secs	-	-	-	-	1.9	0.0	19.8	1	0	
WS11	1	50	4	---	---	3.00 to 6.00	180 secs	-	-	-	-	1.9	0.0	19.9	1	0	
WS11	1	50	4	---	---	3.00 to 6.00	240 secs	-	-	-	-	1.9	0.0	19.9	1	0	
WS11	1	50	4	---	---	3.00 to 6.00	300 secs	-	-	-	-	1.9	0.0	19.9	1	0	
WS11	1	50	5	6.00	5.85	3.00 to 6.00	26/08/2022 10:31:00	1009	1008	0.0 _(I)	4.76	0.2	0.0	19.7	3	1	
WS11	1	50	5	---	---	3.00 to 6.00	15 secs	-	-	0.0 _(SS)	-	2.0	0.0	18.6	3	1	
WS11	1	50	5	---	---	3.00 to 6.00	30 secs	-	-	-	-	1.9	0.0	18.6	3	1	
WS11	1	50	5	---	---	3.00 to 6.00	60 secs	-	-	-	-	1.9	0.0	18.6	3	1	
WS11	1	50	5	---	---	3.00 to 6.00	90 secs	-	-	-	-	1.9	0.0	18.6	3	1	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
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IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS11	1	50	5	---	---	3.00 to 6.00	120 secs	-	-	-	-	1.9	0.0	18.6	3	1	
WS11	1	50	5	---	---	3.00 to 6.00	180 secs	-	-	-	-	1.9	0.0	18.6	3	1	
WS11	1	50	5	---	---	3.00 to 6.00	240 secs	-	-	-	-	1.9	0.0	18.7	3	1	
WS11	1	50	6	6.00	5.85	3.00 to 6.00	02/09/2022 09:26:00	1003	1003	0.0 _(I)	4.76	0.1	0.0	20.9	0	0	
WS11	1	50	6	---	---	3.00 to 6.00	15 secs	-	-	0.0 _(SS)	-	2.5	0.0	19.3	1	0	
WS11	1	50	6	---	---	3.00 to 6.00	30 secs	-	-	-	-	2.5	0.0	19.3	1	0	
WS11	1	50	6	---	---	3.00 to 6.00	60 secs	-	-	-	-	2.5	0.0	19.3	1	0	
WS11	1	50	6	---	---	3.00 to 6.00	90 secs	-	-	-	-	2.5	0.0	19.3	1	0	
WS11	1	50	6	---	---	3.00 to 6.00	120 secs	-	-	-	-	2.4	0.0	19.4	1	0	
WS11	1	50	6	---	---	3.00 to 6.00	180 secs	-	-	-	-	2.4	0.0	19.4	1	0	
WS11	1	50	6	---	---	3.00 to 6.00	240 secs	-	-	-	-	2.4	0.0	19.4	1	0	
WS12	1	50	1	3.00	3.04	1.00 to 3.00	28/07/2022 09:06:00	1005	1005	0.0 _(I)	DRY	0.1	0.0	20.8	0	0	
WS12	1	50	1	---	---	1.00 to 3.00	15 secs	-	-	0.1 _(SS)	-	0.6	0.0	20.5	19	0	
WS12	1	50	1	---	---	1.00 to 3.00	30 secs	-	-	-	-	0.6	0.0	20.4	5	0	
WS12	1	50	1	---	---	1.00 to 3.00	60 secs	-	-	-	-	0.6	0.0	20.4	5	0	
WS12	1	50	1	---	---	1.00 to 3.00	90 secs	-	-	-	-	0.6	0.0	20.4	4	0	
WS12	1	50	1	---	---	1.00 to 3.00	120 secs	-	-	-	-	0.6	0.0	20.4	4	0	
WS12	1	50	1	---	---	1.00 to 3.00	180 secs	-	-	-	-	0.5	0.0	20.4	4	0	
WS12	1	50	1	---	---	1.00 to 3.00	240 secs	-	-	-	-	0.5	0.0	20.4	4	0	
WS12	1	50	1	---	---	1.00 to 3.00	300 secs	-	-	-	-	0.5	0.0	20.4	4	0	
WS12	1	50	2	3.00	3.04	1.00 to 3.00	04/08/2022 13:27:00	1005	1004	0.0 _(I)	DRY	0.1	0.0	20.0	1	1	
WS12	1	50	2	---	---	1.00 to 3.00	15 secs	-	-	0.0 _(SS)	-	0.1	0.0	19.8	6	0	
WS12	1	50	2	---	---	1.00 to 3.00	30 secs	-	-	-	-	0.0	0.0	20.0	3	1	
WS12	1	50	2	---	---	1.00 to 3.00	60 secs	-	-	-	-	0.0	0.0	20.2	1	1	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
		08/09/2022			252719
	Contract: Leicester Road, Earl Shilton				Page: 16 of 18 

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS12	1	50	2	---	---	1.00 to 3.00	90 secs	-	-	-	-	0.0	0.0	20.2	3	1	
WS12	1	50	2	---	---	1.00 to 3.00	120 secs	-	-	-	-	0.0	0.0	20.2	1	1	
WS12	1	50	2	---	---	1.00 to 3.00	180 secs	-	-	-	-	0.0	0.0	20.2	1	1	
WS12	1	50	2	---	---	1.00 to 3.00	240 secs	-	-	-	-	0.0	0.0	20.2	1	1	
WS12	1	50	2	---	---	1.00 to 3.00	300 secs	-	-	-	-	0.0	0.0	20.2	1	1	
WS12	1	50	2	---	---	1.00 to 3.00	360 secs	-	-	-	-	0.1	0.0	20.2	1	1	
WS12	1	50	2	---	---	1.00 to 3.00	420 secs	-	-	-	-	0.2	0.0	20.1	1	1	
WS12	1	50	2	---	---	1.00 to 3.00	480 secs	-	-	-	-	0.3	0.0	20.1	0	1	
WS12	1	50	3	3.00	3.04	1.00 to 3.00	08/08/2022 10:41:00	1016	1015	0.0 _(I)	DRY	0.2	0.0	20.3	3	0	
WS12	1	50	3	---	---	1.00 to 3.00	15 secs	-	-	0.0 _(SS)	-	0.3	0.0	20.2	5	0	
WS12	1	50	3	---	---	1.00 to 3.00	30 secs	-	-	-	-	0.3	0.0	20.2	3	0	
WS12	1	50	3	---	---	1.00 to 3.00	60 secs	-	-	-	-	0.3	0.0	20.2	3	0	
WS12	1	50	3	---	---	1.00 to 3.00	90 secs	-	-	-	-	0.3	0.0	20.2	4	0	
WS12	1	50	3	---	---	1.00 to 3.00	120 secs	-	-	-	-	0.3	0.0	20.2	4	0	
WS12	1	50	3	---	---	1.00 to 3.00	180 secs	-	-	-	-	0.3	0.0	20.1	4	1	
WS12	1	50	3	---	---	1.00 to 3.00	240 secs	-	-	-	-	0.3	0.0	20.1	4	1	
WS12	1	50	3	---	---	1.00 to 3.00	300 secs	-	-	-	-	0.3	0.0	20.1	4	1	
WS12	1	50	4	3.00	3.09	1.00 to 3.00	16/08/2022 09:20:00	996	995	0.0 _(I)	DRY	0.1	0.0	21.1	1	0	
WS12	1	50	4	---	---	1.00 to 3.00	15 secs	-	-	0.0 _(SS)	-	0.3	0.0	20.9	2	0	
WS12	1	50	4	---	---	1.00 to 3.00	30 secs	-	-	-	-	0.4	0.0	20.9	1	0	
WS12	1	50	4	---	---	1.00 to 3.00	60 secs	-	-	-	-	0.4	0.0	20.9	1	0	
WS12	1	50	4	---	---	1.00 to 3.00	90 secs	-	-	-	-	0.4	0.0	20.9	1	0	
WS12	1	50	4	---	---	1.00 to 3.00	120 secs	-	-	-	-	0.4	0.0	20.9	1	0	
WS12	1	50	4	---	---	1.00 to 3.00	180 secs	-	-	-	-	0.4	0.0	20.9	1	0	
WS12	1	50	4	---	---	1.00 to 3.00	240 secs	-	-	-	-	0.4	0.0	20.9	1	0	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
		08/09/2022			252719
	Contract: Leicester Road, Earl Shilton				Page: 17 of 18 

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS12	1	50	4	---	---	1.00 to 3.00	300 secs	-	-	-	-	0.4	0.0	20.9	1	0	
WS12	1	50	5	3.00	3.09	1.00 to 3.00	26/08/2022 10:43:00	1008	1007	0.0 _(l)	DRY	0.1	0.0	19.8	3	1	
WS12	1	50	5	---	---	1.00 to 3.00	15 secs	-	-	0.1 _(SS)	-	0.6	0.0	19.4	3	1	
WS12	1	50	5	---	---	1.00 to 3.00	30 secs	-	-	-	-	0.6	0.0	19.4	3	1	
WS12	1	50	5	---	---	1.00 to 3.00	60 secs	-	-	-	-	0.6	0.0	19.4	3	1	
WS12	1	50	5	---	---	1.00 to 3.00	90 secs	-	-	-	-	0.6	0.0	19.4	3	1	
WS12	1	50	5	---	---	1.00 to 3.00	120 secs	-	-	-	-	0.6	0.0	19.4	3	1	
WS12	1	50	5	---	---	1.00 to 3.00	180 secs	-	-	-	-	0.6	0.0	19.4	3	1	
WS12	1	50	5	---	---	1.00 to 3.00	240 secs	-	-	-	-	0.5	0.0	19.4	4	1	
WS12	1	50	6	3.00	3.09	1.00 to 3.00	02/09/2022 09:15:00	1003	1003	0.0 _(l)	DRY	0.1	0.0	20.9	0	0	
WS12	1	50	6	---	---	1.00 to 3.00	15 secs	-	-	0.1 _(SS)	-	0.6	0.0	20.5	0	0	
WS12	1	50	6	---	---	1.00 to 3.00	30 secs	-	-	-	-	0.6	0.0	20.5	0	0	
WS12	1	50	6	---	---	1.00 to 3.00	60 secs	-	-	-	-	0.6	0.0	20.5	0	0	
WS12	1	50	6	---	---	1.00 to 3.00	90 secs	-	-	-	-	0.6	0.0	20.5	0	0	
WS12	1	50	6	---	---	1.00 to 3.00	120 secs	-	-	-	-	0.6	0.0	20.5	0	0	
WS12	1	50	6	---	---	1.00 to 3.00	180 secs	-	-	-	-	0.6	0.0	20.5	0	0	
WS12	1	50	6	---	---	1.00 to 3.00	240 secs	-	-	-	-	0.6	0.0	20.5	0	0	

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

	Compiled By	Date	Checked By	Date	Contract Ref:
		08/09/2022			252719
	Contract: Leicester Road, Earl Shilton				Page: 18 of 18 

APPENDIX G

LABORATORY CERTIFICATES FOR SOIL ANALYSIS

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/07427
Issue Number: 1

Date: 10 August, 2022

Client: RSK Environment Ltd Coventry
Humber Road, Abbey Park
Coventry
UK
CV3 4AQ

Project Manager: Jane Taylor
Project Name: Earl Shilton
Project Ref: 252719
Order No: N/A
Date Samples Received: 29/07/22
Date Instructions Received: 29/07/22
Date Analysis Completed: 10/08/22

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 22/07427

Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP01	TP04	TP05	TP07	TP09	TP11	TP13			
Depth to Top	1.00	0.20	1.20	2.00	1.30	1.10	1.00			
Depth To Bottom										
Date Sampled	20-Jul-22	22-Jul-22	18-Jul-22	22-Jul-22	18-Jul-22	20-Jul-22	22-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6	6E	6	6	6A	6A	6			
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	5.6	17.5	<0.1	% w/w	0.1	A-T-044
pH _D ^{M#}	8.05	5.14	8.11	-	-	-	7.30	pH	0.01	A-T-031s
pH BRE _D ^{M#}	8.05	-	8.11	6.30	6.01	6.37	7.30	pH	0.01	A-T-031s
Ammonium NH4 BRE (water sol 2:1) _D	<1.00	-	-	-	-	-	-	mg/l	1	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	<7	-	-	-	-	-	-	mg/l	7	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	<0.4	-	-	-	-	-	-	mg/l	0.4	A-T-026s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	0.13	<0.01	-	-	-	0.04	g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	<10	-	<10	19	<10	<10	36	mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	200	720	330	-	-	-	<200	mg/kg	200	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	0.02	-	0.03	<0.02	<0.02	<0.02	<0.02	% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	<0.01	-	0.01	<0.01	<0.01	<0.01	<0.01	% w/w	0.01	A-T-024s
Magnesium BRE (water sol 2:1) _D	12	-	-	-	-	-	-	mg/l	1	A-T-SOLMETS
Total Organic Carbon _D ^{M#}	0.68	2.78	0.05	-	-	-	0.06	% w/w	0.03	A-T-032s
Arsenic _D ^{M#}	<1	1	<1	-	-	-	<1	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	1.6	0.6	1.5	-	-	-	1.9	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	12	18	10	-	-	-	20	mg/kg	1	A-T-024s
Chromium _D ^{M#}	58	14	61	-	-	-	46	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	-	-	-	<1	mg/kg	1	A-T-040s
Lead _D ^{M#}	4	37	<1	-	-	-	9	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	0.80	-	-	-	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	50	11	50	-	-	-	61	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	-	-	-	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	66	55	60	-	-	-	88	mg/kg	5	A-T-024s

Envirolab Job Number: 22/07427

Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP01	TP04	TP05	TP07	TP09	TP11	TP13			
Depth to Top	1.00	0.20	1.20	2.00	1.30	1.10	1.00			
Depth To Bottom										
Date Sampled	20-Jul-22	22-Jul-22	18-Jul-22	22-Jul-22	18-Jul-22	20-Jul-22	22-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6	6E	6	6	6A	6A	6			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	-	-	-	-	NAD			A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	-	-	-	-	N/A			A-T-045
OCP+OPP Combined Pest Suite (incl. Atrazine and Simazine)										
Dichlobenil _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Tecnazene _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Trifluralin _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
alpha-Hexachlorocyclohexane (HCH) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Hexachlorobenzene (HCB) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Simazine _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Atrazine _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
beta-Hexachlorocyclohexane (HCH) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Quintozene (PCNB) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Chlorothalonil _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
delta-Hexachlorocyclohexane (HCH) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Triallate _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Heptachlor _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Aldrin _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Triadimefon _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Telodrin _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Isodrin _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Pendimethalin _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Heptachlor epoxide _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
trans-Chlordane (Gamma) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
o,p-DDE (2,4) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Endosulphan I (Alpha) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
cis-Chlordane (Alpha) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
p,p-DDE (4,4) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Dieldrin _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056

Envirolab Job Number: 22/07427

Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP01	TP04	TP05	TP07	TP09	TP11	TP13			
Depth to Top	1.00	0.20	1.20	2.00	1.30	1.10	1.00			
Depth To Bottom										
Date Sampled	20-Jul-22	22-Jul-22	18-Jul-22	22-Jul-22	18-Jul-22	20-Jul-22	22-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6	6E	6	6	6A	6A	6			
o,p-DDD (2,4) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Endrin _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Endosulphan II (Beta) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
p,p-DDD (4,4) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
o,p-DDT (2,4) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Endrin Aldehyde _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Endrin Ketone _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Endosulphan Sulphate _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
p,p-DDT (4,4) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
o,p-Methoxychlor _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
p,p-Methoxychlor _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Permethrin I (cis) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Permethrin II (trans) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Dichlorvos _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Mevinphos _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Demeton-S _A	-	<0.50	-	-	-	-	-	mg/kg	0.5	A-T-056
Demeton-O _A	-	<0.50	-	-	-	-	-	mg/kg	0.5	A-T-056
Phorate _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Dimethoate _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Propetamphos _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Diazinon (Dimpylate) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Disulfoton _A	-	<0.10	-	-	-	-	-	mg/kg	0.1	A-T-056
Chlorpyrifos-methyl _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Parathion (Ethyl Parathion) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Methyl Parathion _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Pirimiphos-methyl _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Fenitrothion _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Fensulphothion _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Fenthion _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Malathion _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Chlorfenvinphos _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Chlorpyrifos _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Trichloronate _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Prothiofos (Tokuthion) _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056

Envirolab Job Number: 22/07427

Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP01	TP04	TP05	TP07	TP09	TP11	TP13			
Depth to Top	1.00	0.20	1.20	2.00	1.30	1.10	1.00			
Depth To Bottom										
Date Sampled	20-Jul-22	22-Jul-22	18-Jul-22	22-Jul-22	18-Jul-22	20-Jul-22	22-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6	6E	6	6	6A	6A	6			
Ethion _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Triazophos _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Carbophenothion _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Phosalone _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Azinphos-methyl _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Azinphos-ethyl _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056
Coumaphos _A	-	<0.01	-	-	-	-	-	mg/kg	0.01	A-T-056

Envirolab Job Number: 22/07427

Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP01	TP04	TP05	TP07	TP09	TP11	TP13			
Depth to Top	1.00	0.20	1.20	2.00	1.30	1.10	1.00			
Depth To Bottom										
Date Sampled	20-Jul-22	22-Jul-22	18-Jul-22	22-Jul-22	18-Jul-22	20-Jul-22	22-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6	6E	6	6	6A	6A	6			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	-	-	-	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	-	-	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	-	-	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	-	-	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	-	-	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	-	-	-	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	-	-	-	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	-	-	-	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	-	-	-	<0.08	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	-	-	-	<0.03	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	-	-	-	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03	-	-	-	<0.03	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	-	-	-	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	<0.08	-	-	-	<0.08	mg/kg	0.01	A-T-019s

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Client Project Ref: 252719

Lab Sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP01	TP04	TP05	TP07	TP09	TP11	TP13			
Depth to Top	1.00	0.20	1.20	2.00	1.30	1.10	1.00			
Depth To Bottom										
Date Sampled	20-Jul-22	22-Jul-22	18-Jul-22	22-Jul-22	18-Jul-22	20-Jul-22	22-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6	6E	6	6	6A	6A	6			
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	1	11	<1	-	-	-	<1	mg/kg	1	A-T-055s
Total Aliphatics _A	1	11	<1	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	<1	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	<1	3	<1	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	2	7	<1	-	-	-	<1	mg/kg	1	A-T-055s
Total Aromatics _A	2	10	<1	-	-	-	<1	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	3	21	<1	-	-	-	<1	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s

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Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/8	22/07427/9	22/07427/10	22/07427/11	22/07427/12	22/07427/13	22/07427/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP15	TP15	TP20	TP21	TP22	TP22	TP23			
Depth to Top	0.40	0.90	1.90	0.20	0.80	1.00	1.60			
Depth To Bottom										
Date Sampled	18-Jul-22	18-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	19-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6E	6	6	6AE	6	6	6			
% Stones >10mm _A	<0.1	<0.1	0.3	6.8	9.0	<0.1	<0.1	% w/w	0.1	A-T-044
pH _D ^{M#}	-	-	-	5.23	6.75	8.66	-	pH	0.01	A-T-031s
pH BRE _D ^{M#}	-	8.09	6.79	-	-	8.66	6.13	pH	0.01	A-T-031s
Ammonium NH4 BRE (water sol 2:1) _D	-	-	-	-	-	<1.00	-	mg/l	1	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	-	-	-	-	-	<7	-	mg/l	7	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	-	-	-	-	-	6.2	-	mg/l	0.4	A-T-026s
Sulphate (water sol 2:1) _D ^{M#}	-	-	-	<0.01	0.05	<0.01	-	g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	<10	<10	-	-	<10	<10	mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	-	-	-	550	410	250	-	mg/kg	200	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	-	<0.02	<0.02	-	-	0.02	<0.02	% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	-	<0.01	<0.01	-	-	0.01	<0.01	% w/w	0.01	A-T-024s
Magnesium BRE (water sol 2:1) _D	-	-	-	-	-	4	-	mg/l	1	A-T-SOLMETS
Total Organic Carbon _D ^{M#}	-	-	-	2.26	1.97	0.17	-	% w/w	0.03	A-T-032s
Arsenic _D ^{M#}	-	-	-	3	<1	<1	-	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	-	-	-	0.8	0.9	1.0	-	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	-	-	-	19	25	16	-	mg/kg	1	A-T-024s
Chromium _D ^{M#}	-	-	-	12	22	20	-	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	-	-	-	<1	<1	<1	-	mg/kg	1	A-T-040s
Lead _D ^{M#}	-	-	-	40	23	7	-	mg/kg	1	A-T-024s
Mercury _D	-	-	-	<0.17	<0.17	0.49	-	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	-	-	-	8	21	19	-	mg/kg	1	A-T-024s
Selenium _D ^{M#}	-	-	-	<1	<1	<1	-	mg/kg	1	A-T-024s
Zinc _D ^{M#}	-	-	-	51	59	45	-	mg/kg	5	A-T-024s
Chromium (hexavalent) (leachable) _A	-	-	-	-	<0.05	<0.05	-	mg/l	0.05	A-T-040w

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Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/8	22/07427/9	22/07427/10	22/07427/11	22/07427/12	22/07427/13	22/07427/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP15	TP15	TP20	TP21	TP22	TP22	TP23			
Depth to Top	0.40	0.90	1.90	0.20	0.80	1.00	1.60			
Depth To Bottom										
Date Sampled	18-Jul-22	18-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	19-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6E	6	6	6AE	6	6	6			
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	-	-	NAD	NAD	NAD	-			A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	-	-	N/A	N/A	N/A	-			A-T-045
OCP+OPP Combined Pest Suite (incl. Atrazine and Simazine)										
Dichlobenil _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Tecnazene _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Trifluralin _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
alpha-Hexachlorocyclohexane (HCH) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Hexachlorobenzene (HCB) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Simazine _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Atrazine _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
beta-Hexachlorocyclohexane (HCH) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Quintozene (PCNB) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Chlorothalonil _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
delta-Hexachlorocyclohexane (HCH) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Triallate _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Heptachlor _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Aldrin _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Triadimefon _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Telodrin _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Isodrin _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Pendimethalin _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Heptachlor epoxide _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
trans-Chlordane (Gamma) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
o,p-DDE (2,4) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Endosulphan I (Alpha) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
cis-Chlordane (Alpha) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
p,p-DDE (4,4) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Dieldrin _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056

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Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/8	22/07427/9	22/07427/10	22/07427/11	22/07427/12	22/07427/13	22/07427/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP15	TP15	TP20	TP21	TP22	TP22	TP23			
Depth to Top	0.40	0.90	1.90	0.20	0.80	1.00	1.60			
Depth To Bottom										
Date Sampled	18-Jul-22	18-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	19-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6E	6	6	6AE	6	6	6			
o,p-DDD (2,4) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Endrin _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Endosulphan II (Beta) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
p,p-DDD (4,4) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
o,p-DDT (2,4) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Endrin Aldehyde _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Endrin Ketone _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Endosulphan Sulphate _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
p,p-DDT (4,4) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
o,p-Methoxychlor _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
p,p-Methoxychlor _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Permethrin I (cis) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Permethrin II (trans) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Dichlorvos _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Mevinphos _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Demeton-S _A	<0.50	-	-	<0.50	-	-	-	mg/kg	0.5	A-T-056
Demeton-O _A	<0.50	-	-	<0.50	-	-	-	mg/kg	0.5	A-T-056
Phorate _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Dimethoate _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Propetamphos _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Diazinon (Dimpylate) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Disulfoton _A	<0.10	-	-	<0.10	-	-	-	mg/kg	0.1	A-T-056
Chlorpyrifos-methyl _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Parathion (Ethyl Parathion) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Methyl Parathion _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Pirimiphos-methyl _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Fenitrothion _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Fensulphothion _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Fenthion _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Malathion _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Chlorfenvinphos _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Chlorpyrifos _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Trichloronate _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Prothiofos (Tokuthion) _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056

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Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/8	22/07427/9	22/07427/10	22/07427/11	22/07427/12	22/07427/13	22/07427/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP15	TP15	TP20	TP21	TP22	TP22	TP23			
Depth to Top	0.40	0.90	1.90	0.20	0.80	1.00	1.60			
Depth To Bottom										
Date Sampled	18-Jul-22	18-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	19-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6E	6	6	6AE	6	6	6			
Ethion _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Triazophos _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Carbophenothion _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Phosalone _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Azinphos-methyl _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Azinphos-ethyl _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056
Coumaphos _A	<0.01	-	-	<0.01	-	-	-	mg/kg	0.01	A-T-056

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Client Project Ref: 252719

Lab Sample ID	22/07427/8	22/07427/9	22/07427/10	22/07427/11	22/07427/12	22/07427/13	22/07427/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP15	TP15	TP20	TP21	TP22	TP22	TP23			
Depth to Top	0.40	0.90	1.90	0.20	0.80	1.00	1.60			
Depth To Bottom										
Date Sampled	18-Jul-22	18-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	19-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6E	6	6	6AE	6	6	6			
PAH-16MS										
Acenaphthene _A ^{M#}	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	-	-	-	<0.02	<0.02	<0.02	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	-	-	-	0.08	<0.04	<0.04	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	-	-	-	0.10	<0.04	<0.04	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	-	-	-	0.11	<0.05	<0.05	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	-	-	-	0.06	<0.05	<0.05	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	-	-	-	<0.07	<0.07	<0.07	-	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	-	-	-	0.11	<0.06	<0.06	-	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	-	-	-	<0.04	<0.04	<0.04	-	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	-	-	-	0.13	<0.08	<0.08	-	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	-	-	-	0.08	<0.03	<0.03	-	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	-	-	-	<0.03	<0.03	<0.03	-	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	-	-	-	0.04	<0.03	<0.03	-	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	-	-	-	0.13	<0.07	<0.07	-	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	-	-	-	0.84	<0.08	<0.08	-	mg/kg	0.01	A-T-019s

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Lab Sample ID	22/07427/8	22/07427/9	22/07427/10	22/07427/11	22/07427/12	22/07427/13	22/07427/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP15	TP15	TP20	TP21	TP22	TP22	TP23			
Depth to Top	0.40	0.90	1.90	0.20	0.80	1.00	1.60			
Depth To Bottom										
Date Sampled	18-Jul-22	18-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	19-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6E	6	6	6AE	6	6	6			
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	-	-	-	<1	<1	<1	-	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	-	-	-	<1	<1	<1	-	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	-	-	-	<1	<1	<1	-	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	-	-	-	<1	<1	<1	-	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	-	-	-	50	6	1	-	mg/kg	1	A-T-055s
Total Aliphatics _A	-	-	-	50	6	1	-	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	-	-	-	<1	<1	<1	-	mg/kg	1	A-T-055s
Aro >C10-C12 _A	-	-	-	<1	<1	<1	-	mg/kg	1	A-T-055s
Aro >C12-C16 _A	-	-	-	<1	<1	<1	-	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	-	-	-	2	<1	<1	-	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	-	-	-	8	1	<1	-	mg/kg	1	A-T-055s
Total Aromatics _A	-	-	-	10	1	<1	-	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	-	-	-	60	7	1	-	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
MTBE _A [#]	-	-	-	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
Leachate Prep BS EN 12457-1 (2:1) (1 no) _A	-	-	-	-	*	*	-			A-T-001
pH (leachable) _A [#]	-	-	-	-	7.48	7.86	-	pH	0.01	A-T-031w
Alkalinity (total) (leachable) Colorimetry _A	-	-	-	-	191	68	-	mg/l Ca CO3	20	A-T-038w
Arsenic (leachable) _A	-	-	-	-	8	1	-	µg/l	1	A-T-025w
Cadmium (leachable) _A	-	-	-	-	<1	<1	-	µg/l	1	A-T-025w
Copper (leachable) _A	-	-	-	-	35	<4	-	µg/l	4	A-T-025w
Chromium (leachable) _A	-	-	-	-	2	<1	-	µg/l	1	A-T-025w
Lead (leachable) _A	-	-	-	-	45	<1	-	µg/l	1	A-T-025w
Mercury (leachable) _A	-	-	-	-	<0.1	<0.1	-	µg/l	0.1	A-T-025w

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Client Project Ref: 252719

Lab Sample ID	22/07427/8	22/07427/9	22/07427/10	22/07427/11	22/07427/12	22/07427/13	22/07427/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP15	TP15	TP20	TP21	TP22	TP22	TP23			
Depth to Top	0.40	0.90	1.90	0.20	0.80	1.00	1.60			
Depth To Bottom										
Date Sampled	18-Jul-22	18-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	22-Jul-22	19-Jul-22			
Sample Type	Soil - ES	Soil - ES	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6E	6	6	6AE	6	6	6			
Nickel (leachable) _A	-	-	-	-	15	<2	-	µg/l	2	A-T-025w
Selenium (leachable) _A	-	-	-	-	2	<1	-	µg/l	1	A-T-025w
Zinc (leachable) _A	-	-	-	-	28	3	-	µg/l	2	A-T-025w

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Lab Sample ID	22/07427/15	22/07427/16	22/07427/17	22/07427/18	22/07427/19	22/07427/20		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP24	TP24	WS08	WS06	WS11	WS12				
Depth to Top	0.10	0.50	1.00	1.20	1.20	0.60				
Depth To Bottom										
Date Sampled	22-Jul-22	22-Jul-22	22-Jul-22	21-Jul-22	22-Jul-22	22-Jul-22				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D				
Sample Matrix Code	6AE	6AE	6	6	6	1				
% Stones >10mm _A	36.1	30.9	<0.1	<0.1	<0.1	<0.1		% w/w	0.1	A-T-044
pH _D ^{M#}	5.36	5.28	7.17	-	-	-		pH	0.01	A-T-031s
pH BRE _D ^{M#}	-	-	7.17	8.50	6.41	6.07		pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	<0.01	<0.01	-	-	-		g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	<10	<10	<10	<10		mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	250	<200	<200	-	-	-		mg/kg	200	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	-	-	<0.02	<0.02	<0.02	<0.02		% w/w	0.02	A-T-026s
Sulphur BRE (total) _D	-	-	<0.01	<0.01	<0.01	<0.01		% w/w	0.01	A-T-024s
Total Organic Carbon _D ^{M#}	1.72	0.96	0.15	-	-	-		% w/w	0.03	A-T-032s
Arsenic _D ^{M#}	4	3	<1	-	-	-		mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.5	0.6	1.8	-	-	-		mg/kg	0.5	A-T-024s
Copper _D ^{M#}	34	21	23	-	-	-		mg/kg	1	A-T-024s
Chromium _D ^{M#}	8	8	52	-	-	-		mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	-	-	-		mg/kg	1	A-T-040s
Lead _D ^{M#}	44	36	9	-	-	-		mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	-	-	-		mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	9	8	50	-	-	-		mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	-	-	-		mg/kg	1	A-T-024s
Zinc _D ^{M#}	61	57	83	-	-	-		mg/kg	5	A-T-024s
Chromium (hexavalent) (leachable) _A	<0.05	-	-	-	-	-		mg/l	0.05	A-T-040w

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Client Project Ref: 252719

Lab Sample ID	22/07427/15	22/07427/16	22/07427/17	22/07427/18	22/07427/19	22/07427/20		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP24	TP24	WS08	WS06	WS11	WS12				
Depth to Top	0.10	0.50	1.00	1.20	1.20	0.60				
Depth To Bottom										
Date Sampled	22-Jul-22	22-Jul-22	22-Jul-22	21-Jul-22	22-Jul-22	22-Jul-22				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D				
Sample Matrix Code	6AE	6AE	6	6	6	1				
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	-	-	-	NAD				A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-				A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-	-				A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	-	-	-	N/A				A-T-045
OCP+OPP Combined Pest Suite (incl. Atrazine and Simazine)										
Dichlobenil _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Tecnazene _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Trifluralin _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
alpha-Hexachlorocyclohexane (HCH) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Hexachlorobenzene (HCB) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Simazine _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Atrazine _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
beta-Hexachlorocyclohexane (HCH) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Quintozene (PCNB) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Chlorothalonil _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
delta-Hexachlorocyclohexane (HCH) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Triallate _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Heptachlor _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Aldrin _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Triadimefon _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Telodrin _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Isodrin _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Pendimethalin _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Heptachlor epoxide _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
trans-Chlordane (Gamma) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
o,p-DDE (2,4) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Endosulphan I (Alpha) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
cis-Chlordane (Alpha) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
p,p-DDE (4,4) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Dieldrin _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056

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Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/15	22/07427/16	22/07427/17	22/07427/18	22/07427/19	22/07427/20		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP24	TP24	WS08	WS06	WS11	WS12				
Depth to Top	0.10	0.50	1.00	1.20	1.20	0.60				
Depth To Bottom										
Date Sampled	22-Jul-22	22-Jul-22	22-Jul-22	21-Jul-22	22-Jul-22	22-Jul-22				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D				
Sample Matrix Code	6AE	6AE	6	6	6	1				
o,p-DDD (2,4) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Endrin _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Endosulphan II (Beta) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
p,p-DDD (4,4) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
o,p-DDT (2,4) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Endrin Aldehyde _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Endrin Ketone _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Endosulphan Sulphate _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
p,p-DDT (4,4) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
o,p-Methoxychlor _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
p,p-Methoxychlor _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Permethrin I (cis) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Permethrin II (trans) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Dichlorvos _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Mevinphos _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Demeton-S _A	<0.50	-	-	-	-	-		mg/kg	0.5	A-T-056
Demeton-O _A	<0.50	-	-	-	-	-		mg/kg	0.5	A-T-056
Phorate _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Dimethoate _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Propetamphos _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Diazinon (Dimpylate) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Disulfoton _A	<0.10	-	-	-	-	-		mg/kg	0.1	A-T-056
Chlorpyrifos-methyl _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Parathion (Ethyl Parathion) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Methyl Parathion _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Pirimiphos-methyl _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Fenitrothion _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Fensulphothion _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Fenthion _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Malathion _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Chlorfenvinphos _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Chlorpyrifos _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Trichloronate _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Prothiofos (Tokuthion) _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056

Envirolab Job Number: 22/07427

Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/15	22/07427/16	22/07427/17	22/07427/18	22/07427/19	22/07427/20		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP24	TP24	WS08	WS06	WS11	WS12				
Depth to Top	0.10	0.50	1.00	1.20	1.20	0.60				
Depth To Bottom										
Date Sampled	22-Jul-22	22-Jul-22	22-Jul-22	21-Jul-22	22-Jul-22	22-Jul-22				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D				
Sample Matrix Code	6AE	6AE	6	6	6	1				
Ethion _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Triazophos _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Carbophenothion _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Phosalone _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Azinphos-methyl _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Azinphos-ethyl _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056
Coumaphos _A	<0.01	-	-	-	-	-		mg/kg	0.01	A-T-056

Envirolab Job Number: 22/07427

Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/15	22/07427/16	22/07427/17	22/07427/18	22/07427/19	22/07427/20		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP24	TP24	WS08	WS06	WS11	WS12				
Depth to Top	0.10	0.50	1.00	1.20	1.20	0.60				
Depth To Bottom										
Date Sampled	22-Jul-22	22-Jul-22	22-Jul-22	21-Jul-22	22-Jul-22	22-Jul-22				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D				
Sample Matrix Code	6AE	6AE	6	6	6	1				
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	-	-	-		mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	-	-	-		mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.05	0.04	<0.04	-	-	-		mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.05	<0.05	<0.05	-	-	-		mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	-	-	-		mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	-	-	-		mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	-	-	-		mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	-	-	-		mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	-	-	-		mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.03	<0.03	<0.03	-	-	-		mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	-	-	-		mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.06	<0.03	<0.03	-	-	-		mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.07	<0.07	<0.07	-	-	-		mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	0.26	<0.08	<0.08	-	-	-		mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/07427

Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/15	22/07427/16	22/07427/17	22/07427/18	22/07427/19	22/07427/20		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP24	TP24	WS08	WS06	WS11	WS12				
Depth to Top	0.10	0.50	1.00	1.20	1.20	0.60				
Depth To Bottom										
Date Sampled	22-Jul-22	22-Jul-22	22-Jul-22	21-Jul-22	22-Jul-22	22-Jul-22				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D				
Sample Matrix Code	6AE	6AE	6	6	6	1				
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	26	20	4	-	-	-		mg/kg	1	A-T-055s
Total Aliphatics _A	26	20	4	-	-	-		mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	1	1	<1	-	-	-		mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	5	6	4	-	-	-		mg/kg	1	A-T-055s
Total Aromatics _A	7	7	4	-	-	-		mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	33	27	7	-	-	-		mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
Leachate Prep BS EN 12457-1 (2:1) (1 no) _A	*	-	-	-	-	-				A-T-001
pH (leachable) _A [#]	7.09	-	-	-	-	-		pH	0.01	A-T-031w
Alkalinity (total) (leachable) Colorimetry _A	62	-	-	-	-	-		mg/l Ca CO ₃	20	A-T-038w
Arsenic (leachable) _A	2	-	-	-	-	-		µg/l	1	A-T-025w
Cadmium (leachable) _A	<1	-	-	-	-	-		µg/l	1	A-T-025w
Copper (leachable) _A	42	-	-	-	-	-		µg/l	4	A-T-025w
Chromium (leachable) _A	<1	-	-	-	-	-		µg/l	1	A-T-025w
Lead (leachable) _A	20	-	-	-	-	-		µg/l	1	A-T-025w
Mercury (leachable) _A	<0.1	-	-	-	-	-		µg/l	0.1	A-T-025w

Envirolab Job Number: 22/07427

Client Project Name: Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/07427/15	22/07427/16	22/07427/17	22/07427/18	22/07427/19	22/07427/20		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP24	TP24	WS08	WS06	WS11	WS12				
Depth to Top	0.10	0.50	1.00	1.20	1.20	0.60				
Depth To Bottom										
Date Sampled	22-Jul-22	22-Jul-22	22-Jul-22	21-Jul-22	22-Jul-22	22-Jul-22				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D				
Sample Matrix Code	6AE	6AE	6	6	6	1				
Nickel (leachable) _A	4	-	-	-	-	-		µg/l	2	A-T-025w
Selenium (leachable) _A	<1	-	-	-	-	-		µg/l	1	A-T-025w
Zinc (leachable) _A	29	-	-	-	-	-		µg/l	2	A-T-025w

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript "A" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these

humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: RSK Environment Ltd Coventry, Humber Road, Abbey Park, Coventry, UK, CV3 **Project No:** 22/07427
4AQ **Date Received:** 29/07/2022 (am)
Project: Earl Shilton **Cool Box Temperatures (°C):** 17.8
Clients Project No: 252719

Lab Sample ID	22/07427/3
Client Sample No	
Client Sample ID/Depth	TP05 1.20m
Date Sampled	18/07/22
Deviation Code	
F	✓

Key

F Maximum holding time exceeded between sampling date and analysis for analytes listed below

HOLDING TIME EXCEEDANCES

Lab Sample ID	22/07427/3
Client Sample No	
Client Sample ID/Depth	TP05 1.20m
Date Sampled	18/07/22
PAH-16MS	✓

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	22/07427/8	22/07427/9	22/07427/10	22/07427/11	22/07427/12
Client Sample No												
Client Sample ID/Depth	TP01 1.00m	TP04 0.20m	TP05 1.20m	TP07 2.00m	TP09 1.30m	TP11 1.10m	TP13 1.00m	TP15 0.40m	TP15 0.90m	TP20 1.90m	TP21 0.20m	TP22 0.80m
Date Sampled	20/07/22	22/07/22	18/07/22	22/07/22	18/07/22	20/07/22	22/07/22	18/07/22	18/07/22	22/07/22	22/07/22	22/07/22
A-T-019s	05/08/2022	05/08/2022	05/08/2022				05/08/2022				05/08/2022	05/08/2022
A-T-022s	05/08/2022	05/08/2022	05/08/2022				05/08/2022				05/08/2022	05/08/2022
A-T-024s	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022		05/08/2022	05/08/2022	05/08/2022	05/08/2022
A-T-025w												09/08/2022
A-T-026s	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022		05/08/2022	05/08/2022	05/08/2022	05/08/2022
A-T-028s	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022		05/08/2022	05/08/2022	05/08/2022	05/08/2022
A-T-031s	08/08/2022	08/08/2022	08/08/2022	08/08/2022	08/08/2022	08/08/2022	08/08/2022		08/08/2022	08/08/2022	08/08/2022	08/08/2022
A-T-031w												03/08/2022
A-T-032s	09/08/2022	09/08/2022	09/08/2022				09/08/2022				09/08/2022	09/08/2022
A-T-033s	08/08/2022											
A-T-038w												04/08/2022
A-T-040s	08/08/2022	05/08/2022	05/08/2022				05/08/2022				05/08/2022	05/08/2022
A-T-040w												04/08/2022
A-T-044	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022
A-T-045	01/08/2022	01/08/2022					01/08/2022	01/08/2022			01/08/2022	01/08/2022
A-T-055s	05/08/2022	05/08/2022	05/08/2022				05/08/2022				05/08/2022	05/08/2022
A-T-056		08/08/2022						08/08/2022			08/08/2022	
A-T-SOLMETS	05/08/2022											

Lab Sample ID	22/07427/13	22/07427/14	22/07427/15	22/07427/16	22/07427/17	22/07427/18	22/07427/19	22/07427/20
Client Sample No								
Client Sample ID/Depth	TP22 1.00m	TP23 1.60m	TP24 0.10m	TP24 0.50m	WS08 1.00m	WS06 1.20m	WS11 1.20m	WS12 0.60m
Date Sampled	22/07/22	19/07/22	22/07/22	22/07/22	22/07/22	21/07/22	22/07/22	22/07/22
A-T-019s	05/08/2022		05/08/2022	05/08/2022	05/08/2022			
A-T-022s	05/08/2022		05/08/2022	05/08/2022	05/08/2022			
A-T-024s	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022
A-T-025w	10/08/2022		09/08/2022					
A-T-026s	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022
A-T-028s	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022
A-T-031s	08/08/2022	08/08/2022	08/08/2022	08/08/2022	08/08/2022	08/08/2022	08/08/2022	08/08/2022
A-T-031w	03/08/2022		03/08/2022					
A-T-032s	09/08/2022		09/08/2022	09/08/2022	09/08/2022			
A-T-033s	08/08/2022							
A-T-038w	04/08/2022		04/08/2022					
A-T-040s	05/08/2022		05/08/2022	05/08/2022	05/08/2022			
A-T-040w	04/08/2022		04/08/2022					
A-T-044	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022
A-T-045	01/08/2022		01/08/2022	01/08/2022				01/08/2022
A-T-055s	05/08/2022		05/08/2022	05/08/2022	05/08/2022			
A-T-056			08/08/2022					
A-T-SOLMETS	05/08/2022							

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

APPENDIX H

LABORATORY CERTIFICATES FOR WATER ANALYSIS

FINAL ANALYTICAL TEST REPORT

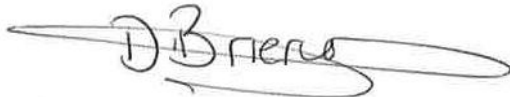
Envirolab Job Number: 22/08717
Issue Number: 1

Date: 16 September, 2022

Client: RSK Environment Ltd Coventry
Humber Road, Abbey Park
Coventry
UK
CV3 4AQ

Project Manager: Emma Wild/Jane Taylor
Project Name: Leicester Road, Earl Shilton
Project Ref: 252719
Order No: N/A
Date Samples Received: 06/09/22
Date Instructions Received: 06/09/22
Date Analysis Completed: 16/09/22

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 22/08717

Client Project Name: Leicester Road, Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/08717/1	22/08717/2						Units	Limit of Detection	Method ref
Client Sample No	SW1	SW2								
Client Sample ID										
Depth to Top										
Depth To Bottom										
Date Sampled	02-Sep-22	02-Sep-22								
Sample Type	Water - EW	Water - EW								
Sample Matrix Code	N/A	N/A								
pH (w) _A [#]	7.36	7.28						pH	0.01	A-T-031w
Sulphate (w) _A [#]	87	85						mg/l	1	A-T-026w
DOC (w) _A [#]	3.0	2.3						mg/l	2	A-T-032w
Arsenic (dissolved) _A [#]	<1	<1						µg/l	1	A-T-025w
Cadmium (dissolved) _A [#]	<0.2	<0.2						µg/l	0.2	A-T-025w
Calcium (dissolved) _A [#]	46	47						mg/l	1	A-T-049w
Copper (dissolved) _A	14	10						µg/l	4	A-T-025w
Chromium (dissolved) _A [#]	1	<1						µg/l	1	A-T-025w
Lead (dissolved) _A [#]	<1	<1						µg/l	1	A-T-025w
Mercury (dissolved) _A [#]	<0.1	<0.1						µg/l	0.1	A-T-025w
Nickel (dissolved) _A [#]	6	7						µg/l	2	A-T-025w
Selenium (dissolved) _A [#]	<1	<1						µg/l	1	A-T-025w
Zinc (dissolved) _A [#]	14	17						µg/l	2	A-T-025w

Envirolab Job Number: 22/08717

Client Project Name: Leicester Road, Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/08717/1	22/08717/2								
Client Sample No	SW1	SW2								
Client Sample ID										
Depth to Top										
Depth To Bottom										
Date Sampled	02-Sep-22	02-Sep-22								
Sample Type	Water - EW	Water - EW								
Sample Matrix Code	N/A	N/A								
PAH 16MS (w)										
Acenaphthene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Anthracene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Fluoranthene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Fluorene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Naphthalene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Phenanthrene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Pyrene (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w
Total PAH 16MS (w) _A [#]	<0.01	<0.01						µg/l	0.01	A-T-019w

Envirolab Job Number: 22/08717

Client Project Name: Leicester Road, Earl Shilton

Client Project Ref: 252719

Lab Sample ID	22/08717/1	22/08717/2								
Client Sample No	SW1	SW2								
Client Sample ID										
Depth to Top										
Depth To Bottom										
Date Sampled	02-Sep-22	02-Sep-22								
Sample Type	Water - EW	Water - EW								
Sample Matrix Code	N/A	N/A								
TPH CWG (w) with Clean Up										
Ali >C5-C6 (w) _A [#]	<1	<1						µg/l	1	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1						µg/l	1	A-T-022w
Ali >C8-C10 (w) _A [#]	<5	<5						µg/l	5	A-T-055w
Ali >C10-C12 (w) _A [#]	<5	<5						µg/l	5	A-T-055w
Ali >C12-C16 (w) _A [#]	<5	<5						µg/l	5	A-T-055w
Ali >C16-C21 (w) _A [#]	<5	<5						µg/l	5	A-T-055w
Ali >C21-C35 (w) _A [#]	<5	<5						µg/l	5	A-T-055w
Total Aliphatics (w) _A [#]	<5	<5						µg/l	5	Calc-As Recd
Aro >C5-C7 (w) _A [#]	<1	<1						µg/l	1	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1						µg/l	1	A-T-022w
Aro >C8-C10 (w) _A	<5	<5						µg/l	5	A-T-055w
Aro >C10-C12 (w) _A [#]	<5	<5						µg/l	5	A-T-055w
Aro >C12-C16 (w) _A [#]	<5	<5						µg/l	5	A-T-055w
Aro >C16-C21 (w) _A [#]	<5	<5						µg/l	5	A-T-055w
Aro >C21-C35 (w) _A	<10	<10						µg/l	10	A-T-055w
Total Aromatics (w) _A	<10	<10						µg/l	10	Calc-As Recd
TPH (Ali & Aro >C5-C35) (w) _A	<10	<10						µg/l	10	Calc-As Recd
BTEX - Benzene (w) _A [#]	<1	<1						µg/l	1	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1						µg/l	1	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1						µg/l	1	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1						µg/l	1	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1						µg/l	1	A-T-022w
MTBE (w) _A [#]	<1	<1						µg/l	1	A-T-022w

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript "A" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these

humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client:	RSK Environment Ltd Coventry, Humber Road, Abbey Park, Coventry, UK, CV3 4AQ	Project No:	22/08717
Project:	Leicester Road, Earl Shilton	Date Received:	06/09/2022 (am)
Clients Project No:	252719	Cool Box Temperatures (°C):	16.7

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/08717/1	22/08717/2
Client Sample No	SW1	SW2
Client Sample ID/Depth		
Date Sampled	02/09/22	02/09/22
A-T-019w	12/09/2022	12/09/2022
A-T-022w	08/09/2022	08/09/2022
A-T-025w	16/09/2022	16/09/2022
A-T-026w	08/09/2022	08/09/2022
A-T-031w	09/09/2022	09/09/2022
A-T-032w	13/09/2022	13/09/2022
A-T-049w	14/09/2022	14/09/2022
A-T-055w	12/09/2022	12/09/2022
Calc-As Recd	12/09/2022	12/09/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

APPENDIX I

LABORATORY CERTIFICATES FOR GEOTECHNICAL ANALYSIS

RSK
Abbey Park
Humber Road
Coventry

F.A.O.

Supplemental Test Report - 2281151 / 2

Site: Earl Shilton

Job Number: 2281151

Originating Client: RSK

Originating Reference: 252719

Date Sampled: 20/07/2022

Date Scheduled: 27/07/2022

Date Testing Started: 10/08/2022

Date Testing Finished: 22/08/2022

Previous Reports		Amendments	Date Issued
1	Final		23/08/2022

Amendments: A-line graph added to report

Authorised By:

Tim Robinson
Quality Supervisor

Report Issue Date: 25/08/2022

Job Number: 2281151

Page: 2

[illegible]

Results reported relate only to the samples tested.



Site: Earl Shilton

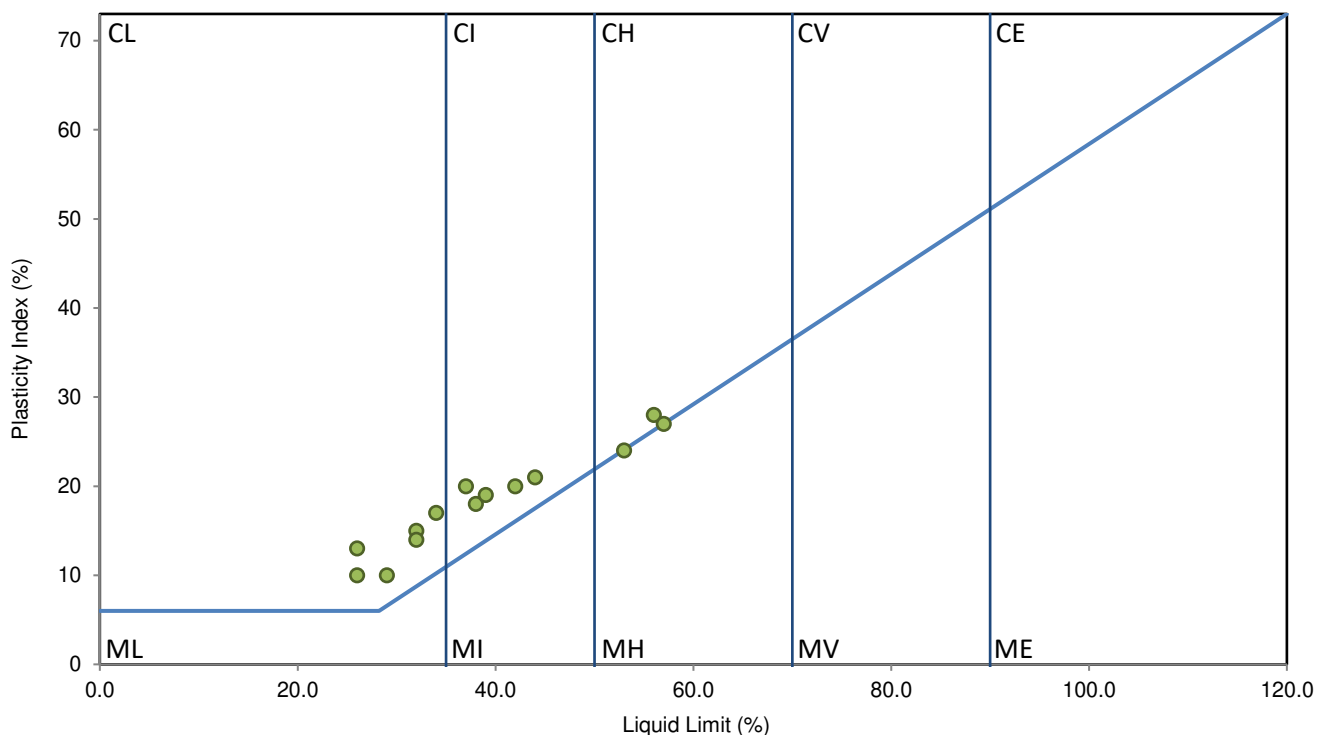
Job Number: 2281151

Client: RSK

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Determination of Water Content, Liquid Limit and Plastic Limit and Derivation of Plasticity and Liquidity Index: A-Line Plasticity Chart

A-Line Plasticity Chart for Casagrande Classification



A-line Plasticity Chart from K H Head, Soil Laboratory Testing, vol. 1, chapter 2, figure 2.6 (Plasticity Chart)

Method of Preparation: BS EN ISO 17892 : Part 1 : 2014 : Clause 5.1 Water content test preparation
BS EN ISO 17892 : Part 12 : 2018 : Clause 5.2 Specimen preparation for liquid and plastic limits

Method of Test: BS EN ISO 17892 : Part 1 : 2014 : Clause 5.2 Water content test execution
BS EN ISO 17892 : Part 12 : 2018 : Clause 5.3 Determination of liquid limit by the fall cone method. 80g / 30° Cone
BS EN ISO 17892 : Part 12 : 2018 : Clause 5.5 Determination of plastic limit

General Remarks: All samples tested with increasing water content, unless otherwise stated.
All samples tested to four-point method, unless the extra 'One-point PI Only' data is reported.

Results reported relate only to the samples tested.

Site: Earl Shilton

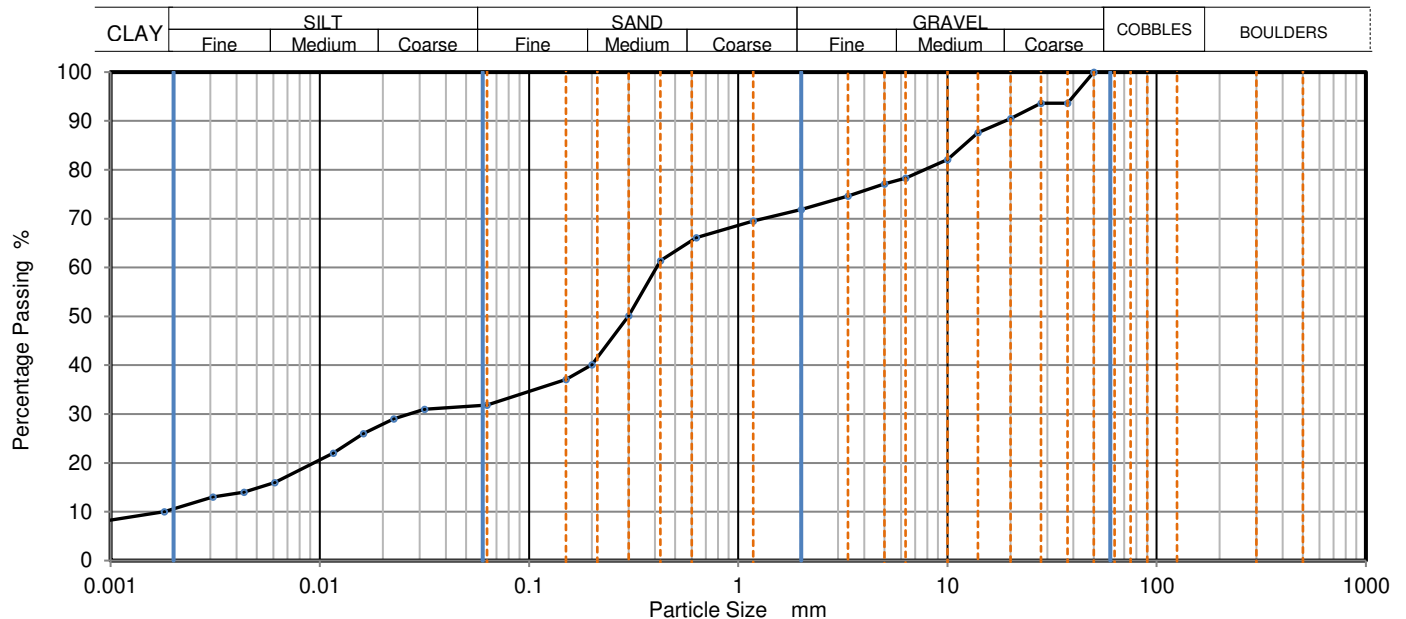
Job Number: 2281151

Client: RSK

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP07	0.40	B	Wet Sieve + Hydrometer	Brown slightly organic, gravelly, silty, clayey SAND



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0316	31
		0.0225	29
		0.0161	26
		0.0116	22
		0.0061	16
		0.0043	14
50	100	0.0031	13
37.5	94	0.0018	10
28	94	0.0009	8
20	91		
14	88		
10	82		
6.3	78		
5	77		
3.35	75		
2	72		
1.18	70		
0.63	66		
0.425	61		
0.3	50		
0.2	40		
0.15	37		
0.063	32		

Dry Mass of sample, g
1239

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	40
Silt	21
Clay	11

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.3.2 Preparation of samples for hydrometer test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.3.3 Determination of sedimentation by hydrometer method


1464

Result reported relates only to the sample tested.

Site: Earl Shilton

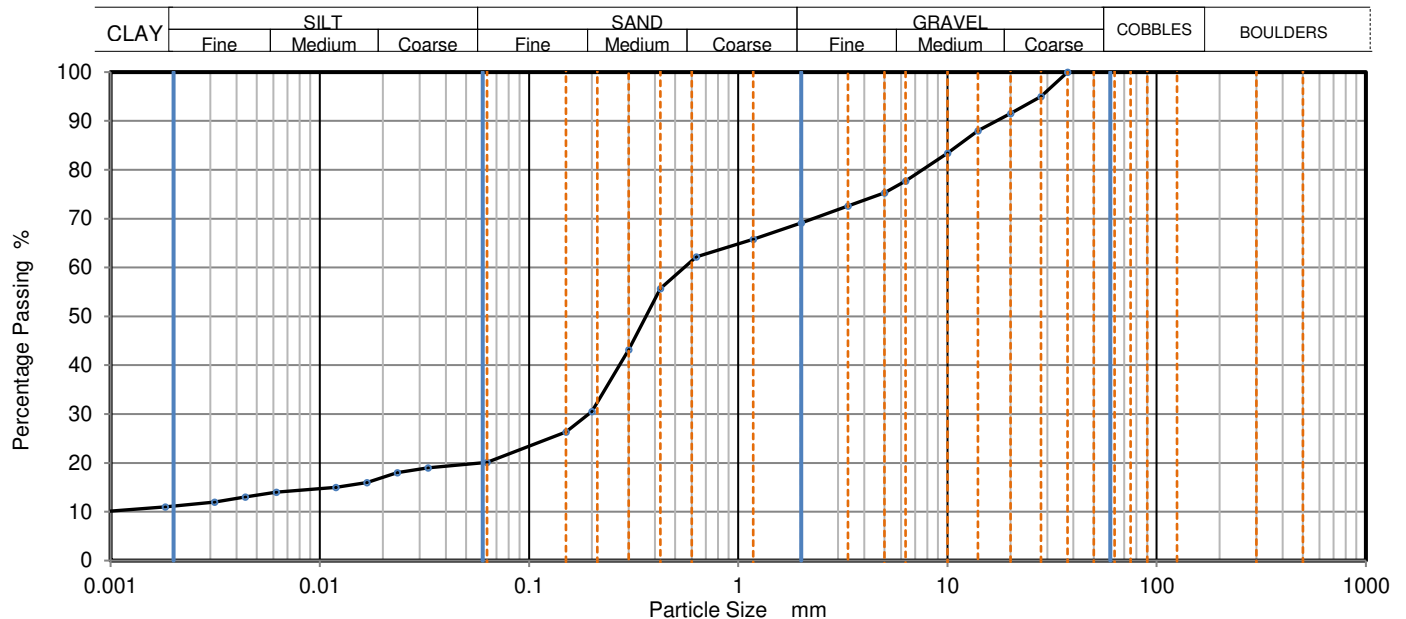
Job Number: 2281151

Client: RSK

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP07	0.90	B	Wet Sieve + Hydrometer	Reddish Brown slightly silty, gravelly, clayey SAND



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0329	19
		0.0234	18
		0.0168	16
		0.0119	15
		0.0062	14
		0.0044	13
		0.0031	12
		0.0018	11
		0.0009	10
37.5	100		
28	95		
20	92		
14	88		
10	83		
6.3	78		
5	75		
3.35	73		
2	69		
1.18	66		
0.63	62		
0.425	56		
0.3	43		
0.2	31		
0.15	26		
0.063	20		

Dry Mass of sample, g
1076

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	49
Silt	9
Clay	11

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.3.2 Preparation of samples for hydrometer test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.3.3 Determination of sedimentation by hydrometer method


1464

Result reported relates only to the sample tested.

Site: Earl Shilton

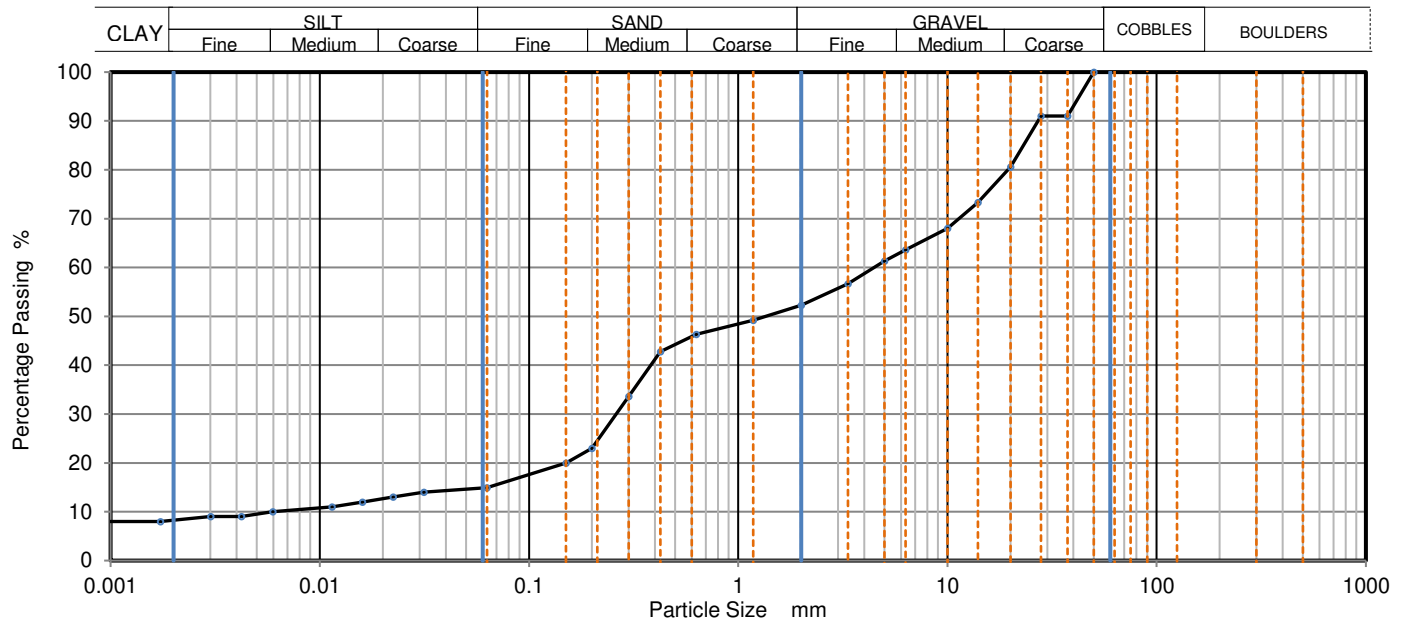
Job Number: 2281151

Client: RSK

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP11	1.20	B	Wet Sieve + Hydrometer	Reddish Brown slightly silty, slightly clayey, sandy GRAVEL



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0314	14
		0.0224	13
		0.0160	12
		0.0114	11
		0.0060	10
		0.0042	9
50	100	0.0030	9
37.5	91	0.0017	8
28	91	0.0009	8
20	81		
14	73		
10	68		
6.3	64		
5	61		
3.35	57		
2	52		
1.18	49	Particle density (assumed) 2.65 Mg/m ³	
0.63	46		
0.425	43		
0.3	34		
0.2	23		
0.15	20		
0.063	15		

Dry Mass of sample, g
1243

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	37
Silt	7
Clay	8

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.3.2 Preparation of samples for hydrometer test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.3.3 Determination of sedimentation by hydrometer method


1464

Result reported relates only to the sample tested.

Site: Earl Shilton

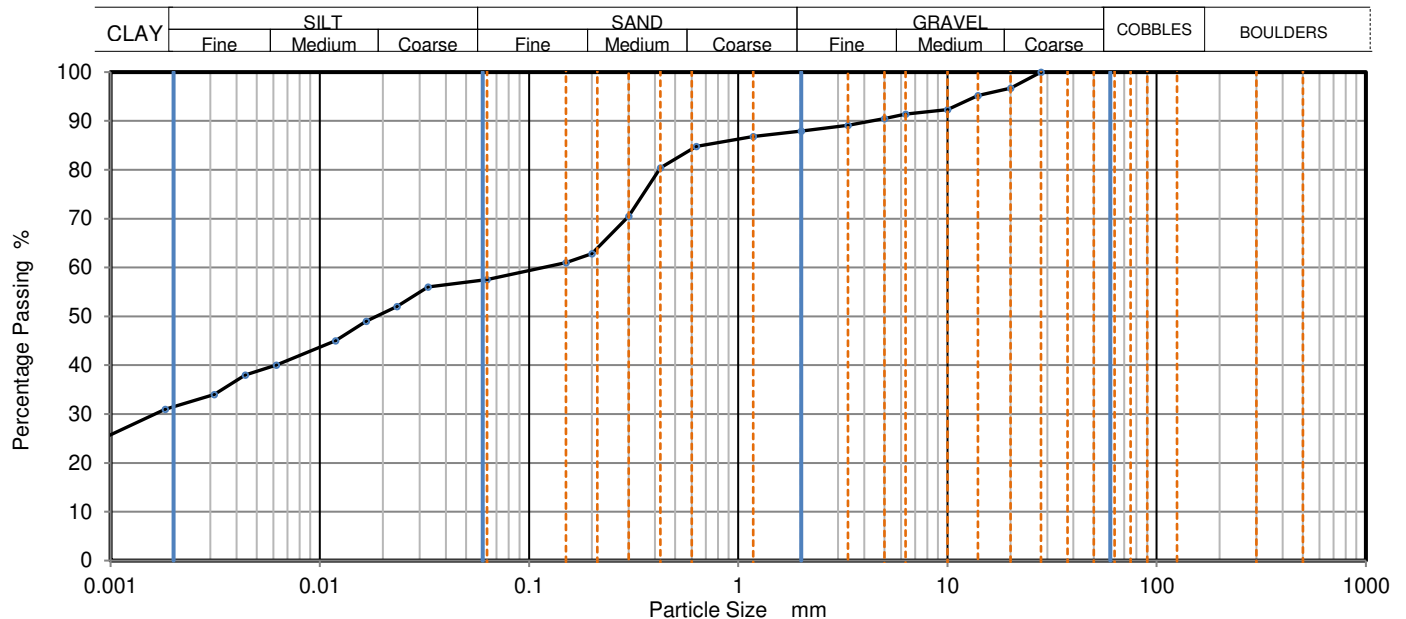
Job Number: 2281151

Client: RSK

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP16	0.50	B	Wet Sieve + Hydrometer	Reddish Brown slightly gravelly, silty CLAY/SAND



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0328	56
		0.0234	52
		0.0167	49
		0.0119	45
		0.0062	40
		0.0044	38
		0.0031	34
		0.0018	31
		0.0009	25
28	100		
20	97		
14	95		
10	92		
6.3	91		
5	91		
3.35	89		
2	88		
1.18	87		
0.63	85		
0.425	80		
0.3	71		
0.2	63		
0.15	61		
0.063	58		

Dry Mass of sample, g
1378

Sample Proportions	% dry mass
Very coarse	0
Gravel	12
Sand	31
Silt	26
Clay	31

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.3.2 Preparation of samples for hydrometer test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.3.3 Determination of sedimentation by hydrometer method

Result reported relates only to the sample tested.

Site: Earl Shilton

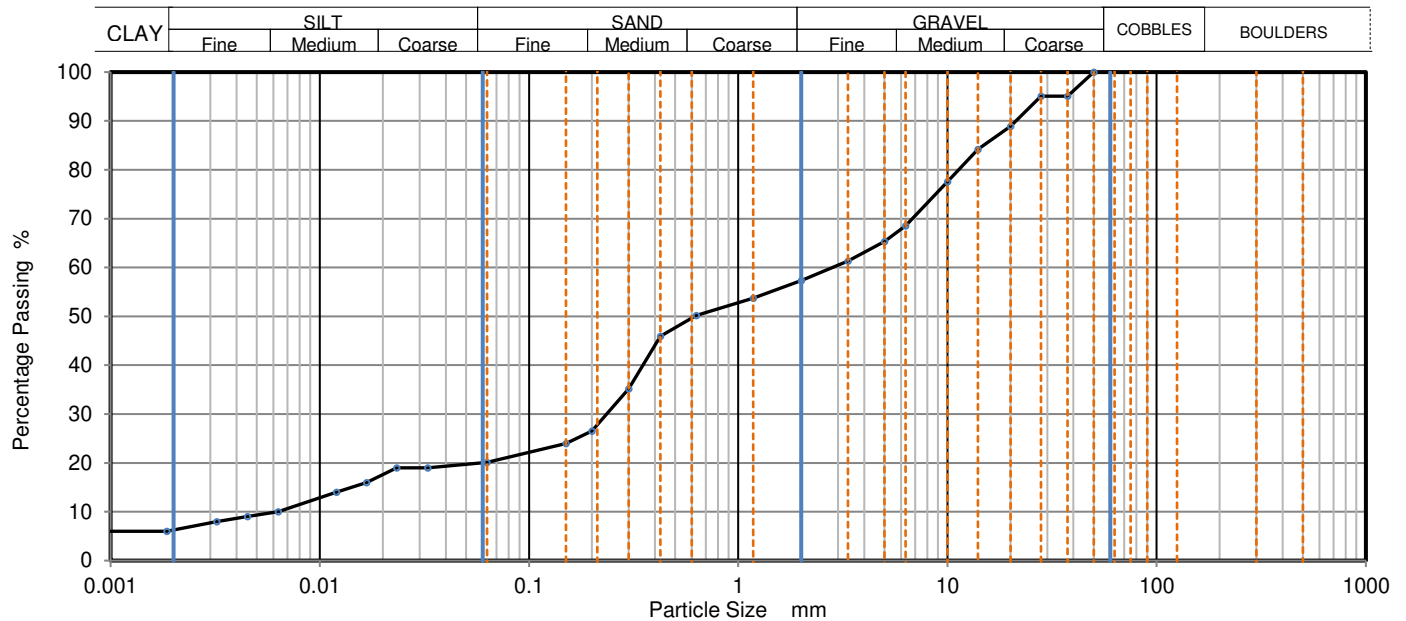
Job Number: 2281151

Client: RSK

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP17	0.50	B	Wet Sieve + Hydrometer	Brown clayey, silty, SAND/GRAVEL



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0328	19
		0.0233	19
		0.0167	16
		0.0120	14
		0.0063	10
		0.0045	9
50	100	0.0032	8
37.5	95	0.0019	6
28	95	0.0009	6
20	89		
14	84		
10	78		
6.3	69		
5	65		
3.35	61		
2	57		
1.18	54	Particle density (assumed) 2.65 Mg/m ³	
0.63	50		
0.425	46		
0.3	35		
0.2	27		
0.15	24		
0.063	20		

Dry Mass of sample, g
1664

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	37
Silt	14
Clay	6

Grading Analysis	
D100	mm 50
D60	mm 2.84
D30	mm 0.235
D10	mm 0.00625
Uniformity Coefficient	450
Curvature Coefficient	3.1

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.3.2 Preparation of samples for hydrometer test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.3.3 Determination of sedimentation by hydrometer method

Result reported relates only to the sample tested.

Site: Earl Shilton

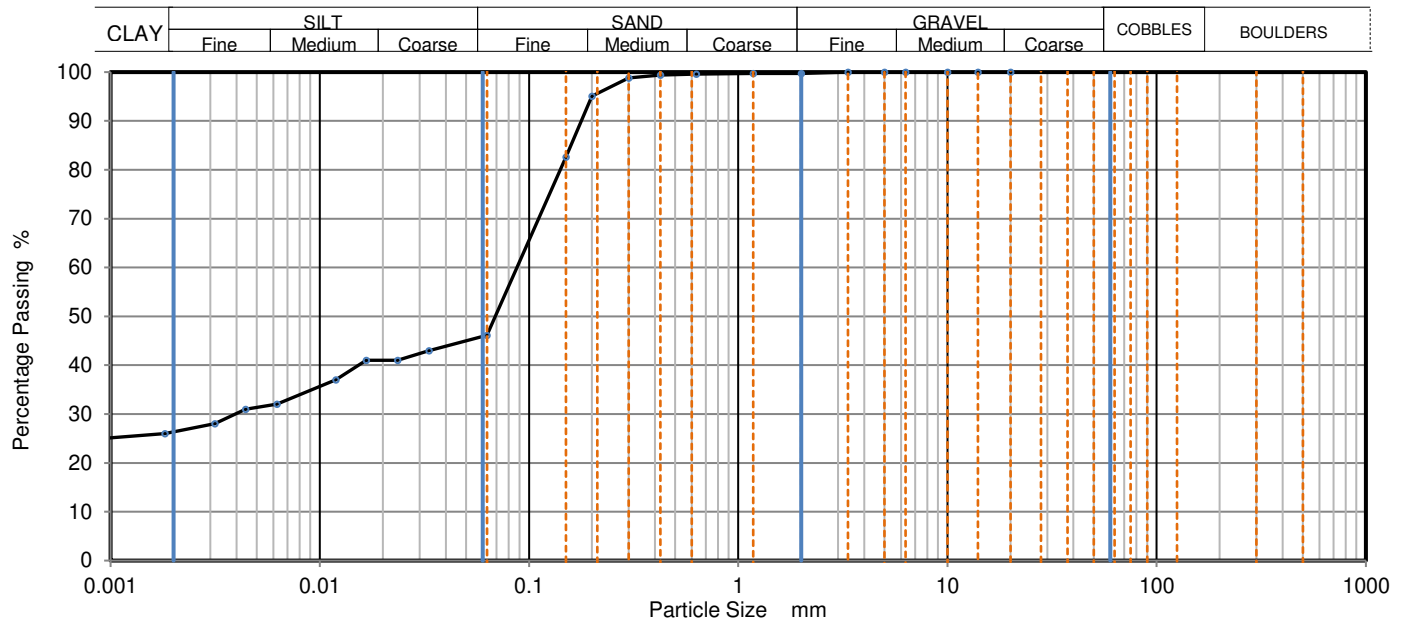
Job Number: 2281151

Client: RSK

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP19	0.95	B	Wet Sieve + Hydrometer	Mottled Reddish Brown/Light Grey silty, clayey SAND



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0332	43
		0.0236	41
		0.0167	41
		0.0119	37
		0.0062	32
		0.0044	31
		0.0031	28
		0.0018	26
		0.0009	25
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.63	100		
0.425	99		
0.3	99		
0.2	95		
0.15	83		
0.063	46		

Dry Mass of sample, g
475

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	54
Silt	20
Clay	26

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.3.2 Preparation of samples for hydrometer test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.3.3 Determination of sedimentation by hydrometer method


1464

Result reported relates only to the sample tested.

Site: Earl Shilton

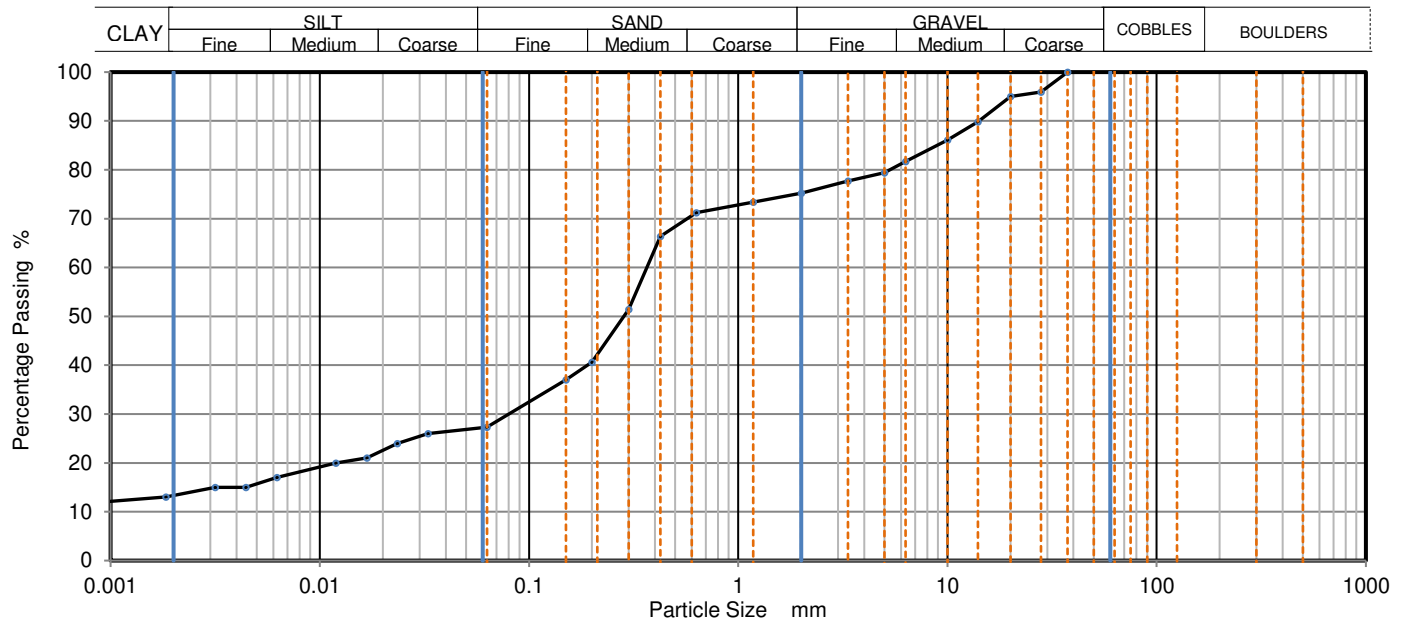
Job Number: 2281151

Client: RSK

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP21	1.00	B	Wet Sieve + Hydrometer	Reddish Brown silty, gravelly, clayey SAND



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0329	26
		0.0234	24
		0.0168	21
		0.0119	20
		0.0062	17
		0.0044	15
		0.0032	15
		0.0018	13
		0.0009	12
37.5	100		
28	96		
20	95		
14	90		
10	86		
6.3	82		
5	79		
3.35	78		
2	75		
1.18	73		
0.63	71		
0.425	66		
0.3	51		
0.2	41		
0.15	37		
0.063	27		

Dry Mass of sample, g
1492

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	48
Silt	14
Clay	13

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.3.2 Preparation of samples for hydrometer test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.3.3 Determination of sedimentation by hydrometer method


1464

Result reported relates only to the sample tested.

Site: Earl Shilton

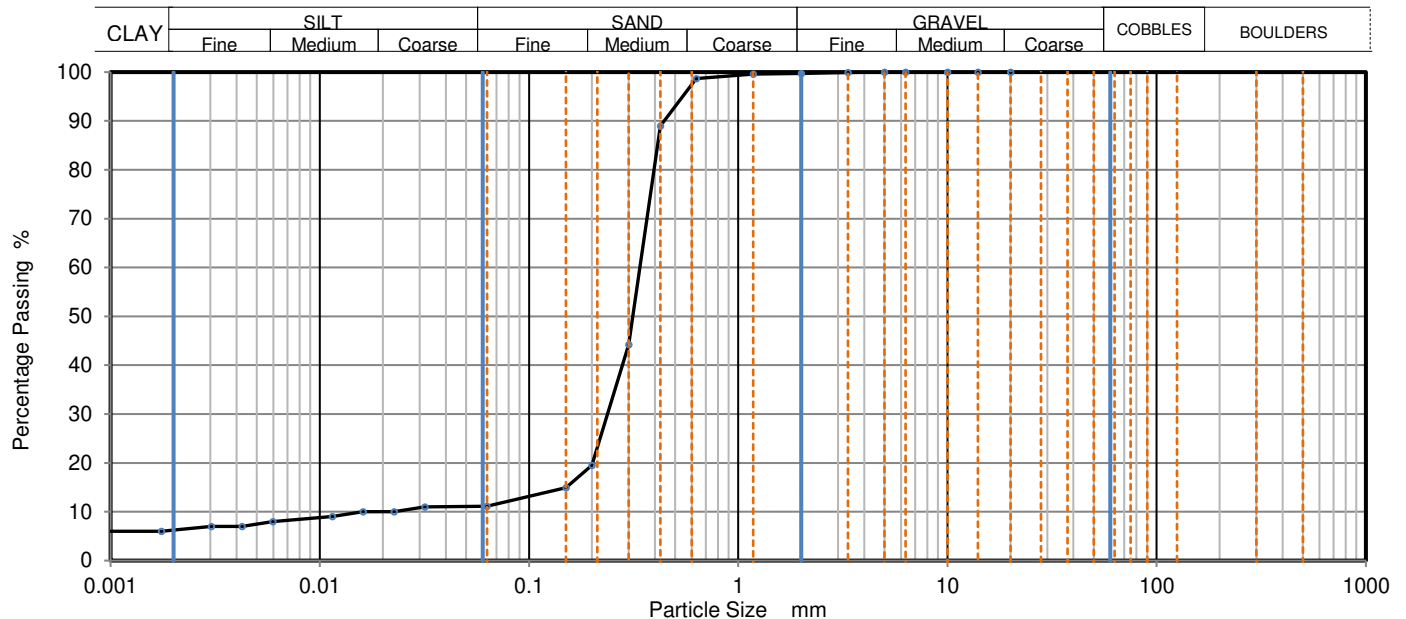
Job Number: 2281151

Client: RSK

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Testing Type	Description
TP24	1.80	B	Wet Sieve + Hydrometer	Reddish Brown slightly clayey SAND



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0318	11
		0.0226	10
		0.0161	10
		0.0115	9
		0.0060	8
		0.0042	7
		0.0030	7
		0.0018	6
		0.0009	6
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.63	99		
0.425	89		
0.3	44		
0.2	20		
0.15	15		
0.063	11		

Dry Mass of sample, g
559

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	89
Silt	5
Clay	6

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Method of Preparation: BS EN 17892:Part4:2016, clause 5.2.2 Preparation of samples for wet sieving test
BS EN 17892:Part4:2016, clause 5.3.2 Preparation of samples for hydrometer test

Method of Test: BS EN 17892:Part4:2016, clause 5.2.3 Determination of particle size distribution by wet sieving method
BS EN 17892:Part4:2016, clause 5.3.3 Determination of sedimentation by hydrometer method


1464

Result reported relates only to the sample tested.



Supplemental Test Report - 2281151 / 2

Site: Earl Shilton

Job Number: 2281151

Originating Client: RSK

All opinions and interpretations contained within this report are outside of our Scope of Accreditation.

This test report shall not be reproduced, except in full and only with the written permission of Ian Farmer Associates Ltd.

Samples will be retained for 28 days from date of issue of the final test report before being disposed of, unless we receive written instruction to the contrary.

Report Issue Date: 25/08/2022

APPENDIX J

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH

Generic assessment criteria for human health: residential scenario with home-grown produce

Background

RSK's generic assessment criteria (GAC) were initially prepared following the publication by the Environment Agency (EA) of soil guideline value (SGV) and toxicological (TOX) reports, and associated publications in 2009⁽¹⁾. RSK GAC were updated following the publication of GAC by LQM/CIEH in 2009⁽²⁾. RSK GAC are periodically revised when updated information on toxicological, land use or receptor parameters is published.

Updates to the RSK GAC

In 2014, the publication of Category 4 Screening Levels (C4SL)^(3,4), as part of the Defra-funded research project SP1010, included modifications to certain exposure assumptions documented within EA Science Report SC050221/SR3 (herein after referred to as SR3)⁽⁵⁾ used in the generation of SGVs.

C4SL were initially published for six substances (cadmium, arsenic, benzene, benzo(a)pyrene, chromium VI and lead) for a sandy loam soil type with 6% soil organic matter, based on a low level of toxicological concern (LLTC; see Section 2.3 of research project report SP1010⁽³⁾). Further C4SL were published in 2021 for vinyl chloride, tetrachloroethene (PCE) and trichloroethene (TCE). Where a C4SL has been published, the RSK GAC duplicates the C4SL using all input parameters within the SP1010 final project report⁽³⁾ and associated chemical specific reports⁽⁶⁾, and adopts them as GAC for these substances. Due to the use of decimal places rather than significant figures applied to the Contaminated Land Exposure Assessment (CLEA) tool outputs, the GAC presented may be marginally differently to the C4SL values, however any differences between the values are minimal and would not equate to an unacceptable risk.

For all other substances the C4SL exposure modifications, with the exception of the “top two” produce type approach taken in the C4SL, have been applied to the current RSK GAC. These include alterations to daily inhalation rates for residential and commercial scenarios, reducing soil adherence factors in children (age classes 1 to 12 only) for residential land use, reducing exposure frequency for dermal contact outdoors for residential land use, and updated produce type consumption rates (90th percentile) based on recent data from the National Diet and Nutrition Survey.

The RSK GAC have also been revised with updated toxicology published by LQM/CIEH in 2015⁽⁷⁾ or by the USEPA⁽¹⁴⁾, where a C4SL has not been published.

RSK GAC derivation for metals and organic compounds

Model selection

Soil assessment criteria (SAC) were calculated using the CLEA tool v1.071, supporting EA guidance^(5,8,9) and revised exposure scenarios published for the C4SL⁽³⁾. The SAC are also termed GAC.

Conceptual model

In accordance with SR3⁽⁵⁾, the residential with home-grown produce scenario considers risks to a female child between the ages of 0 and 6 years old as the highest risk scenario. In accordance with Box 3.1 of SR3⁽⁵⁾, the pathways considered for production of the SAC in the residential with home-grown produce scenario are

- direct soil and dust ingestion
- consumption of home-grown produce
- consumption of soil attached to home-grown produce
- dermal contact with soil and indoor dust
- inhalation of indoor and outdoor dust and vapours.

Figure 1 is a conceptual model illustrating these linkages.

In line with guidance in the EA SGV report for cadmium⁽¹⁾, the RSK GAC for cadmium has been derived based on estimates representative of lifetime exposure. Although young children are generally more likely to have higher exposures to soil contaminants, the renal toxicity of cadmium, and the derivation of the TDI_{oral} and TDI_{inh}, are based on considerations of the kidney burden accumulated over 50 years or so. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period.

With respect to volatilisation, the CLEA model assumes a simple linear partitioning of a chemical in the soil between the sorbed, dissolved and vapour phase⁽⁹⁾. The upper boundaries of this partitioning are represented by the maximum aqueous solubility and pure saturated vapour concentration of the chemical. The CLEA model estimates saturated soil concentrations where these limits are reached⁽⁹⁾. The CLEA software uses a traffic light system to identify when individual and/or combined assessment criteria exceed the lower of either the aqueous- or vapour-based soil saturation limits. Model output cells are flagged red where the saturated soil concentration has been exceeded and the contribution of the indoor and outdoor vapour pathway to total exposure is greater than 10%. In this case, further consideration of the following is required⁽⁹⁾:

- Free phase contamination may be present.
- Exposure from the vapour pathways will be over-predicted by the model, as in reality the vapour phase concentration will not increase at concentrations above saturation limits
- Where the vapour pathway contribution is greater than 90%, it is unlikely the relevant health criteria value (HCV) will be exceeded at soil concentrations at least a factor of ten higher than the relevant HCV.

Where the vapour pathway is the predominant pathway (contributes greater than 90% of exposure) or the only exposure route considered and the cell is highlighted red (SAC exceeds saturation limit), the risk based on the assumed conceptual model is likely to be negligible as the vapour risk is assumed to be tolerable at maximum possible soil concentrations. In such circumstances, the vapour pathway exposure should be considered based on the presence of free phase or non-aqueous phase liquid sources and the measured concentrations of volatile organic compounds (VOC) in the vapour phase. Screening could be considered based on setting the SAC as the modelled soil saturation limits. However, as stated within the CLEA handbook⁽⁹⁾, this is likely to not be practical in many cases because of the very low saturation limits and, in any case, is highly conservative.

It should also be noted that for mixtures of compounds, free phase may be present where soil (or groundwater) concentrations are well below saturation limits for individual compounds.

Where the vapour pathway is only one of the exposure pathways considered, an additional approach can then be utilised as detailed within Section 4.12 of the CLEA model handbook⁽⁹⁾, which explains how to calculate an effective assessment criterion manually.

SR3⁽⁵⁾ states that, as a general rule of thumb, it is recognised that estimating vapour phase concentrations from dissolved and sorbed phase contamination by petroleum hydrocarbons are at least a factor of ten higher than those likely to be measured on-site. RSK has therefore applied an empirical subsurface to indoor air correction factor of 10 into the CLEA model chemical database for all petroleum hydrocarbon fractions (including BTEX, trimethylbenzenes and the polycyclic aromatic hydrocarbons (PAH) naphthalene, acenaphthene and acenaphthylene) to reduce this conservatism.

Input selection

The most up-to-date published chemical and toxicological data was obtained from EA Report SC050021/SR7⁽¹⁰⁾, the EA TOX⁽¹⁾ reports, the C4SL SP1010 project report and associated appendices^(3,6), the 2015 LQM/CIEH report⁽⁷⁾ or the USEPA IRIS database⁽¹⁴⁾. Where a LLTC^(3,6) has been published for a substance, RSK has used these input parameters to derive the RSK GAC. Toxicological and specific chemical parameters for 1,2,4-trimethylbenzene, barium, methyl tertiary-butyl ether (MTBE), 1,1,2-trichloroethane, 1,1-dichloroethene, 1,2-dichloropropane, 2-chloronaphthalene, chloroethane, chloromethane, cis 1,2-dichloroethene, dichloromethane, hexachloroethane and trans 1,2-dichloroethene were obtained from the CL:AIRE Soil Generic Assessment Criteria report⁽¹¹⁾.

For TPH, aromatic hydrocarbons C₅–C₈ were not modelled, as this range comprises benzene (>EC5-EC7) and toluene (>EC7-EC8), which are modelled separately.

Physical parameters

For the residential with home-grown produce scenario, the CLEA default building is a small, two-storey terrace house with a concrete ground-bearing slab. The house is assumed to have a 100m² private garden consisting of lawn and flowerbeds, incorporating a 20m² plot for growing fruit and vegetables consumed by the residents. SR3⁽⁵⁾ notes this residential building type to be the most conservative in terms of potential for vapour intrusion. The building parameters used in the production of the RSK GACs are the default CLEA v1.06 inputs presented in Table 3.3 of SR3⁽³⁾, with a dust loading factor detailed in Section 9.3 of SR3⁽⁵⁾. The parameters for a sandy loam soil type were used in line with Table 4.4 of SR3⁽⁵⁾. This includes a value of 6% for the percentage of soil organic matter (SOM) within the soil. In RSK's experience, this is rather high for many sites. To avoid undertaking site-specific risk assessments for SOM, RSK has produced an additional set of GAC for SOM of 1% and 2.5% for all substances using the CLEA tool.

Summary of modifications to the default CLEA SR3⁽⁵⁾ input parameters for residential with home-grown produce land-use scenario

In summary, the RSK GAC were produced using the default input parameters for soil properties, the air dispersion model, building properties and the vapour model detailed in SR3⁽⁵⁾. Modifications to the default SR3⁽⁵⁾ exposure scenarios based on the C4SL exposure scenarios⁽³⁾ are presented in Tables 2 and 3 below.

The final selected GAC are presented by pathway in Table 4 and the combined GAC in Table 5.

Figure 1: Conceptual model for residential scenario with home-grown produce

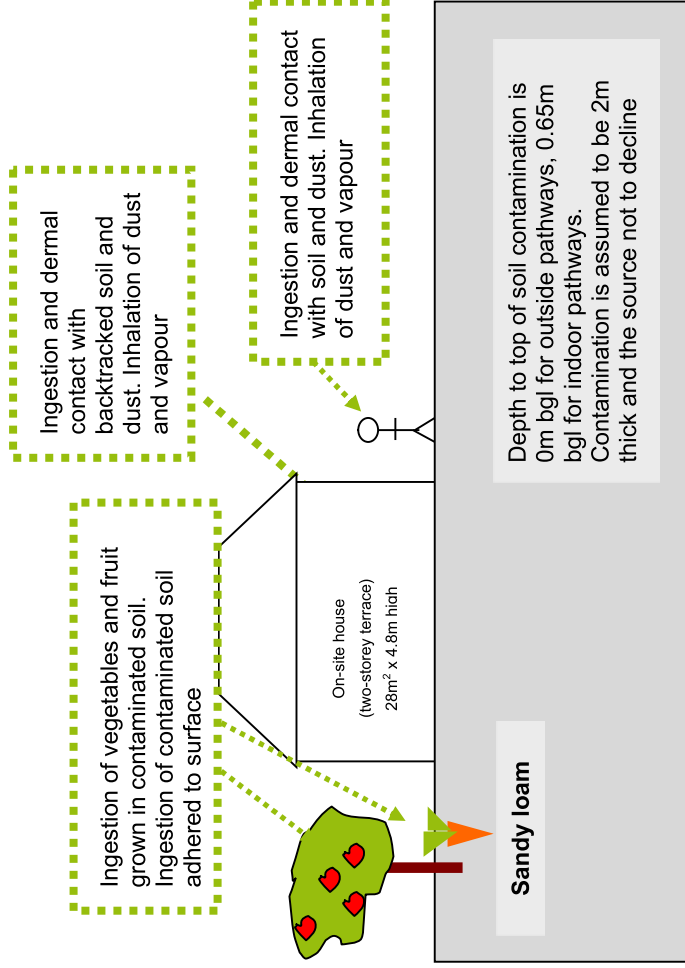


Table 1: Exposure assessment parameters for residential scenario with home-grown produce – inputs for CLEA model

Parameter	Value	Justification
Land use	Residential with homegrown produce	Chosen land use
Receptor	Female child age 1 to 6	Key generic assumption given in Box 3.1, SR3 ⁽⁵⁾
Building	Small terraced house	Key generic assumption given in Box 3.1, SR3. Small, two-storey terraced house chosen, as it is the most conservative residential building type in terms of protection from vapor intrusion (Section 3.4.6, SR3) ⁽⁵⁾
Soil type	Sandy Loam	Most common UK soil type (Section 4.3.1, from Table 3.1, SR3) ⁽⁵⁾
Start AC (age class)	1	Range of age classes corresponding to key generic assumption that the critical receptor is a young female child aged 0–6. From Box 3.1, SR3 ⁽⁵⁾
End AC (age class)	6	
SOM (%)	6	Representative of sandy loamy soil according to EA guidance note dated January 2009 entitled 'Changes We Have Made to the CLEA Framework Documents' ⁽¹³⁾
	1	To provide SAC for sites where SOM <6% as often observed by RSK
	2.5	
pH	7	Model default

Table 2: Residential with home-grown produce – modified home-grown produce data

Name	Consumption rate 90 th percentile (g FW kg ⁻¹ BW day ⁻¹) by age class						Dry weight conversion factor (g DW g ⁻¹ FW)	Home-grown fraction (average)	Home-grown fraction (high end)	Soil loading factor (g g ⁻¹ DW)	Preparation correction factor
	1	2	3	4	5	6					
Green vegetables	7.12	5.87	5.87	5.87	4.53	4.53	0.096	0.05	0.33	1.00E-03	2.00E-01
Root vegetables	10.7	2.83	2.83	2.83	2.14	2.14	0.103	0.06	0.4	1.00E-03	1.00E+00
Tuber vegetables	16	6.6	6.6	6.6	4.95	4.95	0.21	0.02	0.13	1.00E-03	1.00E+00
Herbaceous fruit	1.83	3.39	3.39	3.39	2.24	2.24	0.058	0.06	0.4	1.00E-03	6.00E-01
Shrub fruit	2.23	0.46	0.46	0.46	0.19	0.19	0.166	0.09	0.6	1.00E-03	6.00E-01
Tree fruit	3.82	10.3	10.3	10.3	5.16	5.16	0.157	0.04	0.27	1.00E-03	6.00E-01
Justification	Table 3.4, SP1010 ⁽³⁾						Table 6.3, SR3 ⁽⁵⁾	Table 4.19, SR3 ⁽⁵⁾		Table 6.3, SR3 ⁽⁵⁾	

Table 3: Residential with home-grown produce – modified and use and receptor data

Parameter	Unit	Age class					
		1	2	3	4	5	6
EF (soil and dust ingestion)	day yr ⁻¹	180	365	365	365	365	365
EF (consumption of home-grown produce)	day yr ⁻¹	180	365	365	365	365	365
EF (skin contact, indoor)	day yr ⁻¹	180	365	365	365	365	365
EF (skin contact, outdoor)	day yr ⁻¹	170	170	170	170	170	170
EF (inhalation of dust and vapour, indoor)	day yr ⁻¹	365	365	365	365	365	365
EF (inhalation of dust and vapour, outdoor)	day yr ⁻¹	365	365	365	365	365	365
Justification		Table 3.5, SP1010 ⁽³⁾ ; Table 3.1, SR3 ⁽⁵⁾					
Soil to skin adherence factor (outdoor)	mg cm ⁻² day ⁻¹	0.1	0.1	0.1	0.1	0.1	0.1
Justification		Table 3.5, SP1010 ⁽³⁾					
Inhalation rate	m ³ day ⁻¹	5.4	8.0	8.9/f	10.1	10.1	10.1
Justification		Mean value USEPA, 2011 ⁽¹²⁾ ; Table 3.2, SP1010 ⁽³⁾					
Notes: For cadmium , the exposure assessment for a residential land use is based on estimates representative of lifetime exposure AC1-18. This is because the TDI _{oral} and TDI _{inh} are based on considerations of the kidney burden accumulated over 50 years. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period. See the Environment Agency Science Report SC05002/ TOX 3 ⁽¹⁾ , Science Report SC050021/Cadmium SGV ⁽¹⁾ and the project report SP1010 ⁽³⁾ for more information.							

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GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITH HOME-GROWN PRODUCE



Table 4
Human Health Generic Assessment Criteria by Pathway for Residential With Home-Grown Produce Scenario

Compound	Notes	SAC Appropriate to Pathway SOM 1% (mg/kg)			Soil Saturation Limit (mg/kg)			SAC Appropriate to Pathway SOM 2.5% (mg/kg)			Soil Saturation Limit (mg/kg)			SAC Appropriate to Pathway SOM 5% (mg/kg)			Soil Saturation Limit (mg/kg)		
		Oral	Inhalation	Combined	Oral	Inhalation	Combined	Oral	Inhalation	Combined	Oral	Inhalation	Combined	Oral	Inhalation	Combined	Oral	Inhalation	Combined
Metals																			
Arsenic	(a,b)	3.71E+01	5.26E+02	NR	NR	NR	NR	3.71E+01	5.26E+02	NR	NR	NR	NR	3.71E+01	5.26E+02	NR	NR	NR	NR
Barium	(b)	1.34E+03	NR	NR	NR	NR	NR	1.34E+03	NR	NR	NR	NR	NR	1.34E+03	NR	NR	NR	NR	NR
Beryllium		1.13E+02	1.72E+00	NR	NR	NR	NR	1.13E+02	1.72E+00	NR	NR	NR	NR	1.13E+02	1.72E+00	NR	NR	NR	NR
Boron		3.00E+02	5.20E+06	NR	NR	NR	NR	3.00E+02	5.20E+06	NR	NR	NR	NR	3.00E+02	5.20E+06	NR	NR	NR	NR
Cadmium	(a)	2.30E+01	4.88E+02	2.21E+01	NR	NR	NR	2.30E+01	4.88E+02	2.21E+01	NR	NR	NR	2.30E+01	4.88E+02	2.21E+01	NR	NR	NR
Chromium (III) - trivalent	(c)	1.84E+04	9.07E+02	NR	NR	NR	NR	1.84E+04	9.07E+02	NR	NR	NR	NR	1.84E+04	9.07E+02	NR	NR	NR	NR
Chromium (VI) - hexavalent	(a,d)	5.85E+01	2.06E+01	NR	NR	NR	NR	5.85E+01	2.06E+01	NR	NR	NR	NR	5.85E+01	2.06E+01	NR	NR	NR	NR
Copper		2.72E+03	1.41E+04	2.47E+03	NR	NR	NR	2.72E+03	1.41E+04	2.47E+03	NR	NR	NR	2.72E+03	1.41E+04	2.47E+03	NR	NR	NR
Lead	(a)	2.01E+02	NR	NR	NR	NR	NR	2.01E+02	NR	NR	NR	NR	NR	2.01E+02	NR	NR	NR	NR	NR
Elemental Mercury (Hg ⁰)	(d)	NR	2.35E-01	NR	NR	NR	NR	NR	5.60E-01	NR	1.07E+01	NR	NR	NR	1.22E+00	NR	NR	2.58E+01	NR
Inorganic Mercury (Hg ²⁺)		3.95E+01	3.63E+03	3.91E+01	NR	NR	NR	3.95E+01	3.63E+03	3.91E+01	NR	NR	NR	3.95E+01	3.63E+03	3.91E+01	NR	NR	NR
Methyl Mercury (Hg ⁺)		1.26E+01	1.87E+01	7.52E+00	7.33E+01	NR	NR	1.26E+01	3.62E+01	9.34E+00	1.42E+02	NR	NR	1.26E+01	7.68E+01	1.08E+01	3.04E+02	NR	NR
Nickel	(d)	1.27E+02	1.81E+02	NR	NR	NR	NR	1.27E+02	1.81E+02	NR	NR	NR	NR	1.27E+02	1.81E+02	NR	NR	NR	NR
Selenium	(b)	2.58E+02	NR	NR	NR	NR	NR	2.58E+02	NR	NR	NR	NR	NR	2.58E+02	NR	NR	NR	NR	NR
Vanadium		4.13E+02	1.46E+03	NR	NR	NR	NR	4.13E+02	1.46E+03	NR	NR	NR	NR	4.13E+02	1.46E+03	NR	NR	NR	NR
Zinc	(b)	3.86E+03	3.63E+07	NR	NR	NR	NR	3.86E+03	3.63E+07	NR	NR	NR	NR	3.86E+03	3.63E+07	NR	NR	NR	NR
Cyanide (free)		1.37E+00	1.37E+04	1.37E+00	NR	NR	NR	1.37E+00	1.37E+04	1.37E+00	NR	NR	NR	1.37E+00	1.37E+04	1.37E+00	NR	NR	NR
Volatile Organic Compounds																			
Benzene	(a)	2.62E-01	9.01E-01	2.03E-01	1.22E+03	NR	NR	5.39E-01	1.68E+00	4.08E-01	2.26E+03	NR	NR	1.16E+00	3.48E+00	8.72E-01	4.71E+03	NR	NR
Toluene		1.53E+02	9.08E+02	1.31E+02	8.69E+02	NR	NR	3.49E+02	2.00E+03	2.97E+02	1.92E+03	NR	NR	7.95E+02	4.55E+03	6.77E+02	4.36E+03	NR	NR
Ethylbenzene		1.10E+02	8.34E+01	4.74E+01	5.18E+02	NR	NR	2.61E+02	1.98E+02	1.12E+02	1.22E+03	NR	NR	6.00E+02	4.58E+02	2.60E+02	2.84E+03	NR	NR
Xylene - m		2.10E+02	8.25E+01	5.92E+01	6.25E+02	NR	NR	5.01E+02	1.95E+02	1.40E+02	1.47E+03	NR	NR	1.15E+03	4.56E+02	3.27E+02	3.46E+03	NR	NR
Xylene - o		1.92E+02	8.87E+01	6.07E+01	4.78E+02	NR	NR	4.56E+02	2.08E+02	1.43E+02	1.12E+03	NR	NR	1.05E+03	4.86E+02	3.32E+02	2.62E+03	NR	NR
Xylene - p		1.98E+02	7.93E+01	5.66E+01	5.76E+02	NR	NR	4.70E+02	1.86E+02	1.33E+02	1.35E+03	NR	NR	1.08E+03	4.36E+02	3.10E+02	3.17E+03	NR	NR
Total xylene		1.92E+02	7.93E+01	5.66E+01	6.25E+02	NR	NR	4.56E+02	1.88E+02	1.33E+02	1.47E+03	NR	NR	1.05E+03	4.36E+02	3.10E+02	3.46E+03	NR	NR
Methyl tertiary-Butyl ether (MTBE)		1.54E+02	1.04E+02	6.22E+01	2.04E+04	NR	NR	2.97E+02	1.69E+02	1.08E+02	3.31E+04	NR	NR	6.03E+02	3.21E+02	2.10E+02	6.27E+04	NR	NR
1,1,1,2-Tetrachloroethane		5.39E+00	1.54E+00	1.20E+00	2.60E+03	NR	NR	1.27E+01	3.58E+00	2.78E+00	6.02E+03	NR	NR	2.92E+01	8.29E+00	6.46E+00	1.40E+04	NR	NR
1,1,1,2,2-Tetrachloroethane		2.81E+00	3.92E+00	1.64E+00	2.67E+03	NR	NR	6.10E+00	8.04E+00	3.47E+00	5.46E+03	NR	NR	1.36E+01	1.76E+01	7.67E+00	1.20E+04	NR	NR
1,1,1,1,1-Trichloroethane		3.33E+02	9.01E+00	8.77E+00	1.43E+03	NR	NR	7.26E+02	1.84E+01	1.80E+01	3.94E+01	NR	NR	1.62E+03	4.04E+01	3.94E+01	6.39E+03	NR	NR
1,1,2 Trichloroethane		1.95E+00	1.25E+00	7.62E-01	4.03E+03	NR	NR	4.21E+00	2.55E+00	1.59E+00	8.21E+03	NR	NR	9.35E+00	5.59E+00	3.50E+00	1.80E+04	NR	NR
1,1,1-Dichloroethane		1.93E+01	3.29E+01	3.23E+01	2.23E+03	NR	NR	3.85E+01	5.82E-01	5.74E-01	3.94E+03	NR	NR	8.15E+01	1.17E+00	1.16E+00	7.94E+03	NR	NR
1,2-Dichloroethane		3.17E+02	9.20E+03	7.13E+03	3.41E+03	NR	NR	5.73E+02	1.33E-02	1.08E+02	4.91E+03	NR	NR	1.09E+01	2.28E-02	1.88E-02	8.43E+03	NR	NR
1,2,4-Trimethylbenzene		NR	1.76E+00	NR	4.74E+02	NR	NR	NR	4.28E+00	NR	1.16E+03	NR	NR	NR	9.72E+00	NR	2.76E+03	NR	NR
1,3,5-Trimethylbenzene	(e)	NR	NR	NR	2.30E+02	NR	NR	NR	NR	NR	5.52E+02	NR	NR	NR	NR	NR	1.30E+03	NR	NR
1,2-Dichloropropane		4.28E+00	3.40E-02	3.37E-02	1.19E+03	NR	NR	8.44E+00	6.00E-02	5.96E-02	2.11E+03	NR	NR	1.77E+01	1.21E-01	1.20E-01	4.24E+03	NR	NR
Carbon Tetrachloride (tetrachloromethane)		3.10E+00	2.58E+02	2.57E+02	1.52E+03	NR	NR	7.11E+00	5.65E-02	5.62E-02	3.32E+03	NR	NR	1.62E+01	1.28E+01	1.27E+01	7.54E+03	NR	NR
Chloroethane		NR	1.17E+01	NR	2.67E+03	NR	NR	NR	1.59E+01	NR	3.54E+03	NR	NR	NR	2.57E+01	NR	5.71E+03	NR	NR
Chloromethane		NR	1.17E-02	NR	1.91E+03	NR	NR	NR	1.38E-02	NR	2.24E+03	NR	NR	NR	1.85E-02	NR	2.99E+03	NR	NR
Cis 1,2 Dichloroethene		1.56E-01	NR	NR	3.94E+03	NR	NR	2.66E-01	NR	NR	6.61E+03	NR	NR	5.18E-01	NR	NR	1.29E+04	NR	NR
Dichloromethane		7.04E-01	3.05E+00	6.24E-01	7.27E+03	NR	NR	1.27E+00	4.08E+00	1.08E+00	9.68E+03	NR	NR	2.33E+00	6.42E+00	1.92E+00	1.53E+04	NR	NR
Tetrachloroethene (PCE)		1.33E+01	3.19E+01	3.11E+01	4.24E+02	NR	NR	3.11E+01	7.15E-01	6.99E-01	9.51E+02	NR	NR	7.12E+01	1.64E+00	1.60E+00	2.18E+03	NR	NR
Trans 1,2 Dichloroethene		6.45E+00	2.76E-01	1.29E+01	3.42E+03	NR	NR	1.29E+01	4.99E-01	NR	6.17E+03	NR	NR	2.74E+01	1.02E+00	1.26E+00	1.26E+04	NR	NR
Trichloroethene (TCE)		9.30E+03	3.61E+02	NR	1.54E+03	NR	NR	1.95E+02	7.57E-02	NR	3.22E+03	NR	NR	4.34E+02	1.68E-01	NR	7.14E+03	NR	NR
Vinyl Chloride (chloroethene)		1.13E-02	1.47E-02	6.38E-03	1.36E+03	NR	NR	2.09E-02	1.90E-02	9.97E-03	1.76E+03	NR	NR	3.88E-02	2.91E-02	1.66E-02	2.69E+03	NR	NR
Semi-Volatile Organic Compounds																			
2-Chloronaphthalene		2.76E+02	5.39E+00	5.29E+00	1.14E+02	NR	NR	6.59E+02	1.33E+01	1.30E+01	2.80E+02	NR	NR	1.45E+03	3.17E+01	3.10E+01	6.69E+02	NR	NR

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITH HOME-GROWN PRODUCE



Table 4
Human Health Generic Assessment Criteria by Pathway for Residential With Home-Grown Produce Scenario

Compound	Notes	SAC Appropriate to Pathway SOM 1% (mg/kg)			SAC Appropriate to Pathway SOM 2.5% (mg/kg)			SAC Appropriate to Pathway SOM 6% (mg/kg)			Soil Saturation Limit (mg/kg)
		Oral	Inhalation	Combined	Oral	Inhalation	Combined	Oral	Inhalation	Combined	
Acenaphthene		2.27E+02	4.86E+04	2.26E+02	5.41E+02	1.18E+05	5.38E+02	1.18E+03	2.68E+05	1.17E+03	3.36E+02
Acenaphthylene		1.85E+02	4.59E+04	1.84E+02	4.42E+02	1.11E+05	4.40E+02	9.78E+02	2.53E+05	9.74E+02	5.08E+02
Anthracene		2.43E+03	1.53E+05	2.39E+03	5.53E+03	3.77E+05	5.45E+03	1.10E+04	8.76E+05	1.09E+04	6.96E+00
Benzo(a)anthracene		1.01E+01	2.47E+01	7.18E+00	1.42E+01	4.37E+01	1.07E+01	1.69E+01	6.26E+01	1.33E+01	1.03E+01
Benzo(a)pyrene	(a)	4.96E+00	3.51E+01	NR	4.96E+00	3.77E+01	NR	4.28E+00	3.89E+01	NR	5.48E+00
Benzo(b)fluoranthene		2.96E+00	1.93E+01	2.96E+00	3.89E+00	2.13E+01	3.29E+00	4.43E+00	2.22E+01	3.69E+00	7.29E+00
Benzo(g,h,i)perylene		3.77E+02	1.87E+03	3.14E+02	4.09E+02	1.94E+03	3.38E+02	4.23E+02	1.97E+03	3.48E+02	9.23E+02
Benzo(k)fluoranthene		8.92E+01	5.41E+02	7.66E+01	1.10E+02	5.76E+02	9.22E+01	1.21E+02	5.91E+02	1.00E+02	4.12E+00
Chrysene		1.66E+01	1.19E+02	1.46E+01	2.54E+01	1.49E+02	2.17E+01	3.19E+01	1.66E+02	2.67E+01	2.64E+00
Dibenz(a,h)anthracene		2.90E+01	1.45E+00	2.41E+01	3.43E+01	1.64E+00	2.84E+01	3.69E+01	1.74E+00	3.04E+01	2.38E+02
Fluoranthene		2.87E+02	3.83E+04	2.85E+02	5.63E+02	8.87E+04	5.60E+02	9.00E+02	1.83E+05	8.96E+02	1.13E+02
Fluorene		1.77E+02	6.20E+03	1.72E+02	4.19E+02	1.53E+04	4.07E+02	8.98E+02	3.62E+04	8.77E+02	1.83E+02
Hexachloroethane		2.68E+01	NR	NR	6.57E+01	NR	NR	1.55E+00	NR	NR	4.81E+01
Indeno(1,2,3-cd)pyrene		3.09E+01	2.12E+02	2.70E+01	4.22E+01	2.38E+02	3.59E+01	4.92E+01	2.50E+02	4.11E+01	3.68E+01
Naphthalene		2.78E+01	2.33E+01	1.27E+01	6.66E+01	5.58E+01	3.04E+01	1.53E+02	1.31E+02	7.06E+01	4.32E+02
Phenanthrene		9.85E+01	7.17E+03	9.72E+01	2.24E+02	1.78E+04	2.22E+02	4.48E+02	4.07E+04	4.43E+02	2.14E+02
Pyrene		6.25E+02	8.79E+04	6.20E+02	1.25E+03	2.04E+05	1.24E+03	2.05E+03	4.23E+05	2.04E+03	1.32E+01
Phenol		1.60E+02	4.58E+02	1.20E+02	2.86E+02	6.95E+02	2.09E+02	5.88E+02	1.19E+03	3.93E+02	7.03E+04

Notes:

EC - equivalent carbon. SAC - soil assessment criteria.

The CLEA model output is colour coded depending upon whether the soil saturation limit has been exceeded.

Calculated SAC exceeds soil saturation limit and may significantly affect the interpretation of any exceedances as the contribution of the indoor and outdoor vapour pathway to total exposure is >10%.
Calculated SAC exceeds soil saturation limit but the exceedance will not affect the SAC significantly as the contribution of the indoor and outdoor vapour pathway to total exposure is <10%.
Calculated SAC does not exceed the soil saturation limit.

The SAC for organic compounds are dependant upon soil organic matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58. 1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications. Longmans, 1994.

SAC for TPH fractions, PAHs naphthalene, acenaphthene and acenaphthylene, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway

(Section 10.1.1, SR3)

(a) SAC for arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI and lead are derived using the CASL toxicology data.

(b) SAC for boron and selenium should not include the inhalation pathway as no expert group HCV has been derived; aliphatic and aromatic hydrocarbons >EC16 should not include inhalation pathway due to their non-volatile nature and inhalation exposure being minimal (oral, dermal and inhalation exposure is compared to the oral HCV); arsenic should only be based on oral contribution (rather than combined) owing to the relative small contribution from inhalation in accordance with the SGV report. The Oral SAC should be adopted for zinc and benzo(a)pyrene.

(c) SAC for CrIII should be based on the lower of the oral and inhalation SAC (see LOM/CIH 2015 Section 6.8)

(d) SAC for elemental mercury, chromium VI and nickel should be based on the inhalation pathway only.

(e) SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data. SAC for 1,2,4 trimethylbenzene may be used.

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITH HOME-GROWN PRODUCE



Table 5
Human Health Generic Assessment Criteria for Residential with home-grown produce

Compound	SAC for Soil SOM 1% (mg/kg)	SAC for Soil SOM 2.5% (mg/kg)	SAC for Soil SOM 6% (mg/kg)
Metals			
Arsenic	37	37	37
Barium	1,300	1,300	1,300
Beryllium	1.7	1.7	1.7
Boron	300	300	300
Cadmium	22	22	22
Chromium (III) - trivalent	910	910	910
Chromium (VI) - hexavalent	21	21	21
Copper	2,500	2,500	2,500
Lead	200	200	200
Elemental Mercury (Hg ⁰)	0.2	0.6	1.2
Inorganic Mercury (Hg ²⁺)	39	39	39
Methyl Mercury (Hg ⁴⁺)	10	10	10
Nickel	130	130	130
Selenium	258	258	258
Vanadium	410	410	410
Zinc	3,900	3,900	3,900
Cyanide (free)	1.4	1.4	1.4
Volatile Organic Compounds			
Benzene	0.20	0.41	0.87
Toluene	130	300	680
Ethylbenzene	50	110	260
Xylene - m	59	140	327
Xylene - o	61	143	332
Xylene - p	57	133	310
Total xylene	57	133	310
Methyl tertiary-Butyl ether (MTBE)	60	110	210
1,1,1,2 Tetrachloroethane	1.20	2.78	6.46
1,1,2,2-Tetrachloroethane	1.6	3.5	7.7
1,1,1-Trichloroethane	9	18	39
1,1,2 Trichloroethane	0.8	1.6	3.5
1,1-Dichloroethene	0.32	0.57	1.16
1,2-Dichloroethane	0.007	0.011	0.019
1,2,4-Trimethylbenzene	1.8	4.3	9.7
1,3,5-Trimethylbenzene	NR	NR	NR
1,2-Dichloropropane	0.034	0.060	0.120
Carbon Tetrachloride (tetrachloromethane)	0.026	0.056	0.127
Chloroethane	11.7	15.9	25.7
Chloromethane	0.012	0.014	0.019
Cis 1,2 Dichloroethene	0.16	0.27	0.52
Dichloromethane	0.62	1.08	1.92
Tetrachloroethene (PCE)	0.31	0.70	1.60
Trans 1,2 Dichloroethene	0.28	0.50	1.02
Trichloroethene (TCE)	0.009	0.020	0.043
Vinyl Chloride (chloroethene)	0.006	0.010	0.017
Semi-Volatile Organic Compounds			
2-Chloronaphthalene	5	13	31
Acenaphthene	230	540	1,170
Acenaphthylene	180	440	970
Anthracene	2,400	5,500	10,900
Benzo(a)anthracene	7	11	13
Benzo(a)pyrene	5	5	5
Benzo(b)fluoranthene	2.6	3.3	3.7
Benzo(g,h,i)perylene	310	340	350
Benzo(k)fluoranthene	77	92	100
Chrysene	15	22	27
Dibenzo(a,h)anthracene	0.24	0.28	0.30
Fluoranthene	290	560	900
Fluorene	170	410	880
Hexachloroethane	0.27	0.66	1.55
Indeno(1,2,3-cd)pyrene	13	30	71
Naphthalene	13	30	71
Phenanthrene	100	220	440
Pyrene	620	1,240	2,040
Phenol	120	210	390
Total Petroleum Hydrocarbons			
Aliphatic hydrocarbons EC ₅ -EC ₆	42	78	160
Aliphatic hydrocarbons >EC ₆ -EC ₈	100	230	530
Aliphatic hydrocarbons >EC ₈ -EC ₁₀	27	65	154
Aliphatic hydrocarbons >EC ₁₀ -EC ₁₂	130 (48)	330 (118)	760 (283)
Aliphatic hydrocarbons >EC ₁₂ -EC ₁₆	1,100 (24)	2,400 (59)	4,300 (142)
Aliphatic hydrocarbons >EC ₁₆ -EC ₃₅	65,000 (8)	92,000 (21)	110,000
Aliphatic hydrocarbons >EC ₃₅ -EC ₄₄	65,000 (8)	92,000 (21)	110,000
Aromatic hydrocarbons >EC ₅ -EC ₁₀	30	80	190
Aromatic hydrocarbons >EC ₁₀ -EC ₁₂	80	180	390
Aromatic hydrocarbons >EC ₁₂ -EC ₁₆	140	330	670
Aromatic hydrocarbons >EC ₁₆ -EC ₂₁	260	540	930
Aromatic hydrocarbons >EC ₂₁ -EC ₃₅	1,100	1,500	1,700
Aromatic hydrocarbons >EC ₃₅ -EC ₄₄	1,100	1,500	1,700
Minerals			
Asbestos	Stage 1 test – No asbestos detected with ID; Stage 2 test - <0.001% dry weight (exceedance of either equates to an exceedance of the GAC) ¹		
Notes:			
* Generic assessment criteria not calculated owing to low volatility of substance and therefore no pathway, or an absence of toxicological data.			
NR - SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4 trimethylbenzene may be used			
EC - equivalent carbon. SAC - soil assessment criteria.			
¹ LOD for weight of asbestos per unit weight of soil calculated on a dry weight basis using PLM, handpicking and gravimetry.			
The SAC for organic compounds are dependent on Soil Organic Matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58.			
1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994.			
SAC for TPH fractions, PAHs naphthalene, acenaphthene and acenaphthylene, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway, section 10.1.1, SR3.			
(VALUE IN BRACKETS)			
RSK has adopted an approach for petroleum hydrocarbons in accordance with LQM/CIEH whereby the concentration modelled for each petroleum hydrocarbon fraction has been tabulated as the SAC with the corresponding solubility or vapour saturation limits given in brackets.			

APPENDIX K

GENERIC ASSESSMENT CRITERIA POTABLE WATER SUPPLY PIPES

A range of pipe materials is available and careful selection, design and installation is required to ensure that water supply pipes are satisfactorily installed and meet the requirements of the Water Supply (Water Fittings) Regulations 1999 in England and Wales, the Byelaws 2000 in Scotland and the Northern Ireland Water Regulations. The regulations include a requirement to use only suitable materials when laying water pipes and laying water pipes without protection is not permitted at contaminated sites. The water supply company has a statutory duty to enforce the regulations.

Contaminants in the ground can pose a risk to human health by permeating potable water supply pipes. To fulfil their statutory obligation, UK water supply companies require robust evidence from developers to demonstrate either that the ground in which new plastic supply pipes will be laid is free from specific contaminants, or that the proposed remedial strategy will mitigate any existing risk. If these requirements cannot be demonstrated to the satisfaction of the relevant water company, it becomes necessary to specify an alternative pipe material on the whole development or in specific zones.

In 2010, UK Water Industry Research (UKWIR) published *Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (Report Ref. No. 10/WM/03/21). This report reviewed previously published industry guidelines and threshold concentrations adopted by individual water supply companies.

The focus of the UKWIR research project was to develop clear and concise procedures, which provide consistency in the pipe selection decision process. It was intended to provide guidance that can be used to ensure compliance with current regulations and to prevent water supply pipe failing prematurely due to the presence of contamination.

The report concluded that in most circumstances only organic contaminants pose a potential risk to plastic pipe materials and Table 3.1 of the report provides threshold concentrations for polyethylene (PE) and polyvinyl chloride (PVC) pipes for the organic contaminants of concern. The report also makes recommendations for the procedures to be adopted in the design of site investigations and sampling strategies, and the assessment of data, to ensure that the ground through which water supply pipes will be laid is adequately characterised.

Risks to water supply pipes have therefore been assessed against the threshold concentrations for PE and PVC pipe specified in Table 3.1 of Report 10/WM/03/21, which have been adopted as the GAC for this linkage and are reproduced in Table A3 below.

Since water supply pipes are typically laid at a minimum depth of 0.75 m below finished ground levels, sample results from depths between 0.5 m and 1.5 m below finished level are generally considered suitable for assessing risks to water supply. Samples outside these depths can be used, providing the stratum is the same as that in which water supply pipes are likely to be located. The report specifies that sampling should characterise the ground conditions to a minimum of 0.5 m below the proposed depth of the pipe.

It should be noted that the assessment provided in this report is a guide and the method of assessment and recommendations should be checked with the relevant water supply company.

Table 1: Generic assessment criteria for water supply pipes

		Pipe material	
		GAC (mg/kg)	
	Parameter group	PE	PVC
1	Extended VOC suite by purge and trap or head space and GC-MS with TIC (Not including compounds within group 1a)	0.5	0.125
1a	BTEX + MTBE	0.1	0.03
2	SVOCs TIC by purge and trap or head space and GC-MS with TIC (aliphatic and aromatic C ₅ –C ₁₀) (Not including compounds within group 2e and 2f)	2	1.4
2e	Phenols	2	0.4
2f	Cresols and chlorinated phenols	2	0.04
3	Mineral oil C ₁₁ –C ₂₀	10	Suitable
4	Mineral oil C ₂₁ –C ₄₀	500	Suitable
5	Corrosive (conductivity, redox and pH)	Suitable	Suitable
Specific suite identified as relevant following site investigation			
2a	Ethers	0.5	1
2b	Nitrobenzene	0.5	0.4
2c	Ketones	0.5	0.02
2d	Aldehydes	0.5	0.02
6	Amines	Not suitable	Suitable
Notes: where indicated as 'suitable', the material is considered resistant to permeation or degradation and no threshold concentration has been specified by UKWIR.			

APPENDIX L

GENERIC ASSESSMENT CRITERIA FOR CONTROLLED WATERS

GENERIC ASSESSMENT CRITERIA FOR CONTROLLED WATERS

Protection of the water environment

The water environment in the United Kingdom is protected under a number of regulatory regimes. The relevant environmental regulator is consulted where there may be a risk that pollution of 'controlled waters' may occur or may have occurred in the past.

The term 'controlled waters' refers to coastal waters, inland freshwaters and groundwater. The EU Water Framework Directive (WFD) (2000/60/EC) is implemented via domestic regulations and guidance, covering aspects of groundwater and surface water protection as well as drinking water supply policy. Domestic legislation and guidance will vary across the United Kingdom. Therefore, the relevant legislation for England, Wales, Northern Ireland and Scotland should be reviewed, alongside guidance provided by the Environment Agency (EA), Natural Resource Wales (NRW), the Scottish Environmental Protection Agency (SEPA) or the Northern Ireland Environment Agency (NIEA), as appropriate.

The main objectives of the protection and remediation of groundwater under threat from land contamination are set out within "The Environment Agency's approach to groundwater protection", version 1.0 (March 2017)⁽¹⁾ and the associated guidance "Land contamination groundwater compliance points: quantitative risk assessments (March 2017)^(1a) that have replaced the previous guidance document "Groundwater Principles and Practice (GP3)". When assessing risks to groundwater, the following need to be considered:

- Where pollutants have not yet entered groundwater, all necessary and reasonable measures must be taken to:
 - **prevent** the input of **hazardous** substances into groundwater (see description of hazardous substances below)
 - **limit** the entry of other (non-hazardous) pollutants into groundwater to avoid pollution, deterioration in the status of groundwater bodies and to prevent sustained, upward trends in pollutant concentrations in groundwater.
- Where pollutants have already entered groundwater, the priority is to take all necessary and reasonable measures to:
 - **minimise** further entry of "contaminants" where there is a defined source
 - **limit the pollution** of groundwater or any effect on the status of the groundwater body from the future expansion of the 'plume', if necessary, by actively reducing its extent.

Within the context of groundwater risk assessments on sites affected by land contamination, "reasonable" means feasible without involving disproportionate costs. What costs are "disproportionate" depends on site-specific circumstances, which may include:

- Considerations of technical feasibility such as identified by the remedial options appraisal, this may be due to the distribution or nature of the contamination and the available remedial methods to treat the identified contamination;
- Sustainability considerations.

DEFINITIONS AND SUBSTANCE CLASSIFICATIONS

Risks to surface waters:

When assessing risks to surface waters, the following list of definitions should be understood:

Priority substances (PS) are harmful substances originally identified under the Water Framework Directive (WFD) 2000/60/EC as substances ‘presenting a significant risk to or via the aquatic environment’ at a European level. Member States are required to incorporate the identified **PS** into their country-wide monitoring programmes. There are currently 33 **PS** defined within the Priority Substances Directive (2013/39/EU; Annex 1), with a further 12 additional substances due to come into force from 22 December 2018. Directive 2013/39/EU has been transposed into domestic legislation for England and Wales by The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

Under the umbrella of **PS**, there is a sub-set of substances identified as being “hazardous”, and these are referred to as **Priority hazardous substances (PHS)**. The list of **PHS** is defined at EU level within the Priority Substances Directive (2013/39/EU). The WFD defines hazardous substances as ‘substances (or groups of substances) that are toxic, persistent and liable to bio-accumulate, and other substances or groups of substances that give rise to an equivalent level of concern.’ There are currently **21 PHS** (previously 15 PHS, with a further 6 substances added in 22 December 2018).

There is also another group of substances defined at EU level and which are referred to as **other pollutants (OP)** in Directive 2013/39/EU. These are additional substances which although not **priority substances**, have EQS which are identical to those laid down in the legislation which applied prior to 13 January 2009 (Directive 2008/105/EU). The **OP** are listed along with the **priority substance (PS)** within the Priority Substances Directive (2013/39/EU), and their associated EQS are also listed therein. There are 6 **OP** defined within the Priority Substances Directive (2013/39/EU).

In addition to the EU level substances, there are also a group of pollutants defined at a Member State level, referred to as **Specific pollutants (SP)**. These substances are pollutants which are released in significant quantities into water bodies in each of the individual European Member States. Under the WFD, Member States are required to set their own EQS for these substances. An indicative list of **SP** is given in Annex VIII of the WFD. Many of the substances categorised as **SP** in the UK were formerly List 2 substances under the old Groundwater Directive (80/68/EEC). The **SP** are defined within Part 2 (Table 1) of The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

Risks to groundwater:

When assessing risks to groundwater, the following definitions should be understood:

Under the requirements of the Groundwater Daughter Directive (2006/118/EU), the UK has published a list of substances it considers to be **hazardous substances** with respect to groundwater. In their advisory capacity to the government, this list has been derived by the UK Joint Agencies Groundwater Directive Advisory Group (JAGDAG), of which the Environment Agency is a member. The latest JAGDAG list of **hazardous substances** was published in January 2019 and the Environment Agency will use the updated list of hazardous substances from this date for all new activities that may lead to the discharge of hazardous substances to groundwater. The list is extensive and can be found in full at:

<https://www.wfduk.org/stakeholders/jagdag>

Selecting the appropriate assessment criteria

When assessing the risks to controlled waters, various assessment criteria apply, depending on the nature of the assessment and the conceptual site model.

Where a surface water body is involved, then Environmental Quality Standards (EQS) are the relevant assessment criteria as they are designed to be protective of surface water ecology.

Where a public water supply or a Principal aquifer is involved, then the standards defined in The Water Supply (Water Quality) Regulations⁽²⁾ are the primary source of assessment criteria. The Private Water Supplies Regulations⁽³⁾ may also be applicable in some cases. For instances where there are no UK assessment criteria, then the World Health Organisation (WHO) drinking water guidelines⁽⁴⁾ may be used.

This appendix presents the generic assessment criteria (GAC) that RSK considers suitable for assessing risks to controlled waters for our most commonly encountered determinants. A full list of EQS for England and Wales are included in The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

The RSK GAC for controlled waters are presented in **Table 1** and **Table 2**. In line with the Environment Agency's Remedial Targets Methodology, the GAC for controlled waters are termed 'target concentrations'.

The appropriate target concentrations should be selected with consideration to:

- the site conceptual model (i.e. the receptor at potential risk);
- whether the substance is already present in groundwater at the site;
- whether or not the substance is classified as a priority hazardous substance under the Priority Substances Directive (2013/39/EC) (see above), or as a hazardous substance according to the current list of JAGDAG determinations⁽⁵⁾; and
- background concentrations in the aquifer (if applicable).

It is important to remember that the WFD and Environment Agency guidance^(1 & 1a) support a sustainable, risk-based approach be applied to groundwater contamination. Exceedance of any target concentration does not necessarily imply that an unacceptable risk exists or that remediation is inevitably required.

Target concentrations shaded in green are <u>statutory values</u>	Target concentrations shaded in orange are <u>non-statutory values</u>
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Note: Units µg/l throughout (unless otherwise stated)

Table 1: Target concentrations for controlled waters (excluding TPH CWG fractions)

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Metals & other inorganics						
Hazardous substance	Specific pollutant	Arsenic	-	10 ⁽²⁾	50 ^(6a)	25 ^(6a)
Non-hazardous pollutant	Priority substance	Cadmium	0.1 ⁽⁷⁾	5 ⁽²⁾	≤0.08, 0.08, 0.09, 0.15, 0.25 ^(6b)	0.2 ^(6a)
(Not determined)	-	Chromium (total)	-	50 ⁽²⁾	8.1 Sum values for chromium III and VI	-
(Not determined)	Specific pollutant	Chromium (III)	-	Use value for total chromium	4.7 ^(6a)	-
Hazardous substance	Specific pollutant	Chromium (VI)			3.4 ^(6a)	0.6 ^(6a)

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
				Freshwater	Transitional (estuaries) and coastal waters	
<i>(Not determined)</i>	Specific pollutant	Copper	-	2,000 ⁽²⁾	1 bioavailable ^(6a)	3.76 dissolved, where DOC ≤1mg/l ^(6a)
						3.76µg/l + (2.677µg/l x ((DOC/2) – 0.5µg/l)) dissolved, where DOC >1mg/l ^(6a)
Hazardous substance	Priority substance	Lead	-	10 ⁽²⁾	1.2 bioavailable ^(6a)	1.3 ^(6a)
Hazardous substance	Priority hazardous substance	Mercury	0.01 ⁽⁷⁾	1 ⁽²⁾	0.07 ^(6c)	0.07 ^(6c)
Non-hazardous pollutant	Priority substance	Nickel	-	20 ⁽²⁾	4.0 bioavailable ^(6a)	8.6 ^(6a)
Non-hazardous pollutant	-	Selenium	-	10 ⁽²⁾	-	-
Non-hazardous pollutant	Specific pollutant	Zinc	-	3,000 ⁽⁸⁾	10.9 bioavailable ^(6a)	6.8 dissolved ^(6a)
<i>(Not determined)</i>	Specific pollutant	Iron	-	200 ⁽²⁾	1000 ^{(6a)*1}	1000 ^{(6a)*1}
<i>(Not determined)</i>	Specific pollutant	Manganese	-	50 ⁽²⁾ (0.05mg/l)	123 bioavailable ^(6a) (0.123mg/l)	-
<i>(Not determined)</i>	-	Aluminium	-	200 ⁽²⁾	-	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
Hazardous substance	Priority hazardous substance	Tributyltin compounds (Tributyltin-cation)	0.001 ⁽⁷⁾	-	0.0002 ^(6a)	0.0002 ^(6a)
(Not determined)	-	Sodium	-	200,000 ⁽²⁾ (200 mg/l)	-	-
Non-hazardous pollutant	Specific pollutant	Cyanide (Hydrogen cyanide)	-	50 ⁽²⁾ (0.05 mg/l)	1 ^(6a) (0.001 mg/l)	1 ^(6a) (0.001 mg/l)
Non-hazardous pollutant	-	Total ammoniacal nitrogen ^{\$}	-	500 ⁽²⁾ (0.5 mg/l) as NH ₄ (472 expressed as NH ₃ ; 389 expressed as N)	300 ^(6f) (0.3 mg/l) as N (364 expressed as NH ₃ ; 386 expressed as NH ₄)	-
Non-hazardous pollutant	Specific pollutant	Ammonia un-ionised (equilibrium ratio calculated) (NH ₃)	-	-	-	21 ^(6a) (0.021 mg/l)
Non-hazardous pollutant	Specific pollutant	Chlorine	-	-	2 ^(6a) (0.002 mg/l)	10 ^(6d) (0.01 mg/l)
(Not determined)	-	Chloride	-	250,000 ⁽²⁾ (250 mg/l)	-	-
(Not determined)	-	Sulphate	-	250,000 ⁽²⁾ (250 mg/l)	-	-
(Not determined)	-	Nitrate (as NO ₃)	-	50,000 ⁽²⁾ (50 mg/l)	-	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
(Not determined)	-	Nitrite (as NO ₂)	-	500 ⁽²⁾ (0.5 mg/l)	10 ⁽⁹⁾ (0.01 mg/l)	-
Volatile organic compounds (VOC)						
Non-hazardous pollutant	Other pollutant	Tetrachloroethene (tetrachloroethylene; PCE)	0.1 ⁽⁷⁾	10 ⁽²⁾ sum of TCE and PCE	10 ^(6a)	10 ^(6a)
Hazardous substance	Other pollutant	Trichloroethene (trichloroethylene; TCE)	0.1 ⁽⁷⁾		10 ^(6a)	10 ^(6a)
Hazardous substance (1,1,2,2-tetra-chloroethane)	Specific pollutant	Tetrachloroethane	-	-	140 ^(6a)	-
Hazardous substance	Other pollutant	Carbon tetrachloride (tetrachloromethane)	0.1 ⁽⁷⁾	3.0 ⁽²⁾	12 ^(6a)	12 ^(6a)
Non-hazardous pollutant	Priority substance	1,2-Dichloroethane	1.0 ⁽⁷⁾	3.0 ⁽²⁾	10 ^(6a)	10 ^(6a)
Non-hazardous pollutant	-	1,2-Dichloroethene (DCE) sum of cis and trans	-	50.0 ⁽⁴⁾	-	-
Hazardous substance	-	Vinyl chloride (chloroethene, chloroethylene)	-	0.5 ⁽²⁾	-	-
Non-hazardous pollutant	Priority substance	Dichloromethane	-	20 ⁽⁴⁾	20 ^(6a)	20 ^(6a)

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Non-hazardous pollutant	Priority substance	Trichlorobenzenes	0.01 ⁽⁷⁾	-	0.4 ^(6a)	0.4 ^(6a)
Hazardous substance	Priority substance	Trichloromethane (Chloroform)	0.1 ⁽⁷⁾	100 ^(2a) (sum of trihalomethanes – chloroform, bromoform, dibromochloromethane, bromodichloromethane)	2.5 ^(6a)	2.5 ^(6a)
(Not determined)	-	Bromoform	-		-	-
(Not determined)	-	Dibromochloromethane	-		-	-
(Not determined)	-	Bromodichloromethane	-		-	-
Non-hazardous pollutant	Priority hazardous substance	Di(2-ethylhexyl) phthalate (bis(2-ethylhexyl) phthalate, DEHP)	-	8 ⁽⁴⁾	1.3 ^(6a)	1.3 ^(6a)
(Not determined)	Specific pollutant	Benzyl butyl phthalate	-	-	7.5 ^(6a)	0.75 ^(6e)
Hazardous substance	Priority hazardous substance	Hexachlorobutadiene (as a pesticide, but reported in a VOC suite)	0.005 ⁽⁷⁾	0.1 ⁽²⁾	0.6 ^(6c)	0.6 ^(6c)
Semi-volatile organic compounds (SVOC)						
(Not determined) Not to be confused with acenaphthene, which is a hazardous substance	-	Acenaphthylene (Aro EC12-EC16)	-	-	5.8 ⁽¹⁰⁾	
Hazardous substance	Priority hazardous substance	Anthracene (Aro EC16-EC21)	-	-	0.1 ^(6a)	0.1 ^(6a)

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Non-hazardous pollutant	Priority substance	Naphthalene (Aro EC10-EC12)	-	-	2 ^(6a)	2 ^(6a)
Hazardous substance	Priority substance	Fluoranthene (Aro EC21-EC35) not used as an indicator for this EC band	-	-	0.0063 ^(6a)	0.0063 ^(6a)
Hazardous substance(s)	Priority hazardous substance(s)	Benzo(a)pyrene (Aro EC21-EC35)	-	0.01 ⁽²⁾	0.00017 ^(6a)	0.00017 ^(6a)
		Benzo(b)fluoranthene (Aro EC21-EC35)	-	0.1 ⁽²⁾ sum of the concentration of the four specified compounds	No EQS for these substances. B(a)P should be used as the indicator compound instead.	
		Benzo(k)fluoranthene (Aro EC21-EC35)	-			
		Benzo(g,h,i)perylene (Aro EC21-EC35)	-			
		Indeno(1,2,3-cd) pyrene (Aro EC21-EC35)	-			
Non-hazardous pollutant	Specific pollutant	Phenol	-	-	7.7 ^(6a)	7.7 ^(6a)
Hazardous substance	Specific pollutant	2,4-Dichlorophenol	0.1 ⁽⁷⁾	-	4.2 ^(6a)	0.42 ^(6a)

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Priority substance	Pentachloro-phenol (PCP) (as a pesticide, but reported in an SVOC suite)	0.1 ⁽⁷⁾	0.1 ⁽²⁾	0.4 ^(6a)	0.4 ^(6a)
Petroleum hydrocarbons						
Hazardous substance	-	Total petroleum hydrocarbons	-	See Table 2 for individual (non-statutory) TPH CWG fractions with respect to drinking water receptors	See individual risk driving compounds (i.e. BTEX and PAH) for specific EQS	
Hazardous substance	Priority substance	Benzene (Aro EC5-EC7)	1 ⁽⁷⁾	1 ⁽²⁾	10 ^(6a)	8 ^(6a)
Hazardous substance	Specific pollutant	Toluene (Aro EC7-EC8)	4 ⁽⁷⁾	700 ⁽⁴⁾	74 ^(6a)	74 ^(6a)
Hazardous substance	-	Ethylbenzene (Aro EC8-EC10)	-	300 ⁽⁴⁾	300 ⁽¹¹⁾	-
Hazardous substance	-	Xylenes (Aro EC8-EC10)	3 ⁽⁷⁾	500 ⁽⁴⁾	30 ⁽¹¹⁾	-
Non-hazardous pollutant	-	Methyl tertiary butyl ether (MTBE)	-	15 ⁽¹²⁾	-	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Pesticides, fungicides, insecticides and herbicides						
(Not determined) – assume to be Hazardous Substance as per below	-	Total pesticides	-	0.5 ⁽²⁾	-	-
(Not determined) - assume to be Hazardous Substance as per below	-	Other individual pesticides (unless otherwise detailed below)	-	0.1 ⁽²⁾	-	-
Hazardous substance(s)	Other pollutant (Cyclodiene pesticides)	Aldrin	0.003 ⁽⁷⁾	0.03 ⁽²⁾	0.01 ^(6a) (sum of all four)	0.005 ^(6a) (sum of all four)
		Dieldrin	0.003 ⁽⁷⁾	0.03 ⁽²⁾		
		Endrin	0.003 ⁽⁷⁾	0.1 ^(2b) ('other individual pesticide')		
		Isodrin ^{*2}	0.003 ⁽⁷⁾	0.1 ^(2b) ('other individual pesticide')		
Hazardous substance	Other pollutant	DDT (total)	0.002 ⁽⁷⁾	0.1 ⁽²⁾ ('other individual pesticide')	0.025 ^(6a)	0.025 ^(6a)
Hazardous substance	Specific pollutant	Carbendazim	-	0.1 ⁽²⁾ ('other individual pesticide')	0.15 ^(6a)	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Specific pollutant	Chlorothalonil	-	0.1 ⁽²⁾ (‘other individual pesticide’)	0.035 ^(6a)	-
Hazardous substance	Priority substance	Cypermethrin	-	0.1 ⁽²⁾ (‘other individual pesticide’)	8.0E-5 ^(6a)	8.0E-6 ^(6a)
Hazardous substance	Specific pollutant	Dimethoate	0.01 ⁽⁷⁾	0.1 ⁽²⁾ (‘other individual pesticide’)	0.48 ^(6a)	0.48 ^(6a)
<i>(Not determined)</i>	Specific pollutant	Glyphosate	-	0.1 ⁽²⁾ (‘other individual pesticide’)	196 ^(6a)	196 ^(6a)
Hazardous substance	Specific pollutant	Linuron	-	0.1 ⁽²⁾ (‘other individual pesticide’)	0.5 ^(6a)	0.5 ^(6a)
Non-hazardous pollutant	Specific pollutant	Mecoprop	0.04 ⁽⁷⁾	0.1 ⁽²⁾ (‘other individual pesticide’)	18 ^(6a)	18 ^(6a)
Non-hazardous pollutant	Specific pollutant	Methiocarb	-	0.1 ⁽²⁾ (‘other individual pesticide’)	0.01 ^(6a)	-
Non-hazardous pollutant	Specific pollutant	Pendimethalin	-	0.1 ⁽²⁾ (‘other individual pesticide’)	0.3 ^(6a)	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Specific pollutant	Permethrin	0.001 ⁽⁷⁾	0.1 ⁽²⁾ (‘other individual pesticide’)	0.001 ^(6a)	0.0002 ^(6a)
Hazardous substance	Priority substance	Alachlor	-	0.1 ⁽²⁾ (‘other individual pesticide’)	0.3 ^(6a)	0.3 ^(6a)
Hazardous substance	Priority substance	Atrazine	0.03 ⁽⁷⁾	100 ⁽⁴⁾ (‘other individual pesticide’)	0.6 ^(6a)	0.6 ^(6a)
Hazardous substance	Priority substance	Diuron	-	0.1 ⁽²⁾ (‘other individual pesticide’)	0.2 ^(6a)	0.2 ^(6a)
Hazardous substance	Priority hazardous substance	Endosulphan	0.005 ⁽⁷⁾	0.1 ⁽²⁾ (‘other individual pesticide’)	0.005 ^(6a)	0.0005 ^(6a)
Non-hazardous pollutant	Priority substance	Isoproturon	-	0.1 ⁽²⁾ (‘other individual pesticide’)	0.3 ^(6a)	0.3 ^(6a)
Hazardous substance	Priority substance	Simazine	0.03 ⁽⁷⁾	0.1 ⁽²⁾ (‘other individual pesticide’)	1 ^(6a)	1 ^(6a)
Hazardous substance	Priority hazardous substance	Trifluralin	0.01 ⁽⁷⁾	0.1 ⁽²⁾ (‘other individual pesticide’)	0.03 ^(6a)	0.03 ^(6a)



Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Priority substance	Dichlorvos	-	0.1 ⁽²⁾ (‘other individual pesticide’)	6.0E ^{-4(6a)}	6.0E ^{-5(6a)}
Hazardous substance	Priority substance	Heptachlor and heptachlor epoxide	-	0.03 ⁽²⁾	2.0E ^{-7(6a)}	1.0E ^{-08(6a)}
Miscellaneous						
<i>(Not determined)</i>	Specific pollutant	Triclosan (antibacterial agent)	-	-	0.1 ^(6a)	0.1 ^(6a)
Hazardous substance	Priority hazardous substance	Perfluoro-octane sulfonic acid (and its derivatives) (PFOS)	-	-	6.5E ^{-4(6a)}	1.3E ^{-4(6a)}
Hazardous substance	Priority hazardous substance	Hexabromo cyclododecane (HBCDD)	-	-	0.0016 ^(6a)	0.0008 ^(6a)

Substance classification		Determinant	Target concentrations (µg/l)		
Groundwater receptors ⁽⁵⁾	Surface water receptors ⁽⁶⁾		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent
					Freshwater Transitional (estuaries) and coastal waters
Notes: ‘-’ A target concentration is not available. \$Please note that total ammonia (NH₄⁺ and NH₃) is equivalent to ammoniacal nitrogen in laboratory reports *1 Please note that although iron is listed in the 2015 Direction as 1.000 µg/l, the EQS remains at 1mg/l in Scotland and it is assumed this is an error and should read either 1,000 or 1000µg/l. *2 Please note that although Isodrin is not listed in name within the group of “Cyclodiene pesticides” in Table 1 of Schedule 3 Part 3 of the 2015 Direction⁽⁶⁾, the CAS number for Isodrin (465-73-6) is listed and therefore it is assumed that it has been missed off the named list of substances. *3 Total petroleum hydrocarbons is used for consistency, but is an analytical method-defined measurement for a mixture of hydrocarbons subject to environmental analysis¹¹. “Bioavailable” in relation to copper, zinc, nickel and manganese (but not lead) is the generic EQSbioavailable^(6a) derived from the Metal Bioavailability Assessment Tool (M-BAT) developed by the Water Framework Directive UK Technical Advisory Group (WFDTAG). Exceedance of this value should prompt a site-specific assessment using the M-BAT with pH, DOC and Ca to derive a site-specific EQS termed the PNEC_{dissolved}. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. For zinc, if there is an exceedance of the EQSbioavailable in an initial GQRA, Tier 2 required that the EQS for zinc should also have the ambient background concentration of zinc added as well					

Table 2: World Health Organization (WHO) guide values for TPH CWG fractions in drinking water⁽¹³⁾ (as referenced in CL:AIRE, 2017⁽¹¹⁾)

TPH CWG fraction	WHO guide value for drinking water ⁽¹³⁾ (µg/l)
Aliphatic fractions:	
Aliphatic EC5-EC6	15,000
Aliphatic >EC6-EC8	15,000
Aliphatic >EC8-EC10	300
Aliphatic >EC10-EC12	300
Aliphatic >EC12-EC16	300
Aliphatic >EC16-EC21	-
Aliphatic >EC21-EC35	-
Aromatic fractions:	
Aromatic EC5-EC6	10 (benzene)
Aromatic >EC6-EC8	700 (toluene)
Aromatic >EC8-EC10	300 (ethyl benzene) 500 (xylenes)
Aromatic >EC10-EC12	90
Aromatic >EC12-EC16	90
Aromatic >EC16-EC21	90
Aromatic >EC21-EC35	90
Reference: World Health Organisation (WHO), 2008. Petroleum products in drinking-water. Background document for development of WHO guidelines for drinking water quality. WHO/SDE/WSH/05.08/123. World Health Organisation, Geneva ⁽¹³⁾ .	

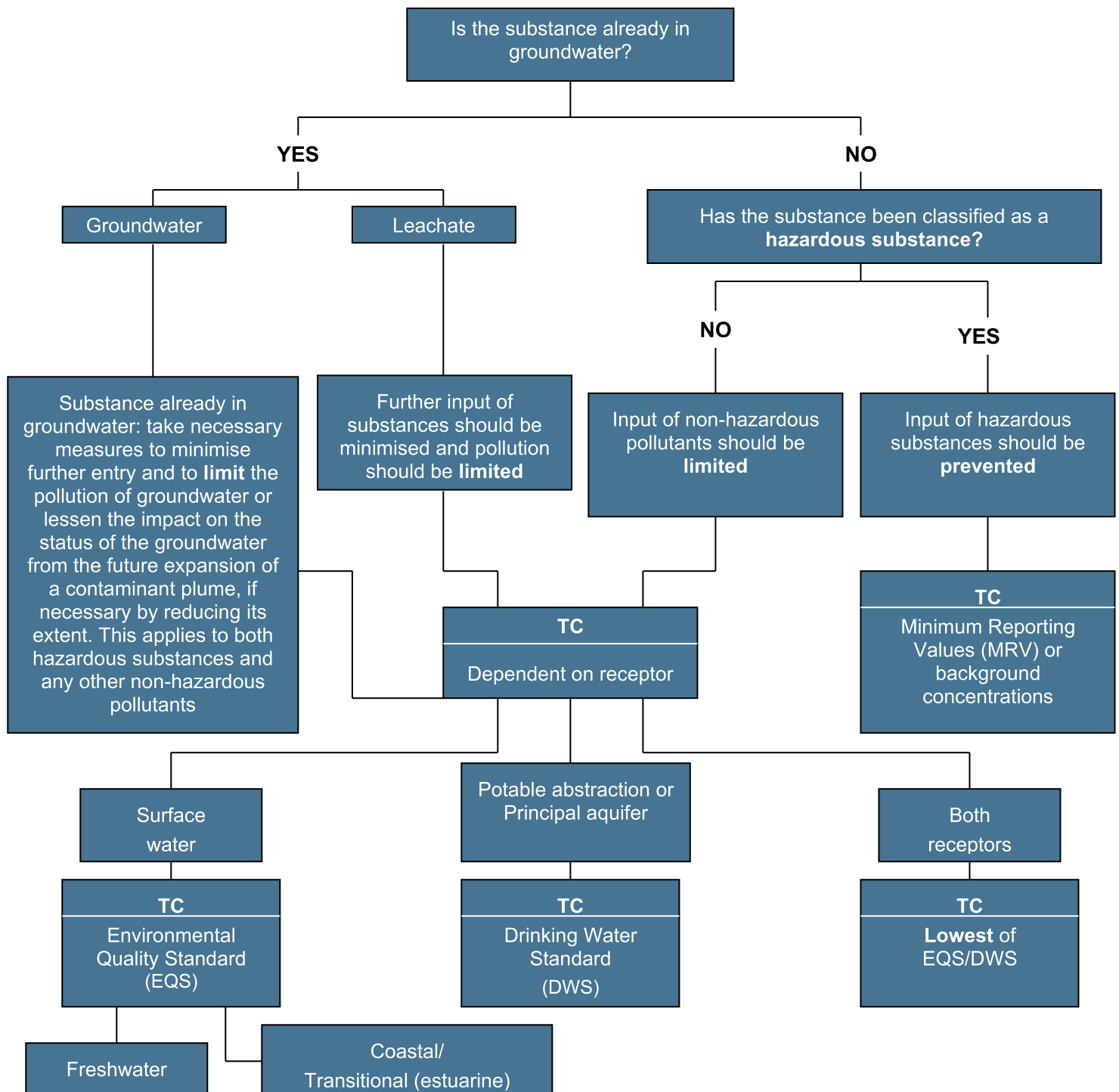
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1. Environment Agency (2018), 'The Environment Agency's approach to groundwater protection', version 1.2, February 2018 (formerly contained within GP3).
<https://www.gov.uk/government/collections/groundwater-protection>
- 1a. Environment Agency (2017), 'Land contamination groundwater compliance points: quantitative risk assessments', March 2017 (formerly contained within GP3) [accessed 29 March 2017].
<https://www.gov.uk/government/collections/groundwater-protection>
2. The Water Supply (Water Quality) Regulations 2016 (SI 2016/619)
 - 2a. Sum of chloroform, bromoform, dibromochloromethane and bromodichloromethane
 - 2b. Standard applies to individual pesticides except aldrin, dieldrin, heptachlor and heptachlor epoxide, for which a separate standard is defined.
3. The Private Water Supplies (England) Regulations 2016. SI 2016 / 618
4. WHO (2011), *Guidelines for drinking-water quality*, 4th edn
5. JAGDAG hazard substance determinations (January 2019): This list contains substances that are determined to be hazardous substances or non-hazardous pollutants for the purposes of the groundwater directive 2006/118/EC. <https://www.wfduk.org/stakeholders/jagdag> [accessed 1 February 2021]
The absence of an assessment or substance from the list means an assessment has not been completed and is therefore presented as 'Not determined'. For further details on how substances are assessed, see the Joint Agencies Groundwater Directive Advisory Group (JAGDAG) 'Methodology for the determination of hazardous substances in groundwater for the purposes of the groundwater directive 2006/118/EC' which is available from the JAGDAG website. The methodology is a UK –wide framework that sets criteria for how to assess whether a substance is a hazardous substances in groundwater.
6. The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.
 - 6a. The EQS for these substances are based on a "long term mean" or an "annual average (AA)" EQS.
 - 6b. For cadmium and its compounds the EQS values vary depending on the hardness of the water as specified in five class categories (Class 1: < 40 mg CaCO₃/l, Class 2: 40 to < 50 mg CaCO₃/l, Class 3: 50 to < 100 mg CaCO₃/l, Class 4: 100 to < 200 mg CaCO₃/l and Class 5: ≥ 200 mg CaCO₃/l).
 - 6c. The EQS for Mercury and hexachlorobutadiene are based on a "maximum acceptable concentration (MAC)" EQS in absence of an "annual average (AA)" EQS.
 - 6d. The EQS for chlorine in saltwater is based on the 95th percentile concentration of total residual oxidant, which refers to the sum of all oxidising agents existing in water, expressed as available chlorine.
 - 6e. The recommended saltwater standard is derived using a safety factor of 100. Where the standard is failed, it is recommended that supporting evidence of ecological damage should be obtained before committing to expensive action.
 - 6f. EQS for total ammonia is as per Schedule 3, Part 1, Table 7 of of the above directions. EQS applies to river types 1, 2 and 4 and 6 (namely upland and low alkalinity). The EQS for a lowland and high alkalinity rivers (types 3, 5 and 7) is 600µg/l (0.6mg/l).

Additional information on the Metal Bioavailability Assessment Tool (M-BAT) is available at <http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat>

7. Minimum reporting values listed at <https://www.gov.uk/government/publications/values-for-groundwater-risk-assessments/hazardous-substances-to-groundwater-minimum-reporting-values> (updated 13 January 2017; accessed 29 March 2017). Note target concentration for xylenes is 3 µg/l each for o-xylene and m/p xylene as it may not be possible to separate m- and p-xylene; 135 tcb, 124 tcb, 123 tcb each to 0.01 µg/l)
8. The Surface Waters (Abstraction for Drinking Water) (Classification) Regulations 1996 (as amended). SI 1996 / 3001
9. Council Directive on the Quality of Fresh Waters Needing Protection or Improvement in Order to Support Fish Life (Freshwater Fish Directive) (78/659/EEC)
10. WRc plc (2002), R&D Technical Report P45.
11. CL:AIRE, 2017. Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies. V1.1.
12. Drinking Water Inspectorate (London, UK). Environmental Information Request on MTBE in drinking water. Ref. DWI 1/10/18; dated 28 November 2006. Value is based on the odour threshold for MTBE, which is lower than a health-based guideline value
13. World Health Organisation (WHO), 2008. Petroleum products in drinking-water. Background document for development of WHO guidelines for drinking water quality. WHO/SDE/WSH/05.08/123. World Health Organisation, Geneva. [accessed 29 March 2017] http://www.who.int/water_sanitation_health/dwg/chemicals/petroleumproducts_2add_june2008.pdf

FLOW CHART TO ASSIST WITH SELECTION OF TARGET CONCENTRATIONS



TC = Target concentration

When leachate is being assessed the 'compliance point' is the groundwater body. Therefore dilution within the groundwater body may be applied with caution before comparing with the TC.

When directly assessing a receptor, e.g., a river, the appropriate TC should be selected.

APPENDIX M

GQRA DATA SCREENING TABLES - SOILS

Project name	Earl Shilton	Notes	
Project code	252719		
Client name	Gladman Developments		
Address			
NGR			
Land use	Residential with home-grown produce		
SOM	1%		
GAC version	2021_00		

										Lab sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	22/07427/8	22/07427/9	22/07427/10
										Client sample ID	TP01	TP04	TP05	TP07	TP09	TP11	TP13	TP15	TP15	TP20
										Depth to top	1	0.2	1.2	2	1.3	1.1	1	0.4	0.9	1.9
										Depth to bottom										
										Date sampled	20/07/22	22/07/22	18/07/22	22/07/22	18/07/22	20/07/22	22/07/22	18/07/22	18/07/22	22/07/22
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects												
Metals and Inorganics																				
Arsenic	mg/kg	37		4	<1	10	4	6	<1	1	<1					<1				
Cadmium	mg/kg	22		1.9	0.5	10	10	0	1.6	0.6	1.5					1.9				
Chromium	mg/kg	910	21	61	8	10	10	0	58	14	61					46				
Chromium (hexavalent)	mg/kg	21			<1	10	0	10	<1	<1	<1					<1				
Copper	mg/kg	2500		34	10	10	10	0	12	18	10					20				
Lead	mg/kg	200		44	<1	10	9	1	4	37	<1					9				
Mercury	mg/kg	39	0.2	0.8	<0.17	10	2	8	<0.17	<0.17	0.8					<0.17				
Nickel	mg/kg	130		61	8	10	10	0	50	11	50					61				
Selenium	mg/kg	258			<1	10	0	10	<1	<1	<1					<1				
Zinc	mg/kg	3900		88	45	10	10	0	66	55	60					88				
Asbestos																				
Asbestos in soil						10	0	10	NAD	NAD						NAD	NAD			
Petroleum Hydrocarbons																				
Ali >C5-C6	mg/kg	42			<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
Ali >C6-C8	mg/kg	100			<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
Ali >C8-C10	mg/kg	27			<1	10	0	10	<1	<1	<1					<1				
Ali >C10-C12	mg/kg	130	48		<1	10	0	10	<1	<1	<1					<1				
Ali >C12-C16	mg/kg	1100	24		<1	10	0	10	<1	<1	<1					<1				
Ali >C16-C21	mg/kg				<1	10	0	10	<1	<1	<1					<1				
Ali >C21-C35	mg/kg			50	<1	10	8	2	1	11	<1					<1				
Ali >C16-C35 calculated	mg/kg	65000	8	50	<1	10	8	2	1	11	<1					<1				
Total Aliphatics	mg/kg			50	<1	10	8	2	1	11	<1					<1				
Aro >C5-C7	mg/kg				<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
Aro >C7-C8	mg/kg				<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
Aro >C8-C10	mg/kg	30			<1	10	0	10	<1	<1	<1					<1				
Aro >C10-C12	mg/kg	80			<1	10	0	10	<1	<1	<1					<1				
Aro >C12-C16	mg/kg	140			<1	10	0	10	<1	<1	<1					<1				
Aro >C16-C21	mg/kg	260		3	<1	10	4	6	<1	3	<1					<1				
Aro >C21-C35	mg/kg	1100		8	<1	10	7	3	2	7	<1					<1				
Total Aromatics	mg/kg			10	<1	10	7	3	2	10	<1					<1				
TPH (Ali & Aro)	mg/kg			60	<1	10	8	2	3	21	<1					<1				
BTEX - Benzene	mg/kg	0.2			<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
BTEX - Toluene	mg/kg	130			<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
BTEX - Ethyl Benzene	mg/kg	50			<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
BTEX - o Xylene	mg/kg	61			<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
BTEX - m & p Xylene	mg/kg	57			<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
Fuel oxygenates																				
MTBE	mg/kg	60			<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
Polycyclic aromatic hydrocarbons																				
Acenaphthene	mg/kg	230			<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
Acenaphthylene	mg/kg	180			<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
Anthracene	mg/kg	2400			<0.02	10	0	10	<0.02	<0.02	<0.02					<0.02				
Benzo(a)anthracene	mg/kg	7		0.08	<0.04	10	1	9	<0.04	<0.04	<0.04					<0.04				

										Lab sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	22/07427/8	22/07427/9	22/07427/10
										Client sample ID	TP01	TP04	TP05	TP07	TP09	TP11	TP13	TP15	TP15	TP20
										Depth to top	1	0.2	1.2	2	1.3	1.1	1	0.4	0.9	1.9
										Depth to bottom										
										Date sampled	20/07/22	22/07/22	18/07/22	22/07/22	18/07/22	20/07/22	22/07/22	18/07/22	18/07/22	22/07/22
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects												
Benzo(a)pyrene	mg/kg		5	0.1	<0.04	10	3	7	<0.04	<0.04	<0.04					<0.04				
Benzo(b)fluoranthene	mg/kg		2.6	0.11	<0.05	10	2	8	<0.05	<0.05	<0.05					<0.05				
Benzo(ghi)perylene	mg/kg		310	0.06	<0.05	10	1	9	<0.05	<0.05	<0.05					<0.05				
Benzo(k)fluoranthene	mg/kg		77		<0.07	10	0	10	<0.07	<0.07	<0.07					<0.07				
Chrysene	mg/kg		15	0.11	<0.06	10	1	9	<0.06	<0.06	<0.06					<0.06				
Dibenzo(ah)anthracene	mg/kg		0.24		<0.04	10	0	10	<0.04	<0.04	<0.04					<0.04				
Fluoranthene	mg/kg		290	0.13	<0.08	10	1	9	<0.08	<0.08	<0.08					<0.08				
Fluorene	mg/kg		170		<0.01	10	0	10	<0.01	<0.01	<0.01					<0.01				
Indeno(123-cd)pyrene	mg/kg		27	0.08	<0.03	10	2	8	<0.03	<0.03	<0.03					<0.03				
Naphthalene	mg/kg		13		<0.03	10	0	10	<0.03	<0.03	<0.03					<0.03				
Phenanthrene	mg/kg		100	0.06	<0.03	10	2	8	<0.03	<0.03	<0.03					<0.03				
Pyrene	mg/kg		620	0.13	<0.07	10	2	8	<0.07	<0.07	<0.07					<0.07				
Total PAH-16MS	mg/kg			0.84	<0.08	10	2	8	<0.08	<0.08	<0.08					<0.08				
Other analytes																				
% Stones >10mm	% w/w			36.1	<0.1	20	7	13	<0.1	<0.1	<0.1	<0.1	5.6	17.5	<0.1	<0.1	<0.1	<0.1	<0.1	0.3
Aldrin	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Alkalinity (total) (leachable) Colorimetry	mg/l Ca CO3			191	62	3	3	0												
alpha-Hexachlorocyclohexane (HCH)	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Atrazine	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Azinphos-ethyl	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Azinphos-methyl	mg/kg				<0.01	4	0	4		<0.01							<0.01			
beta-Hexachlorocyclohexane (HCH)	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Carbophenothion	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Chlorfenvinphos	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Chlorothalonil	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Chlorpyrifos	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Chlorpyrifos-methyl	mg/kg				<0.01	4	0	4		<0.01							<0.01			
cis-Chlordane (Alpha)	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Coumaphos	mg/kg				<0.01	4	0	4		<0.01							<0.01			
delta-Hexachlorocyclohexane (HCH)	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Demeton-O	mg/kg				<0.50	4	0	4		<0.50							<0.50			
Demeton-S	mg/kg				<0.50	4	0	4		<0.50							<0.50			
Diazinon (Dimpylate)	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Dichlobenil	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Dichlorvos	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Dieldrin	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Dimethoate	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Disulfoton	mg/kg				<0.10	4	0	4		<0.10							<0.10			
Endosulphan I (Alpha)	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Endosulphan II (Beta)	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Endosulphan Sulphate	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Endrin	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Endrin Aldehyde	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Endrin Ketone	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Ethion	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Fenitrothion	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Fensulphothion	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Fenthion	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Heptachlor	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Heptachlor epoxide	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Hexachlorobenzene (HCB)	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Isodrin	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Malathion	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Methyl Parathion	mg/kg				<0.01	4	0	4		<0.01							<0.01			
Mevinphos	mg/kg				<0.01	4	0	4		<0.01							<0.01			
o,p-DDD (2,4)	mg/kg				<0.01	4	0	4		<0.01							<0.01			

										Lab sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	22/07427/8	22/07427/9	22/07427/10
										Client sample ID	TP01	TP04	TP05	TP07	TP09	TP11	TP13	TP15	TP15	TP20
										Depth to top	1	0.2	1.2	2	1.3	1.1	1	0.4	0.9	1.9
										Depth to bottom										
										Date sampled	20/07/22	22/07/22	18/07/22	22/07/22	18/07/22	20/07/22	22/07/22	18/07/22	18/07/22	22/07/22
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects												
o,p-DDE (2,4)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
o,p-DDT (2,4)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
o,p-Methoxychlor	mg/kg				<0.01	4	0	4		<0.01								<0.01		
p,p-DDD (4,4)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
p,p-DDE (4,4)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
p,p-DDT (4,4)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
p,p-Methoxychlor	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Parathion (ethyl)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Pendimethalin	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Permethrin I (cis)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Permethrin II (trans)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
pH	pH			8.66	5.14	10	10	0	8.05	5.14	8.11						7.3			
pH (leachable)	pH			7.86	7.09	3	3	0												
pH BRE	pH			8.66	6.01	14	14	0	8.05		8.11	6.3	6.01	6.37	7.3			8.09	6.79	
Phorate	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Phosalone	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Pirimiphos-methyl	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Propetamphos	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Prothiofos (Tokuthion)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Quintozene (PCNB)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Simazine	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Sulphate (acid soluble)	mg/kg			720	<200	10	7	3	200	720	330					<200				
Sulphate (water sol 2:1)	g/l			0.13	<0.01	10	3	7	<0.01	0.13	<0.01						0.04			
Sulphate BRE (acid sol)	% w/w			0.03	<0.02	14	3	11	0.02		0.03	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
Sulphur BRE (total)	% w/w			0.01	<0.01	14	2	12	<0.01		0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	
Tecnazene	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Telodrin	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Total Organic Carbon	% w/w			2.78	0.05	10	10	0	0.68	2.78	0.05						0.06			
Converted to SOM (x / 0.58)	% w/w			4.793103	0.086207	10	10	0	1.17241379	4.79310345	0.0862069						0.10344828			
trans-Chlordane (Gamma)	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Triadimefon	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Triallate	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Triazophos	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Trichloronate	mg/kg				<0.01	4	0	4		<0.01								<0.01		
Trifluralin	mg/kg				<0.01	4	0	4		<0.01								<0.01		

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										Lab sample ID	22/07427/11	22/07427/12	22/07427/13	22/07427/14	22/07427/15	22/07427/16	22/07427/18	22/07427/17	22/07427/19	22/07427/20
										Client sample ID	TP21	TP22	TP22	TP23	TP24	TP24	WS06	WS08	WS11	WS12
										Depth to top	0.2	0.8	1	1.6	0.1	0.5	1.2	1	1.2	0.6
										Depth to bottom										
										Date sampled	22/07/22	22/07/22	22/07/22	19/07/22	22/07/22	22/07/22	21/07/22	22/07/22	22/07/22	22/07/22
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete												
Benzo(a)pyrene	mg/kg		5		0.1	<0.04	10	3	7	0.1	<0.04	<0.04			0.05	0.04		<0.04		
Benzo(b)fluoranthene	mg/kg		2.6		0.11	<0.05	10	2	8	0.11	<0.05	<0.05			0.05	<0.05		<0.05		
Benzo(ghi)perylene	mg/kg		310		0.06	<0.05	10	1	9	0.06	<0.05	<0.05			<0.05	<0.05		<0.05		
Benzo(k)fluoranthene	mg/kg		77			<0.07	10	0	10	<0.07	<0.07	<0.07			<0.07	<0.07		<0.07		
Chrysene	mg/kg		15		0.11	<0.06	10	1	9	0.11	<0.06	<0.06			<0.06	<0.06		<0.06		
Dibenzo(ah)anthracene	mg/kg		0.24			<0.04	10	0	10	<0.04	<0.04	<0.04			<0.04	<0.04		<0.04		
Fluoranthene	mg/kg		290		0.13	<0.08	10	1	9	0.13	<0.08	<0.08			<0.08	<0.08		<0.08		
Fluorene	mg/kg		170			<0.01	10	0	10	<0.01	<0.01	<0.01			<0.01	<0.01		<0.01		
Indeno(123-cd)pyrene	mg/kg		27		0.08	<0.03	10	2	8	0.08	<0.03	<0.03			0.03	<0.03		<0.03		
Naphthalene	mg/kg		13			<0.03	10	0	10	<0.03	<0.03	<0.03			<0.03	<0.03		<0.03		
Phenanthrene	mg/kg		100		0.06	<0.03	10	2	8	0.04	<0.03	<0.03			0.06	<0.03		<0.03		
Pyrene	mg/kg		620		0.13	<0.07	10	2	8	0.13	<0.07	<0.07			0.07	<0.07		<0.07		
Total PAH-16MS	mg/kg				0.84	<0.08	10	2	8	0.84	<0.08	<0.08			0.26	<0.08		<0.08		
Other analytes																				
% Stones >10mm	% w/w				36.1	<0.1	20	7	13	6.8		9	<0.1	<0.1	36.1	30.9	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Alkalinity (total) (leachable) Colorimetry	mg/l Ca CO3				191	62	3	3	0			191	68		62					
alpha-Hexachlorocyclohexane (HCH)	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Atrazine	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Azinphos-ethyl	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Azinphos-methyl	mg/kg					<0.01	4	0	4	<0.01					<0.01					
beta-Hexachlorocyclohexane (HCH)	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Carbophenothion	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Chlorfenvinphos	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Chlorothalonil	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Chlorpyrifos	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Chlorpyrifos-methyl	mg/kg					<0.01	4	0	4	<0.01					<0.01					
cis-Chlordane (Alpha)	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Coumaphos	mg/kg					<0.01	4	0	4	<0.01					<0.01					
delta-Hexachlorocyclohexane (HCH)	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Demeton-O	mg/kg					<0.50	4	0	4	<0.50					<0.50					
Demeton-S	mg/kg					<0.50	4	0	4	<0.50					<0.50					
Diazinon (Dimpylate)	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Dichlobenil	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Dichlorvos	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Dieldrin	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Dimethoate	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Disulfoton	mg/kg					<0.10	4	0	4	<0.10					<0.10					
Endosulphan I (Alpha)	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Endosulphan II (Beta)	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Endosulphan Sulphate	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Endrin	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Endrin Aldehyde	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Endrin Ketone	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Ethion	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Fenitrothion	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Fensulphothion	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Fenthion	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Heptachlor	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Heptachlor epoxide	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Hexachlorobenzene (HCB)	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Isodrin	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Malathion	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Methyl Parathion	mg/kg					<0.01	4	0	4	<0.01					<0.01					
Mevinphos	mg/kg					<0.01	4	0	4	<0.01					<0.01					
o,p-DDD (2,4)	mg/kg					<0.01	4	0	4	<0.01					<0.01					

Lab sample ID										22/07427/11	22/07427/12	22/07427/13	22/07427/14	22/07427/15	22/07427/16	22/07427/18	22/07427/17	22/07427/19	22/07427/20
Client sample ID										TP21	TP22	TP22	TP23	TP24	TP24	WS06	WS08	WS11	WS12
Depth to top										0.2	0.8	1	1.6	0.1	0.5	1.2	1	1.2	0.6
Depth to bottom																			
Date sampled										22/07/22	22/07/22	22/07/22	19/07/22	22/07/22	22/07/22	21/07/22	22/07/22	22/07/22	22/07/22
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete											
o,p-DDE (2,4)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
o,p-DDT (2,4)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
o,p-Methoxychlor	mg/kg				<0.01	4	0	4	<0.01					<0.01					
p,p-DDD (4,4)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
p,p-DDE (4,4)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
p,p-DDT (4,4)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
p,p-Methoxychlor	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Parathion (ethyl)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Pendimethalin	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Permethrin I (cis)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Permethrin II (trans)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
pH	pH			8.66	5.14	10	10	0	5.23	6.75	8.66			5.36	5.28		7.17		
pH (leachable)	pH			7.86	7.09	3	3	0		7.48	7.86			7.09					
pH BRE	pH			8.66	6.01	14	14	0			8.66	6.13				8.5	7.17	6.41	6.07
Phorate	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Phosalone	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Pirimiphos-methyl	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Propetamphos	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Prothiofos (Tokuthion)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Quintozene (PCNB)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Simazine	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Sulphate (acid soluble)	mg/kg			720	<200	10	7	3	550	410	250			250	<200		<200		
Sulphate (water sol 2:1)	g/l			0.13	<0.01	10	3	7	<0.01		0.05	<0.01		<0.01	<0.01		<0.01		
Sulphate BRE (acid sol)	% w/w			0.03	<0.02	14	3	11			0.02	<0.02				<0.02	<0.02	<0.02	<0.02
Sulphur BRE (total)	% w/w			0.01	<0.01	14	2	12			0.01	<0.01				<0.01	<0.01	<0.01	<0.01
Tecnazene	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Telodrin	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Total Organic Carbon	% w/w			2.78	0.05	10	10	0	2.26	1.97	0.17			1.72	0.96		0.15		
Converted to SOM (x / 0.58)	% w/w			4.793103	0.086207	10	10	0	3.89655172	3.39655172	0.29310345			2.96551724	1.65517241		0.25862069		
trans-Chlordane (Gamma)	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Triadimefon	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Triallate	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Triazophos	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Trichloronate	mg/kg				<0.01	4	0	4	<0.01					<0.01					
Trifluralin	mg/kg				<0.01	4	0	4	<0.01					<0.01					

APPENDIX N

GQRA DATA SCREENING TABLES – LEACHATE AND WATERS

Project name	Leicester Road, Earl Shilton	Notes	
Project code	252719		
Client name	Gladman Developments		
Address			
NGR			
Output type	Interpretive Controlled Waters		
Scenario	Lowest of DWS and EQS freshwater, England, Wales and Northern Ireland		
GAC version	Rev14		

									Lab sample ID	22/07427/1	22/07427/2	22/07427/3	22/07427/4	22/07427/5	22/07427/6	22/07427/7	22/07427/8	22/07427/9	22/07427/10	22/07427/11
									Client sample ID	TP01	TP04	TP05	TP07	TP09	TP11	TP13	TP15	TP15	TP20	TP21
									Depth to top	1	0.2	1.2	2	1.3	1.1	1	0.4	0.9	1.9	0.2
									Depth to bottom											
									Date sampled	20/07/2022	22/07/2022	18/07/2022	22/07/2022	18/07/2022	20/07/2022	22/07/2022	18/07/2022	18/07/2022	22/07/2022	22/07/2022
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects												
Metals and Inorganics (leachable)																				
Alkalinity (total) (leachable) Colorimetry	mg/l Ca CO3					3														
Arsenic (leachable)	µg/l	10		8	1	3	3	0												
Cadmium (leachable)	µg/l	0.25	0.08	<1	<1	3	0	3												
Chromium (hexavalent) (leachable)	µg/l	3.4		<50	<50	3	0	3												
Chromium (leachable)	µg/l	8.1	3.4	2	<1	3	1	2												
Copper (leachable)	µg/l	1		42	<4	3	2	1												
Lead (leachable)	µg/l	1.2		45	<1	3	2	1												
Mercury (leachable)	µg/l	0.07		<0.1	<0.1	3	0	3												
Nickel (leachable)	µg/l	4		15	<2	3	2	1												
pH (leachable)	pH					3														
Selenium (leachable)	µg/l	10		2	<1	3	1	2												
Zinc (leachable)	µg/l	10.9		29	3	3	3	0												
SUM - chromium (trivalent plus hexavalent, leachable)	µg/l	8.1	3.4	<50	<50	3	0	3												
Methods																				
Leachate Prep BS EN 12457-1 (2:1) (1 no)						3														

Project nameLeicester Road, Earl Shilton										Notes					
Project code252719															
Client nameGladman Developments															
Address															
NGR															
Output typeInterpretive Controlled Waters															
ScenarioLowest of DWS and EQS freshwater, England, Wales and Northern Ireland															
GAC versionRev14															
										Lab sample ID	22/08717/1	22/08717/2			
										Client sample ID	SW1	SW2			
										Depth to top					
										Depth to bottom					
										Date sampled	02/09/2022	02/09/2022			
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects							
Inorganics															
Calcium (dissolved)	µg/l			47000	46000	2	2	0	46000	47000					
DOC (w)	µg/l			3000	2300	2	2	0	3000	2300					
pH (w)	pH					2			7.36	7.28					
Sulphate (w)	µg/l	250000		87000	85000	2	2	0	87000	85000					
Metals															
Arsenic (dissolved)	µg/l	10		<1	<1	2	0	2	<1	<1					
Cadmium (dissolved)	µg/l	0.25	0.08	<0.2	<0.2	2	0	2	<0.2	<0.2					
Chromium (dissolved)	µg/l	8.1	3.4	1	<1	2	1	1	1	<1					
Copper (dissolved)	µg/l	1		14	10	2	2	0	14	10					
Lead (dissolved)	µg/l	1.2		<1	<1	2	0	2	<1	<1					
Mercury (dissolved)	µg/l	0.07		<0.1	<0.1	2	0	2	<0.1	<0.1					
Nickel (dissolved)	µg/l	4		7	6	2	2	0	6	7					
Selenium (dissolved)	µg/l	10		<1	<1	2	0	2	<1	<1					
Zinc (dissolved)	µg/l	10.9		17	14	2	2	0	14	17					
Polycyclic aromatic hydrocarbons (16)															
Acenaphthene (w)	µg/l			<0.01	<0.01	2	0	2	<0.01	<0.01					
Acenaphthylene (w)	µg/l	5.8*		<0.01	<0.01	2	0	2	<0.01	<0.01					
Anthracene (w)	µg/l	0.1		<0.01	<0.01	2	0	2	<0.01	<0.01					
Benzo(a)anthracene (w)	µg/l			<0.01	<0.01	2	0	2	<0.01	<0.01					
Benzo(a)pyrene (w)	µg/l	0.00017		<0.01	<0.01	2	0	2	<0.01	<0.01					
Benzo(b)fluoranthene (w)	µg/l	0.1		<0.01	<0.01	2	0	2	<0.01	<0.01					
Benzo(ghi)perylene (w)	µg/l	0.1		<0.01	<0.01	2	0	2	<0.01	<0.01					
Benzo(k)fluoranthene (w)	µg/l	0.1		<0.01	<0.01	2	0	2	<0.01	<0.01					
Chrysene (w)	µg/l			<0.01	<0.01	2	0	2	<0.01	<0.01					
Dibenzo(ah)anthracene (w)	µg/l			<0.01	<0.01	2	0	2	<0.01	<0.01					
Fluoranthene (w)	µg/l	0.0063		<0.01	<0.01	2	0	2	<0.01	<0.01					
Fluorene (w)	µg/l			<0.01	<0.01	2	0	2	<0.01	<0.01					
Indeno(123-cd)pyrene (w)	µg/l	0.1		<0.01	<0.01	2	0	2	<0.01	<0.01					
Naphthalene (w)	µg/l	2		<0.01	<0.01	2	0	2	<0.01	<0.01					
Phenanthrene (w)	µg/l			<0.01	<0.01	2	0	2	<0.01	<0.01					
Pyrene (w)	µg/l			<0.01	<0.01	2	0	2	<0.01	<0.01					
Total PAH 16MS (w)	µg/l			<0.01	<0.01	2	0	2	<0.01	<0.01					
SUM - polycyclic aromatic hydrocarbons (sum of four)	µg/l	0.1		<0.01	<0.01	2	0	2	<0.01	<0.01					
Petroleum hydrocarbons															
Ali >C5-C6 (w)	µg/l	15000*		<1	<1	2	0	2	<1	<1					
Ali >C6-C8 (w)	µg/l	15000*		<1	<1	2	0	2	<1	<1					
Ali >C8-C10 (w)	µg/l	300*		<5	<5	2	0	2	<5	<5					
Ali >C10-C12 (w)	µg/l	300*		<5	<5	2	0	2	<5	<5					
Ali >C12-C16 (w)	µg/l	300*		<5	<5	2	0	2	<5	<5					
Ali >C16-C21 (w)	µg/l			<5	<5	2	0	2	<5	<5					
Ali >C21-C35 (w)	µg/l			<5	<5	2	0	2	<5	<5					
Total Aliphatics (w)	µg/l			<5	<5	2	0	2	<5	<5					
Aro >C5-C7 (w)	µg/l	1		<1	<1	2	0	2	<1	<1					
Aro >C7-C8 (w)	µg/l	74		<1	<1	2	0	2	<1	<1					
Aro >C8-C10 (w)	µg/l			<5	<5	2	0	2	<5	<5					
Aro >C10-C12 (w)	µg/l	90*		<5	<5	2	0	2	<5	<5					
Aro >C12-C16 (w)	µg/l	90*		<5	<5	2	0	2	<5	<5					
Aro >C16-C21 (w)	µg/l	90*		<5	<5	2	0	2	<5	<5					
Aro >C21-C35 (w)	µg/l	90*		<10	<10	2	0	2	<10	<10					
Total Aromatics (w)	µg/l			<10	<10	2	0	2	<10	<10					
TPH (Ali & Aro >C5-C35) (w)	µg/l			<10	<10	2	0	2	<10	<10					
BTEX - Benzene (w)	µg/l	1		<1	<1	2	0	2	<1	<1					
BTEX - Toluene (w)	µg/l	74		<1	<1	2	0	2	<1	<1					
BTEX - Ethyl Benzene (w)	µg/l	300*		<1	<1	2	0	2	<1	<1					
BTEX - m & p Xylene (w)	µg/l	30*		<1	<1	2	0	2	<1	<1					
BTEX - o Xylene (w)	µg/l	30*		<1	<1	2	0	2	<1	<1					
SUM - xylenes (BTEX o plus m&p)	µg/l	30*		<1	<1	2	0	2	<1	<1					
Fuel Oxygenates															
MTBE (w)	µg/l	15*		<1	<1	2	0	2	<1	<1					

APPENDIX O

M-BAT SCREENING TOOL

UKTAG M-BAT (2014) - M-BAT Screening Tool

INPUT DATA								RESULTS (Copper)				RESULTS (Zinc)				RESULTS (Ni)			
Location	Waterbody	Date	Measured Cu Concentration (dissolved) (µg l ⁻¹)	Measured Zn Concentration (dissolved) (µg l ⁻¹)	pH	DOC	Ca	Site-specific PNEC Dissolved Copper (µg l ⁻¹)	BioF	Bioavailable Copper Concentration (µg l ⁻¹)	Risk Characterisation Ratio	Site-specific PNEC Dissolved Zinc (µg l ⁻¹)	BioF	Bioavailable Zinc Concentration (µg l ⁻¹)	Risk Characterisation Ratio	Site-specific PNEC Dissolved Nickel (µg l ⁻¹)	BioF	Bioavailable Nickel Concentration (µg l ⁻¹)	Risk Characterisation Ratio
SW1	Pond	02/09/2022	14	14	7.32	2.65	46.5	10.97	0.09	1.28	1.28	19.32	0.56	7.90	0.72	12.62	0.32	1.90	0.48
SW2	Pond	02/09/2022	10	17	7.32	2.65	46.5	10.97	0.09	0.91	0.91	19.32	0.56	9.59	0.88	12.62	0.32	2.22	0.55

UKTAG M-BAT (2014) - Pb Screening Tool

ID	Location	Waterbody	Date	Measured Pb Concentration (dissolved) (µg l ⁻¹)	DOC	Site Specific PNEC Dissolved Pb (µg l ⁻¹)	BioF	Available Pb (µg l ⁻¹)	Risk Characterisation Ratio
1	SW1	Pond	02/09/2022	20.00	2.65	3.18	0.38	7.55	6.29
2	SW2	Pond	02/09/2022	45.00	2.65	3.18	0.38	16.98	14.15

APPENDIX P

GQRA DATA SCREENING TABLES - GAS

Revised Wilson and Card Classification Ground Gas Risk Assessment

Job No.:	252719
Client:	Gladman Developments Ltd
Site:	Leicester Road, Earl Shilton

For low-rise residential developments without a clear ventilated sub-floor void, flats and commercial / industrial sites

Characteristic Situation	Risk	GSV
1	Very Low	0.07
2	Low	0.7
3	Moderate	3.5
4	Moderate to High	15
5	High	70
6	Very High	>70

From CIRIA Report 659 (2006) "Assessing Risks Posed By Hazardous Ground Gases To Buildings", Wilson et al.

KEY:	Gas Screening Value
GSV	GSV cannot be calculated on a site-specific basis
	GSV indicates very low risk
	GSV indicates low to moderate risk
	GSV indicates moderate or greater risk; Concentrations of CH4 ≥20%v/v; CO2 ≥30%v/v
	Oxygen concentration ≤10%v/v
	Total ground gas concentrations >100%v/v

BH NO.	DATE	CH4 I %v/v	CH4 SS %v/v	CO2 I %v/v	CO2 SS %v/v	O2 I %v/v	O2 SS %v/v	Flow l/hr	Baro mbar	BH Press mbar	I SUM %v/v	SS SUM %v/v	CH4	CO2	GSV	CS No.
WS01	28/07/2022	<0.1	<0.1	1.2	1.1	20.9	19.9	0.1	1007	1007	22.1	21.0	0.0000	0.0011		CS1
	04/08/2022	<0.1	<0.1	1.1	1.0	21.7	20.6	0.1	1006	1006	22.8	21.6	0.0000	0.0010		CS1
	08/08/2022	<0.1	<0.1	1.0	0.9	18.9	19.1	0.1	1017	1017	19.9	20.0	0.0000	0.0009		CS1
	16/08/2022	<0.1	<0.1	1.1	1.0	20.8	19.6	0.1	997	997	21.9	20.6	0.0000	0.0010		CS1
	26/08/2022	<0.1	<0.1	1.1	1.0	20.7	19.4	0.1	1009	1009	21.8	20.4	0.0000	0.0010		CS1
WS02	28/07/2022	<0.1	<0.1	1.1	1.2	20.0	18.9	0.1	1007	1007	21.1	20.1	0.0000	0.0012		CS1
	04/08/2022	<0.1	<0.1	1.5	1.4	20.7	19.5	0.1	1005	1005	22.2	20.9	0.0000	0.0014		CS1
	08/08/2022	<0.1	<0.1	1.3	1.1	19.4	18.5	0.1	1017	1017	20.7	19.6	0.0000	0.0011		CS1
	16/08/2022	<0.1	<0.1	0.1	0.1	20.7	20.7	0.1	996	996	20.8	20.8	0.0000	0.0001		CS1
	26/08/2022	<0.1	<0.1	1.0	1.1	19.1	18.2	0.1	1009	1009	20.1	19.3	0.0000	0.0011		CS1
WS03	28/07/2022	<0.1	<0.1	1.0	0.9	20.4	19.9	-0.1	1007	1007	21.4	20.8	0.0000	-0.0009		CS1
	04/08/2022	<0.1	<0.1	0.9	0.8	21.2	20.6	0.1	1005	1005	22.1	21.4	0.0000	0.0008		CS1
	08/08/2022	<0.1	<0.1	0.9	0.7	19.2	18.9	-0.1	1017	1017	20.1	19.6	0.0000	-0.0007		CS1
	16/08/2022	<0.1	<0.1	0.9	0.7	19.2	18.9	0.1	998	998	20.1	19.6	0.0000	0.0007		CS1
	26/08/2022	<0.1	<0.1	1.2	1.2	19.9	18.7	0.1	1009	1009	21.1	19.9	0.0000	0.0012		CS1
WS04	28/07/2022	<0.1	<0.1	0.1	0.1	20.0	20.3	0.1	1007	1007	20.1	20.4	0.0000	0.0001		CS1
	04/08/2022	<0.1	<0.1	0.1	0.1	20.7	20.6	0.1	1005	1005	20.8	20.7	0.0000	0.0001		CS1
	08/08/2022	<0.1	<0.1	0.2	0.1	19.9	19.7	0.1	1017	1017	20.1	19.8	0.0000	0.0001		CS1
	16/08/2022	<0.1	<0.1	0.2	0.1	20.6	20.6	0.1	996	996	20.8	20.7	0.0000	0.0001		CS1
	26/08/2022	<0.1	<0.1	0.1	0.1	18.9	18.9	0.1	1009	1009	19.0	19.0	0.0000	0.0001		CS1
WS07	28/07/2022	<0.1	<0.1	1.1	1.0	20.9	20.2	0.1	1007	1007	22.0	21.2	0.0000	0.0010		CS1
	04/08/2022	<0.1	<0.1	1.3	1.2	20.3	19.4	0.1	1005	1005	21.6	20.6	0.0000	0.0012		CS1
	08/08/2022	<0.1	<0.1	1.3	1.1	20.1	19.2	0.1	1017	1017	21.4	20.3	0.0000	0.0011		CS1
	16/08/2022	<0.1	<0.1	1.3	1.1	20.1	19.2	0.1	996	996	21.4	20.3	0.0000	0.0011		CS1
	26/08/2022	<0.1	<0.1	1.4	1.4	19.5	18.5	0.1	1009	1009	20.9	19.9	0.0000	0.0014		CS1
WS08	28/07/2022	<0.1	<0.1	1.4	1.3	20.5	19.7	0.1	1007	1007	21.9	21.0	0.0000	0.0013		CS1
	04/08/2022	<0.1	<0.1	1.2	1.1	20.7	19.8	0.2	1005	1005	21.9	20.9	0.0000	0.0022		CS1
	08/08/2022	<0.1	<0.1	1.1	1.0	20.3	20.2	0.1	1017	1017	21.4	21.2	0.0000	0.0010		CS1
	16/08/2022	<0.1	<0.1	0.1	0.1	20.9	21.0	0.1	996	996	21.0	21.1	0.0000	0.0001		CS1
	26/08/2022	<0.1	<0.1	1.2	1.2	20.0	19.2	0.1	1009	1009	21.2	20.4	0.0000	0.0012		CS1
WS11	28/07/2022	<0.1	<0.1	1.6	1.5	20.6	19.7	0.1	1006	1006	22.2	21.2	0.0000	0.0015		CS1
	04/08/2022	<0.1	<0.1	1.4	1.3	20.3	19.4	0.1	1004	1004	21.7	20.7	0.0000	0.0013		CS1
	08/08/2022	<0.1	<0.1	1.5	1.4	20.1	20.1	0.1	1016	1016	21.6	21.5	0.0000	0.0014		CS1
	16/08/2022	<0.1	<0.1	2.0	1.9	21.1	20.1	0.1	996	996	23.1	22.0	0.0000	0.0019		CS1
	26/08/2022	<0.1	<0.1	2.0	1.9	19.7	18.7	0.1	1008	1008	21.7	20.6	0.0000	0.0019		CS1
WS12	28/07/2022	<0.1	<0.1	0.6	0.5	20.8	20.4	0.1	1005	1005	21.4	20.9	0.0000	0.0005		CS1
	04/08/2022	<0.1	<0.1	0.1	0.3	20.0	20.1	0.1	1004	1004	20.1	20.4	0.0000	0.0003		CS1
	08/08/2022	<0.1	<0.1	0.2	0.3	20.3	20.1	0.1	1015	1015	20.5	20.4	0.0000	0.0003		CS1
	16/08/2022	<0.1	<0.1	0.4	0.4	21.1	20.9	0.1	996	996	21.5	21.3	0.0000	0.0004		CS1
	26/08/2022	<0.1	<0.1	0.6	0.5	19.8	19.4	0.1	1007	1007	20.4	19.9	0.0000	0.0005		CS1

WORST-CASE VALUES PER BOREHOLE

	Maximum CH4	Maximum CO2	Minimum O2	Max Flow	Not Applicable	Maximum Total	Maximum GSVs	CS No.
BH1	<0.1	<0.1	1.2	1.1	18.9	19.1	0.1	CS1
BH2	<0.1	<0.1	1.5	1.4	19.1	18.2	0.1	CS1
BH3	<0.1	<0.1	1.2	1.2	19.2	18.7	0.1	CS1
BH4	<0.1	<0.1	0.2	0.1	18.9	18.9	0.1	CS1
BH5	<0.1	<0.1	1.4	1.4	19.5	18.5	0.1	CS1
BH6	<0.1	<0.1	1.4	1.3	20.0	19.2	0.2	CS1
BH7	<0.1	<0.1	2.0	1.9	19.7	18.7	0.1	CS1
BH8	<0.1	<0.1	0.6	0.5	19.8	19.4	0.1	CS1

APPENDIX Q

WM3 ASSESSMENT

Haswaste, developed by Dr. Iain Haslock.

TP/WS/BH
Depth (m)
Envirolab reference

TP01	TP04	TP05	TP07	TP09	TP11	TP13	TP15	TP15
1.00	0.20	1.20	2.00	1.30	1.10	1.00	0.40	0.90

2,3,7,8-TeCDD	mg/kg
1,2,3,7,8-PeCDD	mg/kg
1,2,3,4,7,8-HxCDD	mg/kg
1,2,3,6,7,8-HxCDD	mg/kg
1,2,3,7,8,9-HxCDD	mg/kg
1,2,3,4,6,7,8-HpCDD	mg/kg
OCDD	mg/kg
2,3,7,8-TeCDF	mg/kg
1,2,3,7,8-PeCDF	mg/kg
2,3,4,7,8-PeCDF	mg/kg
1,2,3,4,7,8-HxCDF	mg/kg
1,2,3,6,7,8-HxCDF	mg/kg
2,3,4,6,7,8-HxCDF	mg/kg
1,2,3,7,8,9-HxCDF	mg/kg
1,2,3,4,6,7,8-HpCDF	mg/kg
1,2,3,4,7,8,9-HpCDF	mg/kg
OCDF	mg/kg
Total Dioxins and Furans	mg/kg

Aldrin	mg/kg
α Hexachlorocyclohexane (alpha-HCH) (leave empty if total HCH results used)	mg/kg
β Hexachlorocyclohexane (beta-HCH) (leave empty if total HCH results used)	mg/kg
α Cis-Chlordane (alpha) OR Total Chlordane	mg/kg
δ Hexachlorocyclohexane (delta-HCH) (leave empty if total HCH results used)	mg/kg
Dieldrin	mg/kg
Endrin	mg/kg
γ Hexachlorocyclohexane (gamma-HCH) (lindane) OR Total HCH	mg/kg
Heptachlor	mg/kg
Hexachlorobenzene	mg/kg
o,p'-DDT (leave empty if total DDT results used)	mg/kg
p,p'-DDT OR Total DDT	mg/kg
γ Trans-Chlordane (gamma) (leave empty if total Chlordane results used)	mg/kg
Chlordecone (kepone)	mg/kg
Pentachlorobenzene	mg/kg
Mirex	mg/kg
Toxaphene (camphenchlor)	mg/kg

[illegible]

Tin (leave empty if Organotin and Tin excl Organotin results used)	mg/kg
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Dibutyltin; DiBT	mg/kg
Tributyltin; TriBT	mg/kg
Triphenyltin; TriPT	mg/kg
Tetrabutyltin; TeBT	mg/kg

Tin excl Organotin	mg/kg
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[illegible]



Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Haswaste, developed by Dr. Iain Haslock.

252719 - Leicester Road, Earl Shilton

TP/WS/BH
Depth (m)
Envirolab reference

TP01 1.00	TP04 0.20	TP05 1.20	TP07 2.00	TP09 1.30	TP11 1.10	TP13 1.00	TP15 0.40	TP15 0.90
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Asbestos in Soil	Thresholds
Asbestos detected in Soil (enter Y or N)	Y
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)	see "Carc HP7 % Asbestos in Soil (Fibres)" below
Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces)	≥0.1%
Please be advised, if the calculation cell is "0.00000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.	

Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)	Y
---	---

N	N				N	N		
If Asbestos in Soil above is "Y", the soil is Hazardous Waste HP5 and HP7								
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", the soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.								

If visual identifiable pieces of asbestos are present, you cannot use Asbestos % results and the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05. Therefore, if Asbestos in Soil above is "Y", the Asbestos % above is "<0.1%", but the Asbestos Identifiable Pieces visible with the naked eye is "Y", the soil is Hazardous Waste.

Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres.
All visual asbestos pieces need to be removed leaving only fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.

Hazardous Property	Thresholds	Cut Off Value
Corrosive HP8	≥5%	<1%
Irritant HP4	≥10%	<1%
Irritant HP4	≥20%	<1%
Specific Target Organ Toxicity HP5	≥1%	
Specific Target Organ Toxicity HP5	≥20%	
Specific Target Organ Toxicity HP5	≥1%	
Specific Target Organ Toxicity HP5	≥10%	
Aspiration Toxicity HP5	≥10%	
Acute Toxicity HP6	≥0.1%	<0.1%
Acute Toxicity HP6	≥0.25%	<0.1%
Acute Toxicity HP6	≥5%	<0.1%
Acute Toxicity HP6	≥25%	<1%
Acute Toxicity HP6	≥0.25%	<0.1%
Acute Toxicity HP6	≥2.5%	<0.1%
Acute Toxicity HP6	≥15%	<0.1%
Acute Toxicity HP6	≥55%	<1%
Acute Toxicity HP6	≥0.1%	<0.1%
Acute Toxicity HP6	≥0.5%	<0.1%
Acute Toxicity HP6	≥3.5%	<0.1%
Acute Toxicity HP6	≥22.5%	<1%
Carcinogenic HP7	≥0.1%	
Carcinogenic HP7	≥0.1%	
Carcinogenic HP7	≥1%	
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg	
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%	
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5	
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2	
Toxic for Reproduction HP10	≥0.3%	
Toxic for Reproduction HP10	≥3%	
Mutagenic HP11	≥0.1%	
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg	
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%	
Mutagenic HP11	≥1%	
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg	
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg	
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg	
HP13 Sensitising	≥10%	
Ecotoxic HP14	≥25%	<0.1%

If cells below turn yellow and the text turns red, the samples should be classified as Hazardous Waste.								
0.00032	0.00032	0.00032	0.00000	0.00000	0.00000	0.00032	0.00000	0.00000
0.00149	0.00217	0.00126	0.00000	0.00000	0.00000	0.00239	0.00000	0.00000
0.01147	0.00427	0.01124	0.00000	0.00000	0.00000	0.01460	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.01010	0.00222	0.01010	0.00000	0.00000	0.00000	0.01232	0.00000	0.00000
0.00040	0.00370	0.00014	0.00000	0.00000	0.00000	0.00090	0.00000	0.00000
0.00030	0.00210	0.00010	0.00000	0.00000	0.00000	0.00010	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00015	0.00015	0.00021	0.00000	0.00000	0.00000	0.00015	0.00000	0.00000
0.00033	0.00034	0.00033	0.00000	0.00000	0.00000	0.00033	0.00000	0.00000
0.01203	0.00803	#VALUE!	0.00000	0.00000	0.00000	0.01569	0.00000	0.00000
0.00002	0.00002	0.00008	0.00000	0.00000	0.00000	0.00002	0.00000	0.00000
0.00019	0.00019	0.00019	0.00000	0.00000	0.00000	0.00019	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00016	0.00006	0.00015	0.00000	0.00000	0.00000	0.00019	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00037	0.00027	0.00042	0.00000	0.00000	0.00000	0.00040	0.00000	0.00000
0.00014	0.00014	0.00014	0.00000	0.00000	0.00000	0.00014	0.00000	0.00000
0.01186	0.00796	#VALUE!	0.00000	0.00000	0.00000	0.01548	0.00000	0.00000
0.01010	0.00370	0.01010	0.00000	0.00000	0.00000	0.01232	0.00000	0.00000
0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8.05	5.14	8.11	0.00	0.00	0.00	7.30	0.00	0.00
8.05	5.14	8.11	0.00	0.00	0.00	7.30	0.00	0.00
0.01010	0.00370	0.01010	0.00000	0.00000	0.00000	0.01232	0.00000	0.00000
0.00030	0.00210	0.00019	0.00000	0.00000	0.00000	0.00019	0.00000	0.00000
0.00030	0.00210	0.00019	0.00000	0.00000	0.00000	0.00019	0.00000	0.00000
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0.01010	0.00222	0.01010	0.00000	0.00000	0.00000	0.01232	0.00000	0.00000
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.01010	0.00222	0.01010	0.00000	0.00000	0.00000	0.01232	0.00000	0.00000
0.02081	0.01544	#VALUE!	0.00000	0.00000	0.00000	0.02721	0.00000	0.00000



Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Haswaste, developed by Dr. Iain Haslock.

252719 - Leicester Road, Earl
Shilton

TP/WS/BH
Depth (m)
Envirolab reference

TP01	TP04	TP05	TP07	TP09	TP11	TP13	TP15	TP15
1.00	0.20	1.20	2.00	1.30	1.10	1.00	0.40	0.90

Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Ti, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Cresol, TPH, TPHCWG, Phenol, Cresols, Xylenols, T- Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.02111	0.01754	#VALUE!	0.00000	0.00000	0.00000	0.02731	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Ti, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Cresol, TPH, TPHCWG, Phenol, Cresols, Xylenols, T- Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	2.08380	1.56470	#VALUE!	0.00000	0.00000	0.00000	2.72240	0.00040	0.00000
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.00000000	0.00000100	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000100	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000

If other contaminants need adding to Haswaste, please contact Envirolab.

Haswaste, developed by Dr. Iain Haslock.

TP/WS/BH
Depth (m)
Envirolab reference

TP20	TP21	TP22	TP22	TP23	TP24	TP24	WS08	WS06
1.90	0.20	0.80	1.00	1.60	0.10	0.50	1.00	1.20

% Moisture
pH (soil)
pH (leachate)
Arsenic
Cadmium
Copper
CrVI or Chromium
Lead
Mercury
Nickel
Selenium
Zinc

	5.23	6.75	8.66		5.36	5.28	7.17	
	3	1	1		4	3	1	
	0.8	0.9	1.0		0.5	0.6	1.8	
	19	25	16		34	21	23	
	1	1	1		1	1	1	
	40	23	7		44	36	9	
	0.17	0.17	0.49		0.17	0.17	0.17	
	8	21	19		9	8	50	
	1	1	1		1	1	1	
	51	59	45		61	57	83	

Barium
Beryllium
Vanadium
Cobalt
Manganese
Molybdenum
Antimony
Aluminium
Bismuth
Crill
Iron
Strontium
Tellurium
Thallium
Titanium
Tungsten
Ammoniacal N
ws Boron

Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(ghi)perylene
Benzo(k)fluoranthene
Chrysene
Dibenzo(ah)anthracene
Fluoranthene
Fluorene
Indeno(123cd)pyrene
Naphthalene
Phenanthrene
Pyrene
Coronene
Total PAHs (16 or 17)

	0.01	0.01	0.01		0.01	0.01	0.01	
	0.01	0.01	0.01		0.01	0.01	0.01	
	0.02	0.02	0.02		0.02	0.02	0.02	
	0.08	0.04	0.04		0.04	0.04	0.04	
	0.10	0.04	0.04		0.05	0.04	0.04	
	0.11	0.05	0.05		0.05	0.05	0.05	
	0.06	0.05	0.05		0.05	0.05	0.05	
	0.07	0.07	0.07		0.07	0.07	0.07	
	0.11	0.06	0.06		0.06	0.06	0.06	
	0.04	0.04	0.04		0.04	0.04	0.04	
	0.13	0.08	0.08		0.08	0.08	0.08	
	0.01	0.01	0.01		0.01	0.01	0.01	
	0.08	0.03	0.03		0.03	0.03	0.03	
	0.03	0.03	0.03		0.03	0.03	0.03	
	0.04	0.03	0.03		0.06	0.03	0.03	
	0.13	0.07	0.07		0.07	0.07	0.07	

Petrol
Diesel
Lube Oil
Crude Oil
White Spirit / Kerosene
Creosote
Unknown TPH with ID
Unknown TPHCWG
Total Sulphide
Complex Cyanide
Free (or Total) Cyanide
Thiocyanate
Elemental/Free Sulphur

	60.0	7.0	1.0		33.0	27.0	7.0	

Phenol
Cresols
Xylenols
Resorcinol
Phenols Total by HPLC

Benzene	
Toluene	
Ethylbenzene	
Xylenes	
Total BTEX	

PCBs Total (eg EC7/WHO12)	
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Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)

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Haswaste, developed by Dr. Iain Haslock.

TP/WS/BH
Depth (m)
Envirolab reference

TP20	TP21	TP22	TP22	TP23	TP24	TP24	WS08	WS06
1.90	0.20	0.80	1.00	1.60	0.10	0.50	1.00	1.20

2,3,7,8-TeCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TeCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
2,3,4,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,6,7,8-HpCDF
1,2,3,4,7,8,9-HpCDF
OCDF
Total Dioxins and Furans

Aldrin
α Hexachlorocyclohexane (alpha-HCH) <i>(leave empty if total HCH results used)</i>
β Hexachlorocyclohexane (beta-HCH) <i>(leave empty if total HCH results used)</i>
α Cis-Chlordane (alpha) OR Total Chlordane
δ Hexachlorocyclohexane (delta-HCH) <i>(leave empty if total HCH results used)</i>
Dieldrin
Endrin
γ Hexachlorocyclohexane (gamma-HCH) (lindane) OR Total HCH
Heptachlor
Hexachlorobenzene
o,p'-DDT <i>(leave empty if total DDT results used)</i>
p,p'-DDT OR Total DDT
γ Trans-Chlordane (gamma) <i>(leave empty if total Chlordane results used)</i>
Chlordecone (kepone)
Pentachlorobenzene
Mirex
Toxaphene (camphchlor)

[illegible]

Tin (leave empty if Organotin and Tin excl Organotin results used)

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Dibutyltin; DiBT
Tributyltin; TriBT
Triphenyltin; TriPT
Tetrabutyltin; TeBT

Tin excl Organotin

--	--	--	--	--	--	--	--	--



Haswaste, developed by Dr. Iain Haslock.

252719 - Leicester Road, Earl Shilton

TP/WS/BH
Depth (m)
Envirolab reference

TP20 1.90	TP21 0.20	TP22 0.80	TP22 1.00	TP23 1.60	TP24 0.10	TP24 0.50	WS08 1.00	WS06 1.20
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Asbestos in Soil	Thresholds
Asbestos detected in Soil (enter Y or N)	Y
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)	see "Carc HP7 % Asbestos in Soil (Fibres)" below
Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces)	≥0.1%
Please be advised, if the calculation cell is "0.00000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.	

N	N	N		N	N			N
If Asbestos in Soil above is "Y", the soil is Hazardous Waste HP5 and HP7								
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", the soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.

Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)	Y
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If visual identifiable pieces of asbestos are present, you cannot use Asbestos % results and the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05. Therefore, if Asbestos in Soil above is "Y", the Asbestos % above is "<0.1%", but the Asbestos Identifiable Pieces visible with the naked eye is "Y", the soil is Hazardous Waste.

Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres. All visual asbestos pieces need to be removed leaving only fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.

Hazardous Property	Thresholds	Cut Off Value
Corrosive HP8	≥5%	<1%
Irritant HP4	≥10%	<1%
Irritant HP4	≥20%	<1%
Specific Target Organ Toxicity HP5	≥1%	
Specific Target Organ Toxicity HP5	≥20%	
Specific Target Organ Toxicity HP5	≥1%	
Specific Target Organ Toxicity HP5	≥10%	
Aspiration Toxicity HP5	≥10%	
Acute Toxicity HP6	≥0.1%	<0.1%
Acute Toxicity HP6	≥0.25%	<0.1%
Acute Toxicity HP6	≥5%	<0.1%
Acute Toxicity HP6	≥25%	<1%
Acute Toxicity HP6	≥0.25%	<0.1%
Acute Toxicity HP6	≥2.5%	<0.1%
Acute Toxicity HP6	≥15%	<0.1%
Acute Toxicity HP6	≥55%	<1%
Acute Toxicity HP6	≥0.1%	<0.1%
Acute Toxicity HP6	≥0.5%	<0.1%
Acute Toxicity HP6	≥3.5%	<0.1%
Acute Toxicity HP6	≥22.5%	<1%
Carcinogenic HP7	≥0.1%	
Carcinogenic HP7	≥0.1%	
Carcinogenic HP7	≥1%	
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg	
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%	
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5	
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2	
Toxic for Reproduction HP10	≥0.3%	
Toxic for Reproduction HP10	≥3%	
Mutagenic HP11	≥0.1%	
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg	
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%	
Mutagenic HP11	≥1%	
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg	
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg	
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg	
HP13 Sensitising	≥10%	

If cells below turn yellow and the text turns red, the samples should be classified as Hazardous Waste.								
0.00000	0.00059	0.00032	0.00032	0.00000	0.00072	0.00059	0.00032	0.00000
0.00000	0.00254	0.00296	0.00194	0.00000	0.00437	0.00277	0.00273	0.00000
0.00000	0.00378	0.00708	0.00566	0.00000	0.00568	0.00400	0.01271	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000
0.00000	0.00162	0.00424	0.00384	0.00000	0.00182	0.00162	0.01010	0.00000
0.00000	0.00600	0.00230	0.00070	0.00000	0.00440	0.00360	0.00090	0.00000
0.00000	0.00600	0.00070	0.00010	0.00000	0.00330	0.00270	0.00070	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00041	0.00015	0.00018	0.00000	0.00055	0.00041	0.00015	0.00000
0.00000	0.00034	0.00033	0.00033	0.00000	0.00034	0.00033	0.00033	0.00000
0.00000	0.00786	0.00947	0.00646	0.00000	0.01013	0.00766	0.01379	0.00000
0.00000	0.00002	0.00002	0.00005	0.00000	0.00002	0.00002	0.00002	0.00000
0.00000	0.00019	0.00019	0.00019	0.00000	0.00019	0.00019	0.00019	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00008	0.00009	0.00010	0.00000	0.00005	0.00006	0.00018	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00029	0.00030	0.00034	0.00000	0.00026	0.00027	0.00039	0.00000
0.00000	0.00014	0.00014	0.00014	0.00000	0.00014	0.00014	0.00014	0.00000
0.00000	0.00776	0.00937	0.00635	0.00000	0.01006	0.00759	0.01360	0.00000
0.00000	0.00600	0.00424	0.00384	0.00000	0.00440	0.00360	0.01010	0.00000
0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0.00	5.23	6.75	8.66	0.00	5.36	5.28	7.17	0.00
0.00	5.23	6.75	8.66	0.00	5.36	5.28	7.17	0.00
0.00000	0.00400	0.00424	0.00384	0.00000	0.00440	0.00360	0.01010	0.00000
0.00000	0.00600	0.00070	0.00019	0.00000	0.00330	0.00270	0.00070	0.00000
0.00000	0.00600	0.00070	0.00019	0.00000	0.00330	0.00270	0.00070	0.00000
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0.00000	0.00162	0.00424	0.00384	0.00000	0.00182	0.00162	0.01010	0.00000
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.00000	0.00162	0.00424	0.00384	0.00000	0.00182	0.00162	0.01010	0.00000

Ecotoxic HP14 amended v6	≥25%	<0.1%
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0.00000	0.01506	0.01737	0.01265	0.00000	0.01868	0.01558	0.02470	0.00000
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Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Haswaste, developed by Dr. Iain Haslock.

252719 - Leicester Road, Earl
Shilton

TP/WS/BH
Depth (m)
Envirolab reference

TP20	TP21	TP22	TP22	TP23	TP24	TP24	WS08	WS06
1.90	0.20	0.80	1.00	1.60	0.10	0.50	1.00	1.20

Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Ti, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Cresote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T- Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.00000	0.02106	0.01807	0.01275	0.00000	0.02198	0.01828	0.02540	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Ti, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Cresote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T- Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.00000	1.56620	1.74440	1.26550	0.00000	1.90110	1.58500	2.47660	0.00000
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.00000000	0.00000100	0.00000000	0.00000000	0.00000000	0.00000100	0.00000000	0.00000000	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000

If other contaminants need adding to Haswaste, please contac



Haswaste, developed by Dr. Iain Haslock.

252719 - Leicester Road, Earl Shilton

TP/WS/BH
Depth (m)
Envirolab reference

Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

		WS11 1.20	WS12 0.60						
% Moisture	%								
pH (soil)									
pH (leachate)									
Arsenic	mg/kg								
Cadmium	mg/kg								
Copper	mg/kg								
CrVI or Chromium	mg/kg								
Lead	mg/kg								
Mercury	mg/kg								
Nickel	mg/kg								
Selenium	mg/kg								
Zinc	mg/kg								
Barium	mg/kg								
Beryllium	mg/kg								
Vanadium	mg/kg								
Cobalt	mg/kg								
Manganese	mg/kg								
Molybdenum	mg/kg								
Antimony	mg/kg								
Aluminium	mg/kg								
Bismuth	mg/kg								
CrIII	mg/kg								
Iron	mg/kg								
Strontium	mg/kg								
Tellurium	mg/kg								
Thallium	mg/kg								
Titanium	mg/kg								
Tungsten	mg/kg								
Ammoniacal N	mg/kg								
ws Boron	mg/kg								
PAH (Input Total PAH OR individual PAH results)									
Acenaphthene	mg/kg								
Acenaphthylene	mg/kg								
Anthracene	mg/kg								
Benzo(a)anthracene	mg/kg								
Benzo(a)pyrene	mg/kg								
Benzo(b)fluoranthene	mg/kg								
Benzo(ghi)perylene	mg/kg								
Benzo(k)fluoranthene	mg/kg								
Chrysene	mg/kg								
Dibenzo(ah)anthracene	mg/kg								
Fluoranthene	mg/kg								
Fluorene	mg/kg								
Indeno(123cd)pyrene	mg/kg								
Naphthalene	mg/kg								
Phenanthrene	mg/kg								
Pyrene	mg/kg								
Coronene	mg/kg								
Total PAHs (16 or 17)	mg/kg								
TPH									
Petrol	mg/kg								
Diesel	mg/kg								
Lube Oil	mg/kg								
Crude Oil	mg/kg								
White Spirit / Kerosene	mg/kg								
Creosote	mg/kg								
Unknown TPH with ID	mg/kg								
Unknown TPHCWG	mg/kg								
Total Sulphide	mg/kg								
Complex Cyanide	mg/kg								
Free (or Total) Cyanide	mg/kg								
Thiocyanate	mg/kg								
Elemental/Free Sulphur	mg/kg								
Phenols Input Total Phenols HPLC OR individual Phenol results.									
Phenol	mg/kg								
Cresols	mg/kg								
Xylenols	mg/kg								
Resourcinol	mg/kg								
Phenols Total by HPLC	mg/kg								
BTEX Input Total BTEX OR individual BTEX results.									
Benzene	mg/kg								
Toluene	mg/kg								
Ethylbenzene	mg/kg								
Xylenes	mg/kg								
Total BTEX	mg/kg								
PCBs (POPs)									
PCBs Total (eg EC7/WHO12)	mg/kg								
PBBs (POPs)									
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg								

Haswaste, developed by Dr. Iain Haslock.

TP/WS/BH
Depth (m)
Envirolab reference

WS11	WS12							
1.20	0.60							

2,3,7,8-TeCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TeCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
2,3,4,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,6,7,8-HpCDF
1,2,3,4,7,8,9-HpCDF
OCDF
Total Dioxins and Furans

Aldrin
α Hexachlorocyclohexane (alpha-HCH) (leave empty if total HCH results used)
β Hexachlorocyclohexane (beta-HCH) (leave empty if total HCH results used)
α Cis-Chlordane (alpha) OR Total Chlordane
δ Hexachlorocyclohexane (delta-HCH) (leave empty if total HCH results used)
Dieldrin
Endrin
γ Hexachlorocyclohexane (gamma-HCH) (lindane) OR Total HCH
Heptachlor
Hexachlorobenzene
o,p'-DDT (leave empty if total DDT results used)
p,p'-DDT OR Total DDT
γ Trans-Chlordane (gamma) (leave empty if total Chlordane results used)
Chlordecone (kepone)
Pentachlorobenzene
Mirex
Toxaphene (campechlor)

[illegible]

Tin (leave empty if Organotin and Tin excl Organotin results used)

[illegible]

Dibutyltin; DiBT
Tributyltin; TriBT
Triphenyltin; TriPT
Tetrabutyltin; TeBT

Tin excl Organotin

[illegible]

Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

TP/WS/BH
Depth (m)
Envirolab reference

WS11	WS12							
1.20	0.60							

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[illegible]

If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", the soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.

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Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres.
All visual asbestos pieces need to be removed leaving only fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.

Hazardous Property	Thresholds	Cut Off Value
Corrosive HP8	≥5%	<1%
Irritant HP4	≥10%	<1%
Irritant HP4	≥20%	<1%
Specific Target Organ Toxicity HP5	≥1%	
Specific Target Organ Toxicity HP5	≥20%	
Specific Target Organ Toxicity HP5	≥1%	
Specific Target Organ Toxicity HP5	≥10%	
Aspiration Toxicity HP5	≥10%	
Acute Toxicity HP6	≥0.1%	<0.1%
Acute Toxicity HP6	≥0.25%	<0.1%
Acute Toxicity HP6	≥5%	<0.1%
Acute Toxicity HP6	≥25%	<1%
Acute Toxicity HP6	≥0.25%	<0.1%
Acute Toxicity HP6	≥2.5%	<0.1%
Acute Toxicity HP6	≥15%	<0.1%
Acute Toxicity HP6	≥55%	<1%
Acute Toxicity HP6	≥0.1%	<0.1%
Acute Toxicity HP6	≥0.5%	<0.1%
Acute Toxicity HP6	≥3.5%	<0.1%
Acute Toxicity HP6	≥22.5%	<1%
Carcinogenic HP7	≥0.1%	
Carcinogenic HP7	≥0.1%	
Carcinogenic HP7	≥1%	
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg	
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%	
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5	
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2	
Toxic for Reproduction HP10	≥0.3%	
Toxic for Reproduction HP10	≥3%	
Mutagenic HP11	≥0.1%	
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg	
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%	
Mutagenic HP11	≥1%	
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg	
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg	
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg	
HP13 Sensitising	≥10%	

[illegible]

Ecotoxic HP14 amended v6	≥25%	<0.1%
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[illegible]



Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Haswaste, developed by Dr. Iain Haslock.

252719 - Leicester Road, Earl
Shilton

TP/WS/BH
Depth (m)
Envirolab reference

WS11 1.20	WS12 0.60							
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Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Ti, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Cresote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T- Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Ti, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Cresote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T- Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000

If other contaminants need adding to Haswaste, please contac