

EARTH ENVIRONMENTAL & GEOTECHNICAL

PHASE II GEOENVIRONMENTAL SITE INVESTIGATION

GRAVELLY CRESCENT

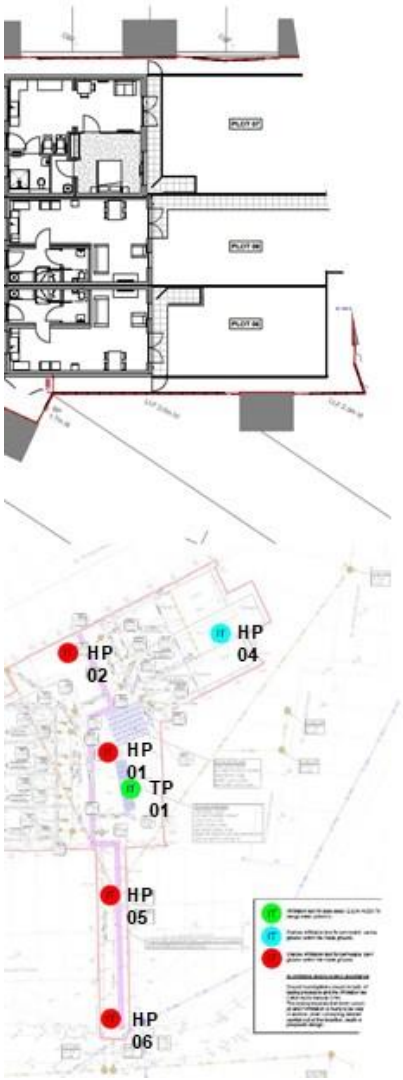
LANCING

WEST SUSSEX

BN15 9EP

Project Ref: R3759

August 2024



Earth Environmental & Geotechnical (Southern) Ltd
Suite 18
Wyvols Court
Swallowfield
Reading
RG7 1WY

Tel : 0118370730

Email south@earthenvironmental.co.uk
www.earthenvironmental.co.uk

PHASE II GEOENVIRONMENTAL SITE INVESTIGATION

GRAVELLY CRESCENT

LANCING

WEST SUSSEX

BN15 9EP

REPORT REF: R3759/24

August 2024

Prepared on Behalf of:

Boutique Modern

By:

Earth Environmental & Geotechnical (Southern) Ltd
Suite 18
Wyvols Court, Swallowfield
Reading
RG7 1WY

DISTRIBUTION: 1 Electronic Copy

1 electronic copy Boutique Modern

PHASE II GEOENVIRONMENTAL SITE INVESTIGATION
Gravelly Crescent, Lancing, BN15 9EP

Report Reference: R3759/24

Version A.0

Date: 09th August 2024

Prepared for: Boutique Modern

Prepared by: Earth Environmental & Geotechnical (Southern) Ltd
Suite 18
Wyvols Court, Swallowfield
Reading
RG7 1WY

Definition of Version Code:
D. Applied during initial drafting of the report before it has been reviewed.
C. Applied after the report has been reviewed but before it has been approved by the Project Manager.
B. Applied after the Project Manager has approved the report ready for issue to the client.
A. Applied to reports after external/internal review.

The version number starts at “0” and is raised by “1” at each re-type.

Written by: **Ashley Thorne**
Senior Geo-Environmental Consultant



Approved by: **John Grace**
Director

TABLE OF CONTENTS

1.0 INTRODUCTION 5

1.1 BACKGROUND 5
1.2 TERMS OF REFERENCE 5
1.3 REPORT SCOPE 5
1.4 LIMITATIONS OF THE STUDY 5

2.0 SITE LOCATION & DESCRIPTION 6

2.1 SITE LOCATION & DESCRIPTION 6
2.2 PUBLISHED GEOLOGY 7
3.0 SITE INVESTIGATION 9
3.1 EXPLORATORY FIELDWORK 9
3.2 LABORATORY TESTING PROGRAMME 10
3.2.1 Environmental Testing 10

4.0 GROUND CONDITIONS ENCOUNTERED 11

4.1 SOIL PROFILE ENCOUNTERED 11
4.2 OBSTRUCTIONS 11
4.3 GROUNDWATER 11
4.4 IN-SITU SOAKAWAY TEST RESULTS 12

5.0 SOIL CONTAMINATION RISK ASSESSMENT 13

5.1 TIER I HUMAN HEALTH SOIL RISK ASSESSMENT – FUTURE SITE USERS 13
5.2 ASBESTOS 16

6.0 REVISED CONCEPTUAL SITE MODEL 17

7.0 CONCLUSIONS AND RECOMMENDATIONS 19

7.1 GROUND CONDITIONS 19
7.2 SOIL CONTAMINATION 19
7.3 GROUNDWATER 19
7.4 SOAKAWAY TESTING 20
7.5 SITE PERSONNEL 20
7.6 OTHER MATTERS 20

FIGURES

Figure 1 Site Location Plan
Figure 2 Exploratory Hole Location Plan

TABLES

Table 1 Preliminary Conceptual Model
Table 2 Summary of Exploratory Holes Undertaken
Table 3 Summary of In Situ Soakaway Test Results
Table 4 Soil Results Comparison with Defra C4SL HCV/LLTC Values
Table 5 Soil Results Comparison with LQM/CIEH S4UL
Table 6 Conceptual Site Model

APPENDICES

Appendix 1 Exploratory Logs
Appendix 2 Soakaway Test Results
Appendix 3 Laboratory Test Results (Contamination)
Appendix 4 Report Limitations

1.0 INTRODUCTION

1.1 Background

A Geo-environmental Site Investigation has been commissioned by Boutique Modern (the Client) to examine ground conditions, retrieve soil samples for contamination testing and complete soakaway testing for a proposed residential development at Gravelly Crescent, Lancing, BN15 9EP (herein referred to as the 'assessment site').

1.2 Terms of Reference

Earth Environmental and Geotechnical (Southern) Ltd (EEGSL) was commissioned by the Client to undertake a Site Investigation of the assessment site in accordance with project proposal R3759 on the 4th June 2024.

The objectives of this site investigation are as follows:

- *Undertake ground investigation works.*
- *Provide guidance regarding the use of shallow infiltration drainage.*
- *Provide a waste soil classification analysis.*
- *Preparation of a quantitative contamination risk assessment and ground investigation report.*

1.3 Report Scope

This report presents full factual records of the site work carried out, the ground conditions encountered in the exploratory holes and the in-situ and laboratory test results. All information collected has been used to provide an interpretation of the ground conditions together with recommendations to inform on parameters used in foundation design.

1.4 Limitations of the Study

The report is written in the context of an agreed scope of work and budget and should not be used in a different context. New information, improved practices or changes in legislation may require a reinterpretation of the report in whole or in part. EEGSL reserve the right to amend either conclusions or recommendations in light of any further information that may become available. The report is provided for the sole use by the Client and is confidential to them.

Recommendations within this report are also based on exploratory records and examination of samples and, where applicable, laboratory tests. No liability can be accepted for conditions not revealed by the boreholes and trial pits, particularly at intervening locations. Whilst every effort is made to ensure accuracy of data supplied, all opinions expressed as to the spatial distribution of strata between sampling locations is for guidance only and no responsibility is accepted as to its accuracy.

2.0 SITE LOCATION & DESCRIPTION

2.1 Site Location & Description

At the time of the investigation the assessment comprised of a garage block that has recently been demolished. The assessment site is located north off of Gravelly Crescent in Lancing. The assessment site is centred on National Grid Reference TQ 18718 05019 (E: 518716, N: 105021) with a postcode of BN15 9EP.

The assessment site is bounded in all directions by residential properties.

An aerial photograph showing the location of the assessment site is provided in Figure 1.

Figure 1: Site Location Plan



2.2 Published Geology

According to the BGS, the assessment site is underlain by superficial head deposits of clay, silt, sand and gravel which is underlain by bedrock of the Newhaven Chalk Formation.

2.3 Preliminary Contamination Risk Assessment

Prior to the ground investigation taking place, EEGSL compiled a Preliminary Conceptual Site Model based on the available information at the time.

Table 1 below presents the Preliminary Conceptual Model for the assessment site, and a summary of the key findings of the Preliminary Risk Assessment are as follows:

- From review of the available historical and current day information it has been identified that the assessment site has been occupied by private garages and car parking for at least the last 23 years.

- Significant off-site sources of contamination have not been identified, with the site being surrounded by residential properties.

- On-site sources of contamination are limited to recent use as a set of private garages with the main contaminants of concern being, Asbestos, Total Petroleum Hydrocarbons (TPHs), Polycyclic Aromatic Hydrocarbons (PAHs) and Toxic Metals.

- Considering the proposed residential end users, the potential pathways for contamination and the identified sources of contamination, the risk to proposed site users has been deemed as **Moderate to Low**.

- The primary risk to future site users is thought to be from direct / dermal contact with contamination (mainly asbestos, hydrocarbons and toxic metals) potentially present within the shallow soils beneath the assessment site.

- The risk to all other receptors has been deemed as **Low** to **Very Low.**

Table 1 - Preliminary Conceptual Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Contamination of the ground beneath site due to the recent use as residential garages.	Dermal contact, ingestion and inhalation of soils dust	Current Site Users	Unlikely	Moderate	Low	It is understood that the assessment site is currently unoccupied and will remain so until development has taken place. The risk to current site users is therefore considered to be **LOW**.
		Adjacent Site users	Unlikely	Moderate	Low	The risk to adjacent site users from potential contamination within the ground beneath the assessment site is considered to be **LOW.** There is the potential for contamination to be present beneath the assessment site due to the recent use as garages (storage of vehicles, fuels and oils etc) however, any contamination present is expected to be sporadic and localised in nature. Given the cohesive nature of the shallow underlying soils, and the limited extent of expected contamination, it is deemed unlikely that significant concentrations of contamination will migrate offsite and therefore it is unlikely to cause a significant impact to adjacent site users.
		Future Site users	Low likelihood	Moderate	Low to Moderate	The risk to future site users from potential contamination within the ground beneath the assessment site is considered to be **LOW TO MODERATE.** The proposed development is residential housing and therefore represents a sensitive receptor. It is expected that once developed the assessment site will contain areas of soft landscaping which will increase the potential for site users to encounter any contaminated soils present. Contaminants of concern include hydrocarbons and toxic metals (associated with vehicle storage on the assessment site) and asbestos associated with the former buildings.
		Construction Workers	Low Likelihood	Moderate	Low	It is possible that a limited amount of contamination may be present beneath the assessment site. However, it is expected that the exposure duration for construction workers will be short-term only, and assuming appropriate health and safety measures are adopted (in line with CDM and other relevant health and safety guidance) a **LOW** risk to construction workers is anticipated.

3.0 SITE INVESTIGATION

3.1 Exploratory Fieldwork

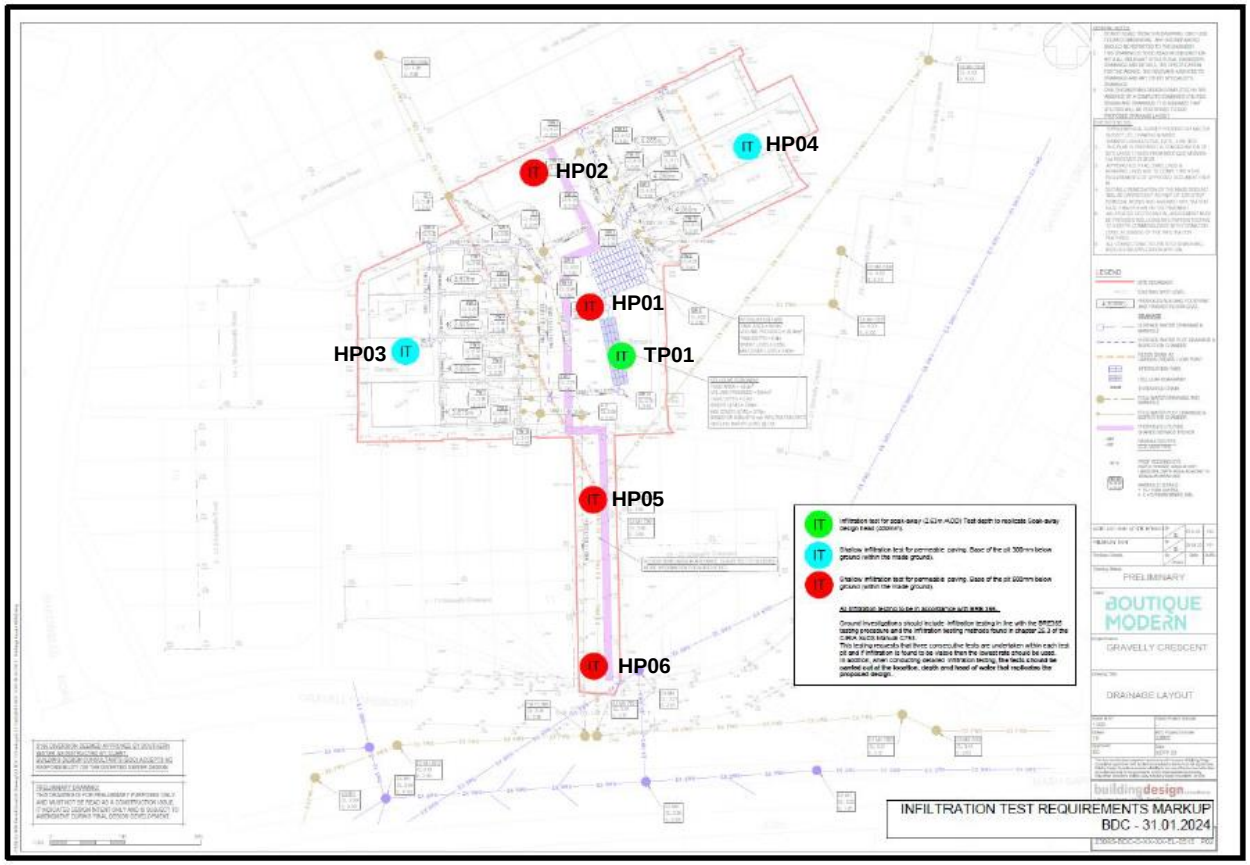
The fieldwork was carried out by EEGSL on the 28th of June 2024 and comprised:

- 1 No. Machine dug Trial Pit (TP01) was dug to 1.10m below existing ground level. Soakaway testing was undertaken in the trial pit. Trial pit logs are included in Appendix 1
- 6 No. Hand Dug Pits (HP01 – HP06) were dug to between 0.30m and 0.50m below existing ground level. Shallow percolation tests were undertaken in all hand pit locations.

The fieldwork was carried out generally in accordance with BS 5930:2015+A1:2020 Code of Practice for Site Investigations unless otherwise stated.

The exploratory hole locations and depths were determined by the client prior to EEGSL arriving on site. The investigation locations completed are shown approximately on the Exploratory Hole Location Plan (Figure 2).

Figure 2: Exploratory Hole Location Plan



Each exploratory location was scanned using a Cable Avoidance Tool (CAT) in order to locate unrecorded underground services, and the exploratory locations were repositioned if necessary.

On completion, soil samples recovered from the assessment site were taken to a specialist laboratory for testing.

All site investigation work was supervised full time by a representative of EEGSL. The logging of soils and rocks has been carried out in accordance with BS5930(2015+A1:2020) except where superseded by the soil and rock description methodology in BS EN14688-1(2002), BS EN 14688-2(2004) and BS EN 14689-1(2003).

A summary of exploratory holes undertaken during the investigation is presented in Table 2.

Table 2: Summary of Exploratory Holes Undertaken

Hole	Type*	Depth (m)	Date Started	Date Finished	Backfill Details***
TP01	TP	1.10	28/06/2024	28/06/2024	A
HP01	HP	0.50	28/06/2024	28/06/2024	A
HP02	HP	0.50	28/06/2024	28/06/2024	A
HP03	HP	0.30	28/06/2024	28/06/2024	A
HP04	HP	0.30	28/06/2024	28/06/2024	A
HP05	HP	0.50	28/06/2024	28/06/2024	A
HP06	HP	0.50	28/06/2024	28/06/2024	A
*HP = Hand Pit TP = Trial Pit, **A = Arisings					

3.2 Laboratory Testing Programme

3.2.1 Environmental Testing

The environmental chemistry of the ground was investigated by specialist chemical analysis of selected samples, scheduled by EEGSL and carried out by QTSE DETS Ltd.

Chemical analyses were carried out on 8 soil samples and were submitted for the following suite of determinants:

- Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Vanadium and Zinc.

2 soil samples were also submitted for Waste Acceptance Criteria (WAC) testing.

2 samples were also submitted for the following suite of contaminants in addition to the above:

- pH, Soil Organic Matter, Polycyclic Aromatic Hydrocarbons (PAHs), Total Petroleum Hydrocarbons and asbestos screen.

The results of the laboratory contamination tests are discussed in Section 5 and included in Appendix 3.

4.0 GROUND CONDITIONS ENCOUNTERED

The following sections describe the ground conditions identified during the site investigation work.

4.1 Soil Profile Encountered

The sequence of strata encountered beneath the assessment site consisted of:

- HARDSTANDING:
    - MACADAN proven to a maximum depth of 0.03mbgl, observed in HP05 and HP06 only.
    - CONCRETE proven to a maximum depth of 0.26mbgl, observed in HP05 and HP06 only.
- MADE GROUND:
    - Variable sandy GRAVEL to a maximum depth of 0.30mbgl, observed in TP01, HP01, HP03 and HP04 only.
    - Variable gravelly clayey SAND to a maximum depth of 0.50mbgl, observed in HP02, HP05 and HP06 only.
    - Variable sandy gravelly CLAY to a maximum depth of 0.50mbgl, observed in TP01, HP01, HP02, HP05 and HP06 only.
- HEAD DEPOSITS COMPRISING:
    - Variable gravelly sandy CLAY proven to a maximum depth of 1.10mbgl observed in TP01 and HP02 only.

The generalised ground model can be described as Made Ground proven to a base depth of 0.50mbgl overlying variable sandy gravelly Clay of the Head Deposits proven to a base depth of 1.10mbgl.

The depths at which each stratum was encountered in each exploratory hole is provided within the borehole logs presented within Appendix 1.

4.2 Obstructions

During the site investigation, no man-made obstructions were encountered during the drilling process.

4.3 Groundwater

During the site investigation works, groundwater was not encountered in any of the exploratory locations.

4.4 In-situ Soakaway Test Results

In-situ Soakaway testing was completed in all locations.

Infiltration rates were calculated for the testing completed at TP01, HP02 and HP03 however an infiltration rate could not be calculated for HP01, HP04, HP05 and HP06 due to poor infiltration resulting in the test being abandoned.

The results of the in-situ soakaway testing are summarised in Table 3 below and full results are presented in Appendix 2.

Table 3 – Summary of In Situ Soakaway Test Results

Location	No. of Tests in Pit	Test Depth (mbgl)	Strata	Soil Infiltration Rate (m/s)
TP01	1	1.10	Head Deposits (sandy Clay)	2.82×10^{-5}
	2			2.42×10^{-5}
	3			1.60×10^{-5}
HP01	1	0.50	Made Ground (Clay)	Failed
HP02	1	0.50	Head Deposits (sandy Clay)	2.42×10^{-5}
	2			Failed
HP03	1	0.30	Made Ground (Gravel)	3.49×10^{-3}
	2			1.34×10^{-2}
	3			1.34×10^{-2}
HP04	1	0.35	Made Ground (Sandy Clay)	Failed
HP05	1	0.50	Made Ground (Clayey Sand)	Failed
HP06	1	0.50	Made Ground (Sandy Clay)	Failed

5.0 SOIL CONTAMINATION RISK ASSESSMENT

5.1 Tier I Human Health Soil Risk Assessment

As part of the contamination assessment, the chemical results obtained by EEGSL have been screened against accepted compliance criteria, namely:

- Defra C4SL Health Criteria Values where available; and
- Tier 1 assessment values - based on LQM/CIEH Suitable 4 Use Levels(2015) (S4ULs).

As a preliminary screening assessment, all results have been compared to residential end use.

The comparison of results is summarised in Table 4 and 5 below:

Table 4: Soil Results Comparison with Defra C4SL HCV/LLTC Values

Determinant	C4SL (mg/kg)*			Min. (mg/kg)	Max. (mg/kg)	No. of Samples with Exceedances
	Residential with home grown produce (1)	**Residential** without home grown produce (2)	**Commercial** (3)			
Arsenic	37	40	640	10	21	0
Benzo(a)pyrene	2.4	5.3	36	<0.1	0.17	0
Cadmium	14	150	220	<0.2	1.1	0
Chromium VI	6	21	33	<2	<2	0
Lead	200	310	2300	17	316	1/8 (HP05 0.26 – 0.35m)
Naphthalene	15	15	1600	<0.1	<0.1	0
*Minimal risk Health Criteria Values						

The comparison within Table 4 has found only one instance of elevated levels of contamination present in excess of the C4SLs for residential end use. The minor exceedance was for levels of Lead within the shallow made ground present at HP05 (0.26 – 0.35mbgl).

For contaminants not covered by the Defra C4SLs, reference is made to the Suitable for Use Levels (S4ULs) derived by The Land Quality Management Ltd & Chartered Institute of Environmental Health(2015) and summarised in Table 5. The S4ULs are based on 1% Soil Organic Matter (SOM) as this is the most conservative approach.

Table 5: Soil Results Comparison with LQM/CIEH S4UL

Determinant	Suitable 4 Use Levels (mg/kg)*			Min. (mg/kg)	Max. (mg/kg)	No of Exceedances
	Residential		Commercial (3)			
	with homegrown produce (1)	without homegrown produce (2)				
Metals						
Beryllium	1.7	1.7	12	0.8	1.7	0
Boron	290	11000	240000	<1	<1	0
Chromium III	910	910	8600	14	34	0
Copper	2400	7100	68000	12	199	0
Mercury	1.2	1.2	58	<1	2	1/8 (HP04 0.10 – 0.30m)
Nickel	180	180	980	13	68	0
Selenium	250	430	12000	<2	<2	0
Vanadium	410	1200	9000	25	52	0
Zinc	3700	4000	730000	50	373	0
Polycyclic Aromatic Hydrocarbons						
Naphthalene	2.3	2.3	190	<0.1	<0.1	0
Acenaphthylene	170	2900	83000	<0.1	<0.1	0
Acenaphthene	210	3000	84000	<0.1	<0.1	0
Fluorene	170	2800	63000	<0.1	<0.1	0
Phenanthrene	95	1300	22000	<0.1	0.27	0
Anthracene	2400	31000	520000	<0.1	<0.1	0
Fluoranthene	280	1500	23000	<0.1	0.32	0
Pyrene	620	3700	54000	<0.1	0.26	0
Benz(a)anthracene	7.2	11	170	<0.1	0.15	0
Chrysene	15	30	350	<0.1	0.19	0
Benzo(b)fluoranthene	2.6	3.9	44	<0.1	0.19	0
Benzo(k)fluoranthene	77	110	1200	<0.1	<0.1	0

Indeno(1,2,3-cd)pyrene	27	45	500	<0.1	0.12	0
Dibenz(a,h)anthracene	0.24	0.31	3.5	<0.1	<0.1	0
Benzo(ghi)perylene	320	360	3900	<0.1	0.12	0
Speciated TPH						
Aliphatic >C5 - C6	42	42	3200	<0.01	<0.01	0
Aliphatic >C6 - C8	100	100	7800	<0.05	<0.05	0
Aliphatic >C8 - C10	27	27	2000	<2	<2	0
Aliphatic >C10 - C12	130	130	9700	<2	<2	0
Aliphatic >C12 - C16	1100	1100	59000	<3	<3	0
Aliphatic >C16 – C21	65000	65000	260000	<3	<3	0
Aromatic >C5 - C7	70	370	26000	<0.01	<0.01	0
Aromatic >C7 - C8	130	860	56000	<0.05	<0.05	0
Aromatic >C8 - C10	34	47	3500	<2	<2	0
Aromatic >C10 - C12	74	250	16000	<2	<2	0
Aromatic >C12 - C16	140	1800	36000	<2	<2	0
Aromatic >C16 - C21	260	1900	28000	<3	<3	0
Aromatic >C21 - C35	1100	1900	28000	<10	<10	0
BTEX						
Benzene	0.087	0.38	27	<2	<2	0
Toluene	130	880	56000	<5	<5	0
Ethylbenzene	47	83	5700	<2	<2	0
m & p-xylene	60	88	6600	<2	5	0
o-Xylene	59	82	6200	<2	<2	0
MTBE	56	79	5900	<5	<5	0

The comparison within Table 5 has found one instance of elevated levels of contamination above the relevant residential with home grown produce screening criteria. Marginally elevated levels of Mercury were found present within the shallow Made Ground deposits within HP04 (0.10 – 0.30mbgl).

5.2 Asbestos

Asbestos was not encountered in any of the samples analysed as part of this investigation.

5.3 Soil Contamination Assessment

The screening assessments completed in Tables 4 and 5 have shown two minor exceedances of the relevant residential screening criteria of Lead in HP05 and Mercury in HP04 (both within Made Ground deposits).

The exceedance of Lead in HP05 is noted as being located along the access road leading into site and away from any proposed residential dwellings (and gardens). As this exceedance was encountered in an area where no residential development is proposed, and in an area that will be covered by hardstanding, the residential screening criteria is considered too conservative, and EEGSL would recommend that a more appropriate screening criteria would be the commercial screening criteria. When the value of Lead within HP05 is compared to the commercial screening criteria it falls well below the level deemed hazardous and therefore would indicate a Low Risk to future site users.

All other samples tested have levels of Lead well below the residential screening criteria.

The exceedance of Mercury found in HP04 is in the garden of Plot 6. However, the concentration of 2mg/kg encountered only exceeds the generic screening criteria by by 0.8mg/kg. All other samples tested for Mercury have values that fall well below the screening criteria and below the laboratory limit of detection. Given the very minor exceedance in only one location, and the absence of mercury in all other locations tested, it is recommended that the one minor exceedance does not represent the presence of widespread significant contamination, and overall, the risk to future site users is most likely very low to low.

Given the information above, and the absence of any other exceedances across the assessment site, it is recommended that the site is free from significant contamination and remedial works should not be required prior to redevelopment.

5.4 Waste Soil Classification

Soil chemical test data has been assessed in accordance with Environment Agency Technical Guidance WM3.1: Hazardous Waste; “Guidance on the classification and assessment of waste”, May 2019, published by Environment Agency of England and Wales, SEPA, NIEA and Natural Resources Wales has been used to characterise soil materials.

HazWasteOnlineTM a cloud-based software application for the management, analysis and reporting of hazardous waste materials has been used to make this assessment.

The Hazardous Waste Assessment confirms that the soils tested can be classified as Non-hazardous. Full results are provided in Appendix 3.

6.0 REVISED CONCEPTUAL SITE MODEL

Table 6 below presents a Revised Conceptual Model which considers whether an actual risk is present to the identified receptors taking into account the results of the recent ground investigation work.

Table 6: Conceptual site Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Potential contamination associated with the sites historical and current day use	*Dermal contact, ingestion, and inhalation of soils dust*	Current Site Users	Unlikely	Low	Very Low Risk	Given the lack of significant contamination present across the assessment site, the risk to current site users is deemed as **VERY LOW**.
		Adjacent Land Users	Unlikely	Low	Very Low Risk	Given the lack of significant contamination present across the assessment site, the risk to adjacent site users is deemed as **VERY LOW.**
		Construction Workers	Unlikely	Low	Very Low Risk	Given the lack of significant contamination present across the assessment site, the risk to construction site users is deemed as **VERY LOW.**
		Future Site Users	Low Likelihood	Moderate	Low Risk	Given the lack of significant contamination present across the assessment site, the risk to future site users is deemed as **LOW.**

7.0 CONCLUSIONS AND RECOMMENDATIONS

EEGSL were commissioned by the client to undertake ground investigation works at the assessment site to help inform on parameters used in drainage design and to undertake a Human Health Risk Assessment for a proposed new residential development at Gravelly Cresent in Lancing.

The following section provides a summary of the conclusions and recommendations based on the findings of the investigation works undertaken and laboratory testing results.

7.1 Ground conditions

In general, ground conditions can be summarised as Made Ground proven to a base depth of 0.50mbgl, overlying variable sandy gravelly Clay of the Head Deposits proven to a base depth of 1.10mbgl.

Groundwater was not encountered in any of the locations excavated.

7.2 Soil Contamination

As discussed in Section 5 of this report, chemical testing of soils representative of the materials beneath the assessment site has been undertaken, and the results of which are provided within Appendix 3.

During site investigation works, eight soil samples were collected and analysed for a general suite of contamination.

In general, the site was deemed to be free of any contamination, with only minor exceedances of Lead and Mercury occurring in two samples of the Made Ground. The remaining samples proved an absence of contamination across the wider site.

Using the results of the soil analysis, a revised conceptual site model has been developed for the assessment site (see Section 6). The revised conceptual model indicates a Very Low to Low level of risk for all known receptors.

Given the lack of significant contamination, no further assessment or remediation is deemed necessary at the assessment site.

A waste soil assessment has been completed, and it has found that all samples tested can be treated as non-hazardous.

7.3 Groundwater

Shallow groundwater has been proven absent alongside a lack of significant soils contamination, therefore the risk to groundwater has been deemed as Very Low. Further investigative works to assess the quality of groundwater beneath site are not deemed necessary.

7.4 Soakaway Testing

As discussed in Section 4 soakaway testing has been completed in seven locations, however only two locations achieved the required three fills. The results of the soakaway testing are summarised in Table 3 of this report.

In general, it is recommended that the shallow clay soils present across the assessment site do not represent suitable strata for infiltration drainage, and EEGSL recommend that an offsite disposal route would be more suitable.

7.5 Site Personnel

As with all construction sites, personnel working on the site during the construction period should be encouraged to maintain a high standard of personal hygiene and on-site washing facilities should be made available.

7.6 Other Matters

Due diligence is required during the construction period, and should any evidence of unknown contamination be found, appropriate investigation and assessment should be taken. The significance of any contamination not discovered by this investigation is outside the scope of this report.

APPENDIX 1

EXPLORATORY LOGS

Trial Pit Log

Project Name: Gravelly Crescent	Client: Boutique Modern LTD	Date: 28/06/2024
Location: Gravelly Crescent, Lancing, West Sussex, BN15 9EP	Contractor: PR Nicholls	Co-ords: E518715.00 N105025.00
Project No. : R3759	Crew Name:	Equipment: Hand Tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP01	TP		AJ	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10 - 0.30	ES					MADE GROUND: Grey very sandy subangular to subrounded fine to coarse GRAVEL of flint and brick. Sand is fine to coarse.
					0.30			
		0.40 - 0.50	ES					MADE GROUND: Firm dark brown very gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of flint and brick. Sand is fine to coarse.
					0.50			End of Borehole at 0.500m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.32	0.36						

Remarks

1. Trial Pit location scanned with CAT. 2. Hole terminated due to reaching the target depth at 0.50mbgl. 3. Trial Pit was backfilled with arisings. 4. Groundwater was not encountered

Trial Pit Log

Project Name: Gravelly Crescent	Client: Boutique Modern LTD	Date: 28/06/2024
Location: Gravelly Crescent, Lancing, West Sussex, BN15 9EP	Contractor: PR Nicholls	Co-ords: E518709.00 N105028.00
Project No. : R3759	Crew Name:	Equipment: Hand Tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP02	TP		AJ	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10 - 0.30	ES		0.13			MADE GROUND: Greyish brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of flint and brick.
					0.30			MADE GROUND: Firm dark brown gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to coarse of flint and brick. Sand is fine to coarse.
		0.40 - 0.50	ES		0.50			Soft brown slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to coarse of flint. Sand is fine to coarse. [HEAD DEPOSITS]
								End of Borehole at 0.500m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.32	0.30						

Remarks

1. Trial Pit location scanned with CAT. 2. Hole terminated due to reaching the target depth at 0.50mbgl. 3. Trial Pit was backfilled with arisings. 4. Groundwater was not encountered

Trial Pit Log

Project Name: Gravelly Crescent	Client: Boutique Modern LTD	Date: 28/06/2024
Location: Gravelly Crescent, Lancing, West Sussex, BN15 9EP	Contractor: PR Nicholls	Co-ords: E518694.00 N105012.00
Project No. : R3759	Crew Name:	Equipment: Hand Tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP03	TP		AJ	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10 - 0.30	ES					MADE GROUND: Grey very sandy subangular to rounded fine to coarse GRAVEL of flint and brick.
					0.30			End of Borehole at 0.300m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.47	0.40						

Remarks

1. Trial Pit location scanned with CAT. 2. Hole terminated due to reaching the target depth at 0.30mbgl. 3. Trial Pit was backfilled with arisings. 4. Groundwater was not encountered

Trial Pit Log

Project Name: Gravelly Crescent	Client: Boutique Modern LTD	Date: 28/06/2024
Location: Gravelly Crescent, Lancing, West Sussex, BN15 9EP	Contractor: PR Nicholls	Co-ords: E518739.00 N105037.00
Project No. : R3759	Crew Name:	Equipment: Hand Tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP04	TP		AJ	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10 - 0.30	ES		0.05			MADE GROUND: Grey very sandy angular to subrounded fine to coarse GRAVEL of flint and brick. Sand is fine to coarse.
								MADE GROUND: Dark brown very gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse of flint and brick. Sand is fine to coarse.
					0.35			End of Borehole at 0.350m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.36	0.28						

Remarks

1. Trial Pit location scanned with CAT. 2. Hole terminated due to reaching the target depth at 0.35mbgl. 3. Trial Pit was backfilled with arisings. 4. Groundwater was not encountered

Trial Pit Log

Project Name: Gravelly Crescent	Client: Boutique Modern LTD	Date: 28/06/2024
Location: Gravelly Crescent, Lancing, West Sussex, BN15 9EP	Contractor: PR Nicholls	Co-ords: E518716.00 N104995.00
Project No. : R3759	Crew Name:	Equipment: Hand Tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP05	TP		AJ	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.03			MADE GROUND: MACADAM.
								MADE GROUND: CONCRETE.
		0.26 - 0.35	ES		0.26			MADE GROUND: Firm dark brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint and brick.
					0.35			MADE GROUND: Brown gravelly slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of flint and brick.
		0.40 - 0.50	ES					
					0.50			End of Borehole at 0.500m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.33	0.37						

Remarks

1. Trial Pit location scanned with CAT. 2. Hole terminated due to reaching the target depth at 0.50mbgl. 3. Trial Pit Location was backfilled with arisings. 4. Groundwater was not encountered

Trial Pit Log

Project Name: Gravelly Crescent	Client: Boutique Modern LTD	Date: 28/06/2024
Location: Gravelly Crescent, Lancing, West Sussex, BN15 9EP	Contractor: PR Nicholls	Co-ords: E518719.00 N104977.00
Project No. : R3759	Crew Name:	Equipment: Hand Tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP06	TP		AJ	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.02			MADE GROUND: MACADAM.
		0.10 - 0.20	ES					MADE GROUND: CONCRETE.
					0.13			MADE GROUND: Brown gravelly slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of flint and brick.
					0.25			MADE GROUND: Firm dark brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint and brick.
		0.30 - 0.50	ES					
					0.50			End of Borehole at 0.500m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.33	0.31						

Remarks

1. Trial Pit location scanned with CAT. 2. Hole terminated due to reaching the target depth at 0.50mbgl. 3. Trial Pit was backfilled with arisings. 4. Groundwater was not encountered

Trial Pit Log

Project Name: Gravelly Crescent	Client: Boutique Modern LTD	Date: 28/06/2024
Location: Gravelly Crescent, Lancing, West Sussex, BN15 9EP	Contractor: PR Nicholls	Co-ords: E518718.00 N105019.00
Project No. : R3759	Crew Name:	Equipment: Mini digger

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP01	TP		AJ	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10 - 0.25	ES		0.05			MADE GROUND: Grey slightly sandy subangular to subrounded fine to coarse GRAVEL of flint and brick. Sand is fine to medium
								MADE GROUND: Firm dark brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint and brick.
					0.25			Soft friable brown very gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of flint. Sand is fine to coarse. [HEAD DEPOSITS]
		0.40 - 0.60	ES					
		0.70 - 0.90	ES					
					1.10			End of Borehole at 1.100m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.00	0.50						

Remarks

1. Trial Pit location scanned with CAT. 2. Hole terminated due to reaching the target depth at 1.10mbgl. 3. Trial Pit was backfilled with arisings. 4. Groundwater was not encountered.

APPENDIX 2

SOAKAWAY TEST RESULTS

Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

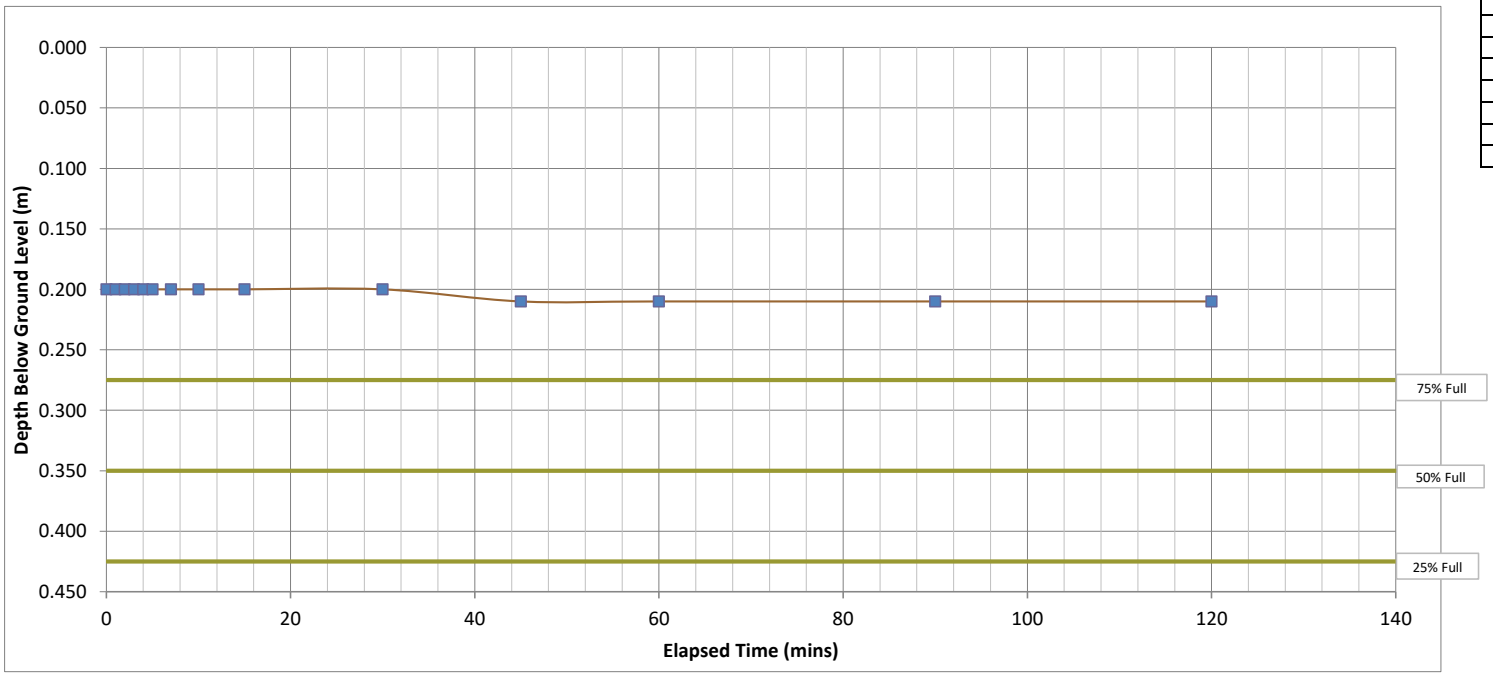
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	HP01	Test 1
Date	28/06/2024	
Geology in test section	sandy gravelly CLAY	
Depth to Base of Hole	0.50	m
Effective Depth	0.30	m
Hole Width	0.36	m
Hole Length	0.32	m
Depth to water at start of test below ground level	0.20	m
Depth to water at end of test below ground level	0.21	m
Effective storage depth to 75% full	0.23	m
(Depth below GL)	0.28	m
Effective storage depth to 50% full	0.15	m
(Depth below GL)	0.35	m
Effective storage depth to 25% full	0.08	m
(Depth below GL)	0.43	m
Height to 50% depth	0.15	m3
Effective Storage Volume V*p75-25*	0.03	m3
Time tp25 at which water is 75% of effective depth (minutes)	-	mins
Time tp25 at which water is 25% of effective depth (minutes)	-	mins
Time for water level to fall between Vp75 -25	-	mins
Time for water level to fall between Vp75 -25	-	secs
Internal surface area of hole up to 50% depth including base	0.46	m2
Soil Infiltration Rate, f	-	m/s

Time Elapsed (mins:sec)	Depth of Water below GL (m)
0.00	0.200
1.00	0.200
2.00	0.200
3.00	0.200
4.00	0.200
5.00	0.200
7.00	0.200
10.00	0.200
15.00	0.200
30.00	0.200
45.00	0.210
60.00	0.210
90.00	0.210
120.00	0.210

Measured Data



Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

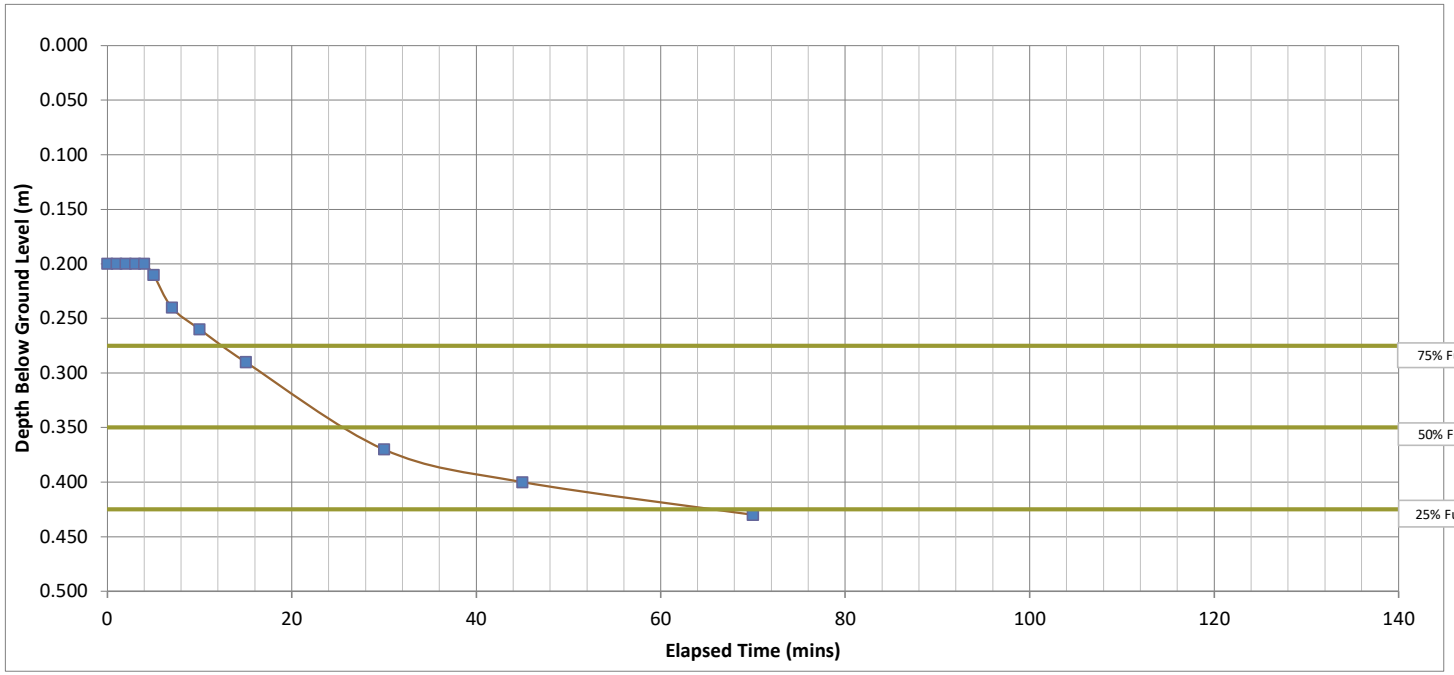
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	HP02	Test 1
Date	28/06/2024	
Geology in test section	sandy CLAY	
Depth to Base of Hole	0.50	m
Effective Depth	0.30	m
Hole Width	0.30	m
Hole Length	0.32	m
Depth to water at start of test below ground level	0.20	m
Depth to water at end of test below ground level	0.43	m
Effective storage depth to 75% full	0.23	m
(Depth below GL)	0.28	m
Effective storage depth to 50% full	0.15	m
(Depth below GL)	0.35	m
Effective storage depth to 25% full	0.08	m
(Depth below GL)	0.43	m
Height to 50% depth	0.15	m3
Effective Storage Volume V*p75-25*	0.03	m3
Time tp25 at which water is 75% of effective depth (minutes)	16.5	mins
Time tp25 at which water is 25% of effective depth (minutes)	70.0	mins
Time for water level to fall between Vp75 -25	53.5	mins
Time for water level to fall between Vp75 -25	3210.0	secs
Internal surface area of hole up to 50% depth including base	0.41	m2
Soil Infiltration Rate, f	2.21E-05	m/s

Time Elapsed (mins:sec)	Depth of Water below GL (m)
0.00	0.200
1.00	0.200
2.00	0.200
3.00	0.200
4.00	0.200
5.00	0.210
7.00	0.240
10.00	0.260
15.00	0.290
30.00	0.370
45.00	0.400
70.00	0.430

Measured Data



Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

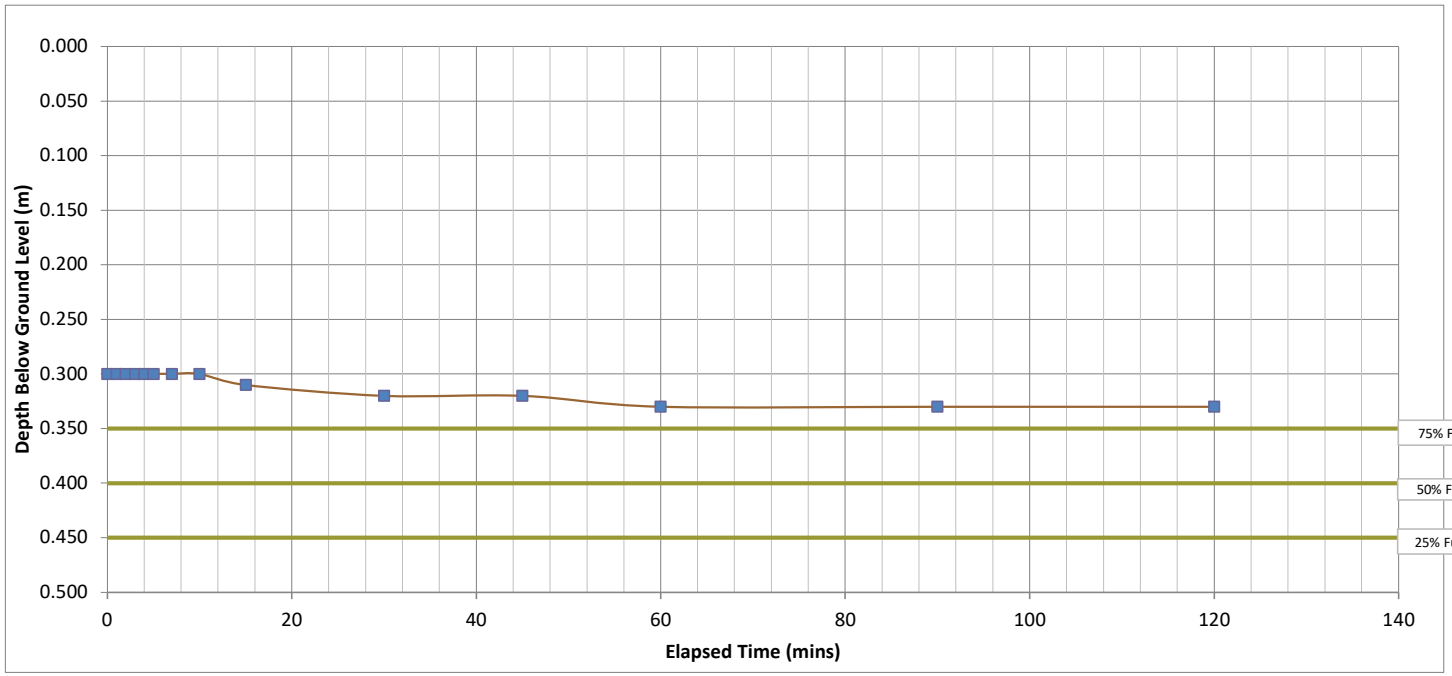
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	HP02	Test 2
Date	28/06/2024	
Geology in test section	sandy CLAY	
Depth to Base of Hole	0.50	m
Effective Depth	0.20	m
Hole Width	0.30	m
Hole Length	0.32	m
Depth to water at start of test below ground level	0.30	m
Depth to water at end of test below ground level	0.33	m
Effective storage depth to 75% full	0.15	m
(Depth below GL)	0.35	m
Effective storage depth to 50% full	0.10	m
(Depth below GL)	0.40	m
Effective storage depth to 25% full	0.05	m
(Depth below GL)	0.45	m
Height to 50% depth	0.10	m3
Effective Storage Volume *Vp75-25*	0.02	m3
Time tp25 at which water is 75% of effective depth (minutes)	-	mins
Time tp25 at which water is 25% of effective depth (minutes)	-	mins
Time for water level to fall between Vp75 -25	-	mins
Time for water level to fall between Vp75 -25	-	secs
Internal surface area of hole up to 50% depth including base	0.41	m2
Soil Infiltration Rate, f	-	m/s

Time Elapsed (mins:sec)	Depth of Water below GL (m)
0.00	0.300
1.00	0.300
2.00	0.300
3.00	0.300
4.00	0.300
5.00	0.300
7.00	0.300
10.00	0.300
15.00	0.310
30.00	0.320
45.00	0.320
60.00	0.330
90.00	0.330
120.00	0.330

Measured Data



Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

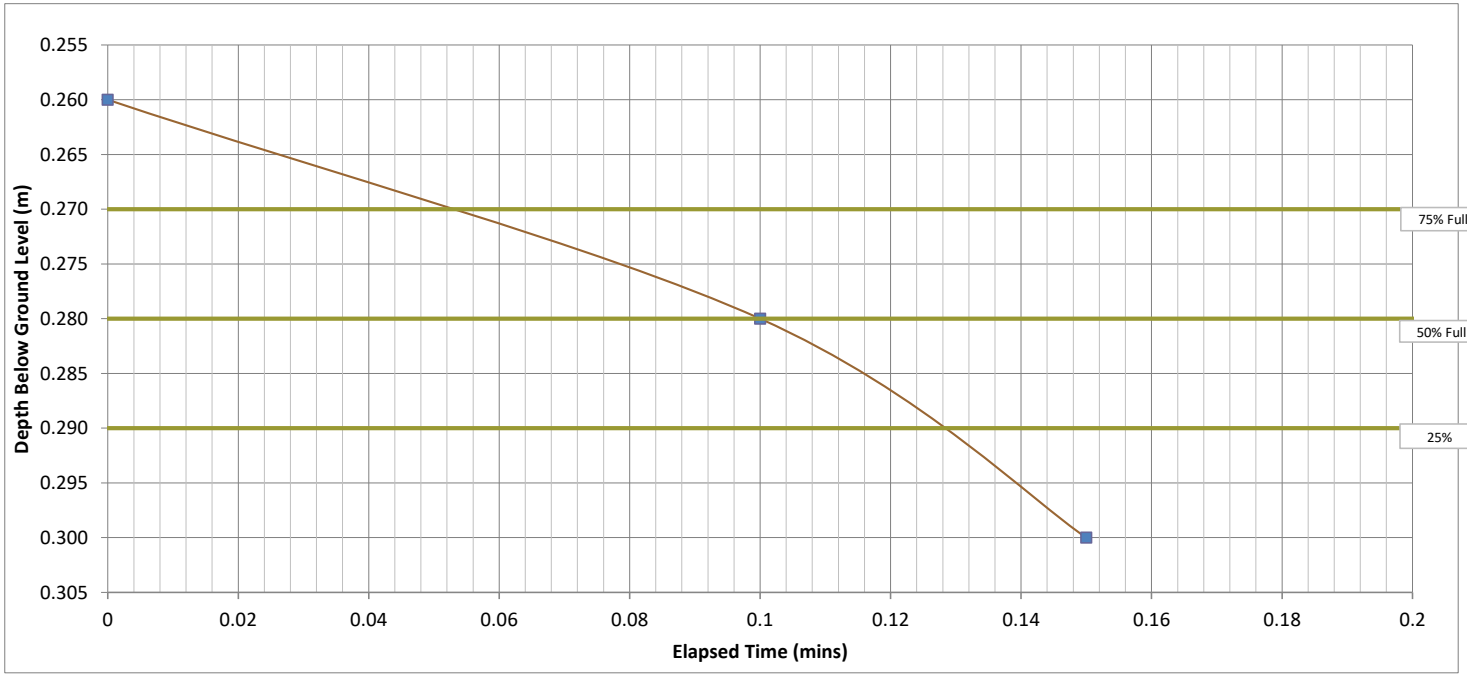
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	**HP03**	**Test 1**
Date	28/06/2024	
Geology in test section	GRAVEL	
Depth to Base of Hole	0.30	m
Effective Depth	0.04	m
Hole Width	0.40	m
Hole Length	0.47	m
Depth to water at start of test below ground level	0.26	m
Depth to water at end of test below ground level	0.30	m
Effective storage depth to 75% full	0.03	m
(Depth below GL)	0.27	m
Effective storage depth to 50% full	0.02	m
(Depth below GL)	0.28	m
Effective storage depth to 25% full	0.01	m
(Depth below GL)	0.29	m
Height to 50% depth	0.02	m3
Effective Storage Volume V*p75-25*	0.01	m3
Time tp25 at which water is 75% of effective depth (minutes)	0.05	mins
Time tp25 at which water is 25% of effective depth (minutes)	0.13	mins
Time for water level to fall between Vp75 -25	0.08	mins
Time for water level to fall between Vp75 -25	4.8	secs
Internal surface area of hole up to 50% depth including base	0.45	m2
Soil Infiltration Rate, f	3.49E-03	m/s

Measured Data

Time Elapsed (mins:sec)	**Depth of Water below GL** (m)
0.00	0.260
0.10	0.280
0.15	0.300
3.00	
4.00	
5.00	
7.00	
10.00	
15.00	
30.00	
45.00	
70.00	



Earth Environmental & Geotechnical Ltd

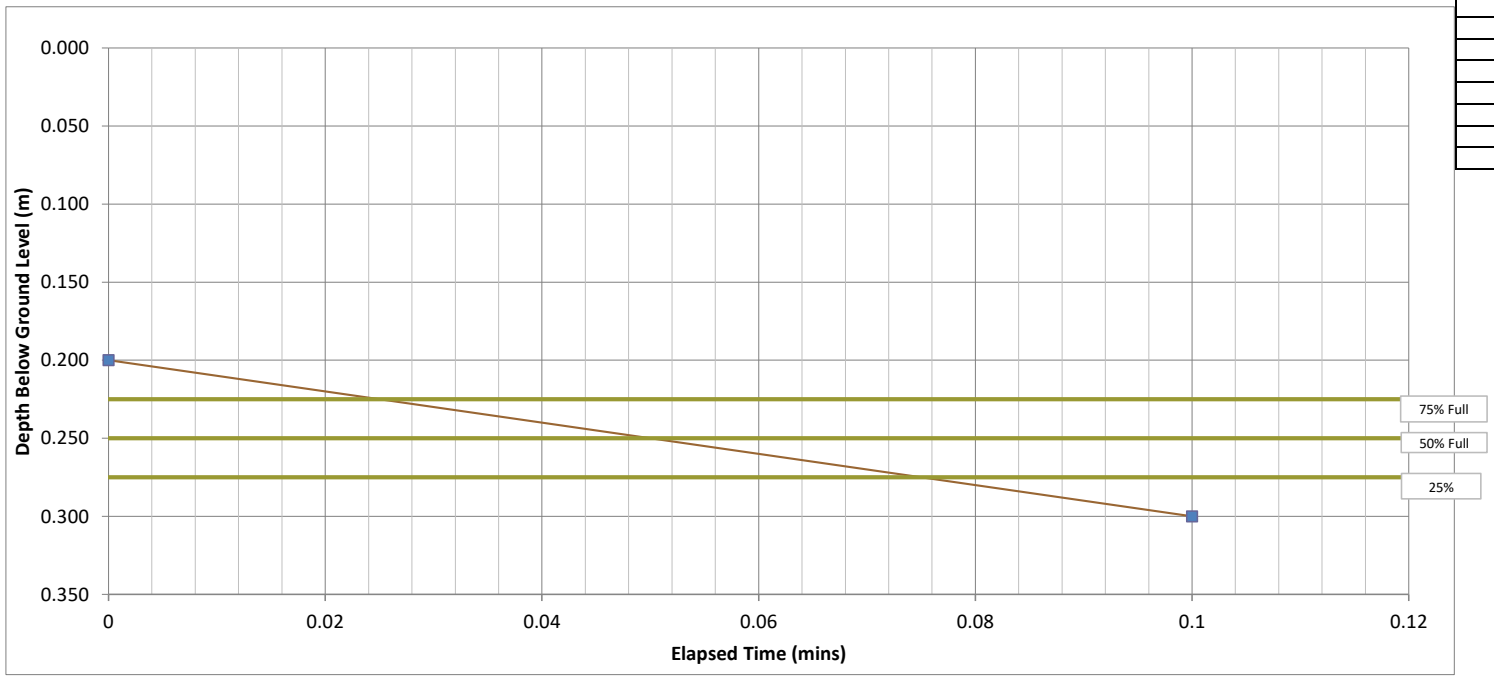
Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	**HP03**	**Test 2**
Date	28/06/2024	
Geology in test section	GRAVEL	
Depth to Base of Hole	0.30	m
Effective Depth	0.10	m
Hole Width	0.40	m
Hole Length	0.47	m
Depth to water at start of test below ground level	0.20	m
Depth to water at end of test below ground level	0.30	m
Effective storage depth to 75% full	0.08	m
(Depth below GL)	0.23	m
Effective storage depth to 50% full	0.05	m
(Depth below GL)	0.25	m
Effective storage depth to 25% full	0.03	m
(Depth below GL)	0.28	m
Height to 50% depth	0.05	m3
Effective Storage Volume V*p75-25*	0.02	m3
Time tp25 at which water is 75% of effective depth (minutes)	0.02	mins
Time tp25 at which water is 25% of effective depth (minutes)	0.08	mins
Time for water level to fall between Vp75 -25	0.05	mins
Time for water level to fall between Vp75 -25	3.1	secs
Internal surface area of hole up to 50% depth including base	0.45	m2
Soil Infiltration Rate, f	1.34E-02	m/s



Time Elapsed (mins:sec)	**Depth of Water below GL** (m)
0.00	0.200
0.10	0.300
0.15	
3.00	
4.00	
5.00	
7.00	
10.00	
15.00	
30.00	
45.00	
70.00	

Measured Data

Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

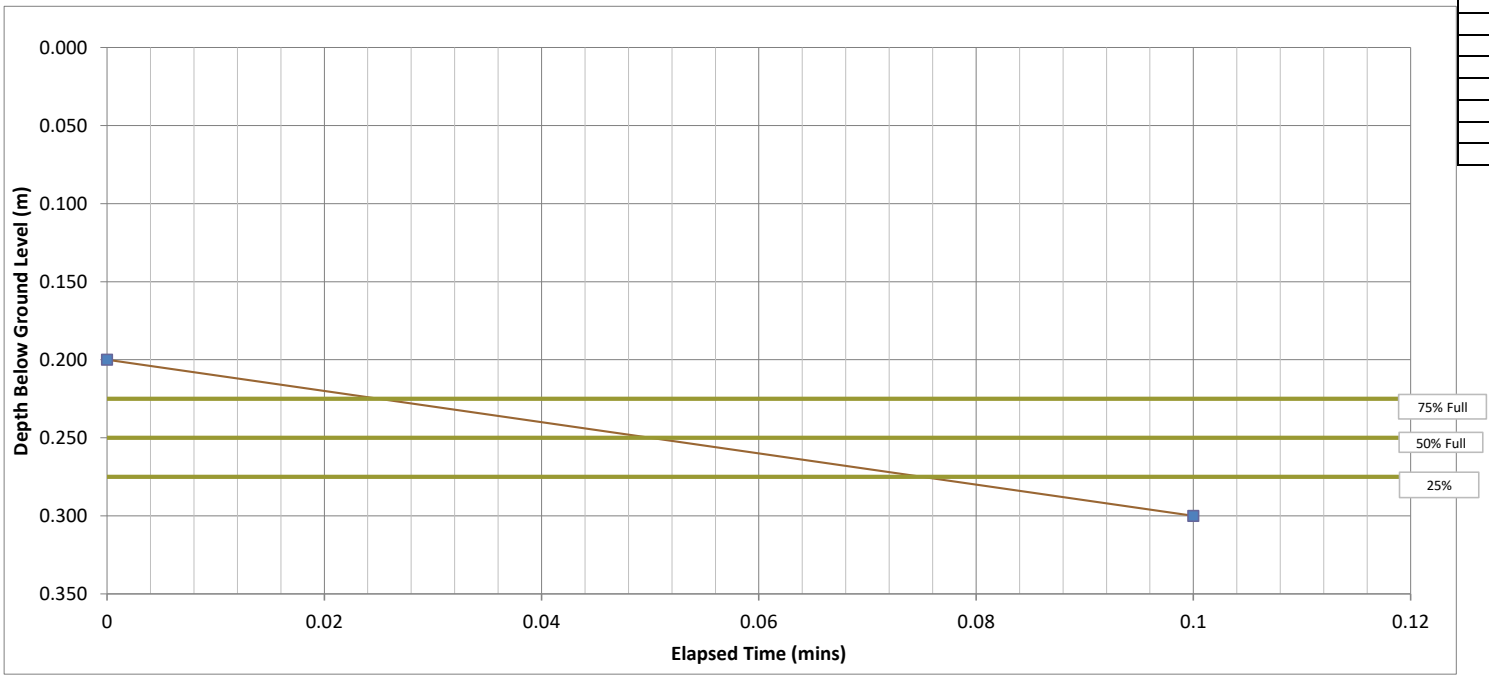
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	**HP03**	**Test 3**
Date	28/06/2024	
Geology in test section	GRAVEL	
Depth to Base of Hole	0.30	m
Effective Depth	0.10	m
Hole Width	0.40	m
Hole Length	0.47	m
Depth to water at start of test below ground level	0.20	m
Depth to water at end of test below ground level	0.30	m
Effective storage depth to 75% full	0.08	m
(Depth below GL)	0.23	m
Effective storage depth to 50% full	0.05	m
(Depth below GL)	0.25	m
Effective storage depth to 25% full	0.03	m
(Depth below GL)	0.28	m
Height to 50% depth	0.05	m3
Effective Storage Volume V*p75-25*	0.02	m3
Time tp25 at which water is 75% of effective depth (minutes)	0.02	mins
Time tp25 at which water is 25% of effective depth (minutes)	0.08	mins
Time for water level to fall between Vp75 -25	0.05	mins
Time for water level to fall between Vp75 -25	3.1	secs
Internal surface area of hole up to 50% depth including base	0.45	m2
Soil Infiltration Rate, f	1.34E-02	m/s

Time Elapsed (mins:sec)	**Depth of Water below GL** (m)
0.00	0.200
0.10	0.300
0.15	
3.00	
4.00	
5.00	
7.00	
10.00	
15.00	
30.00	
45.00	
70.00	

Measured Data



Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

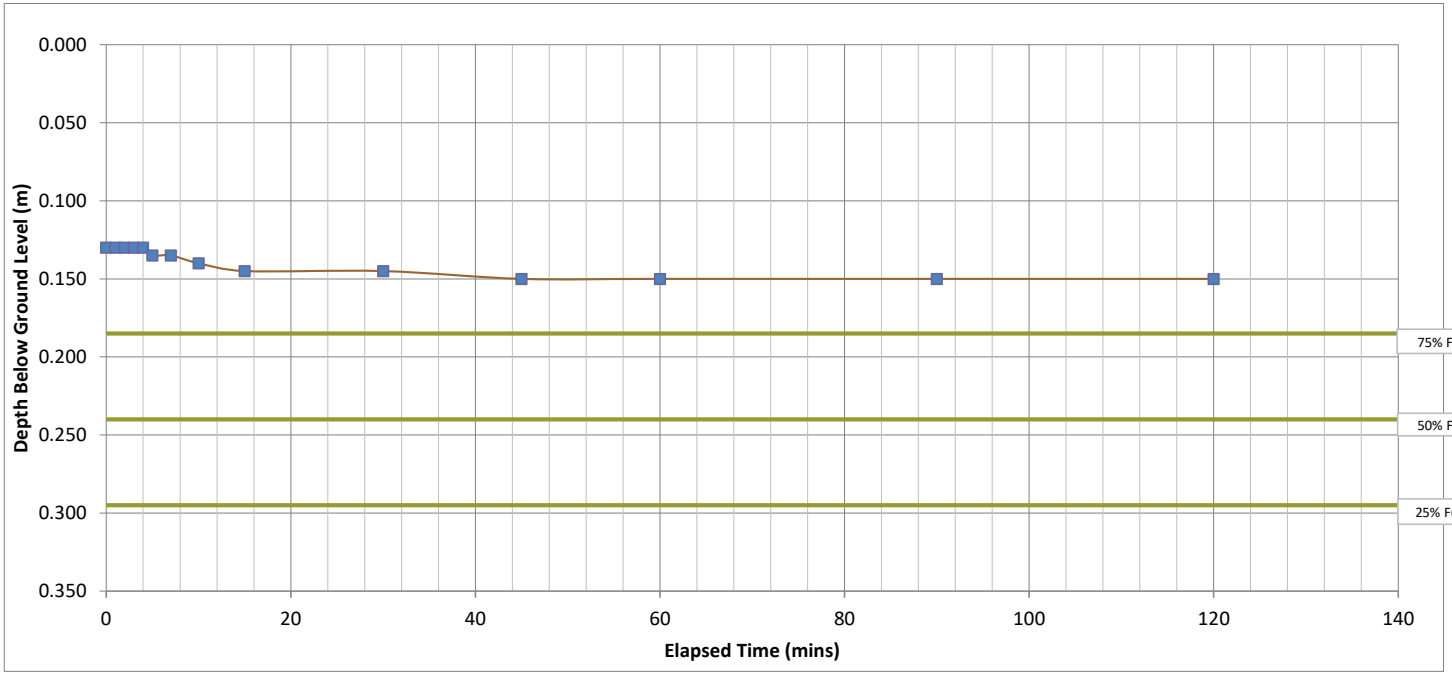
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	**HP04**	**Test 1**
Date	28/06/2024	
Geology in test section	sandy CLAY	
Depth to Base of Hole	0.35	m
Effective Depth	0.22	m
Hole Width	0.28	m
Hole Length	0.26	m
Depth to water at start of test below ground level	0.13	m
Depth to water at end of test below ground level	0.15	m
Effective storage depth to 75% full	0.17	m
(Depth below GL)	0.19	m
Effective storage depth to 50% full	0.11	m
(Depth below GL)	0.24	m
Effective storage depth to 25% full	0.06	m
(Depth below GL)	0.30	m
Height to 50% depth	0.11	m3
Effective Storage Volume V*p75-25*	0.02	m3
Time tp25 at which water is 75% of effective depth (minutes)	-	mins
Time tp25 at which water is 25% of effective depth (minutes)	-	mins
Time for water level to fall between Vp75 -25	-	mins
Time for water level to fall between Vp75 -25	-	secs
Internal surface area of hole up to 50% depth including base	0.26	m2
Soil Infiltration Rate, f	-	m/s

Time Elapsed (mins:sec)	**Depth of Water below GL** (m)
0.00	0.130
1.00	0.130
2.00	0.130
3.00	0.130
4.00	0.130
5.00	0.135
7.00	0.135
10.00	0.140
15.00	0.145
30.00	0.145
45.00	0.150
60.00	0.150
90.00	0.150
120.00	0.150

Measured Data



Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

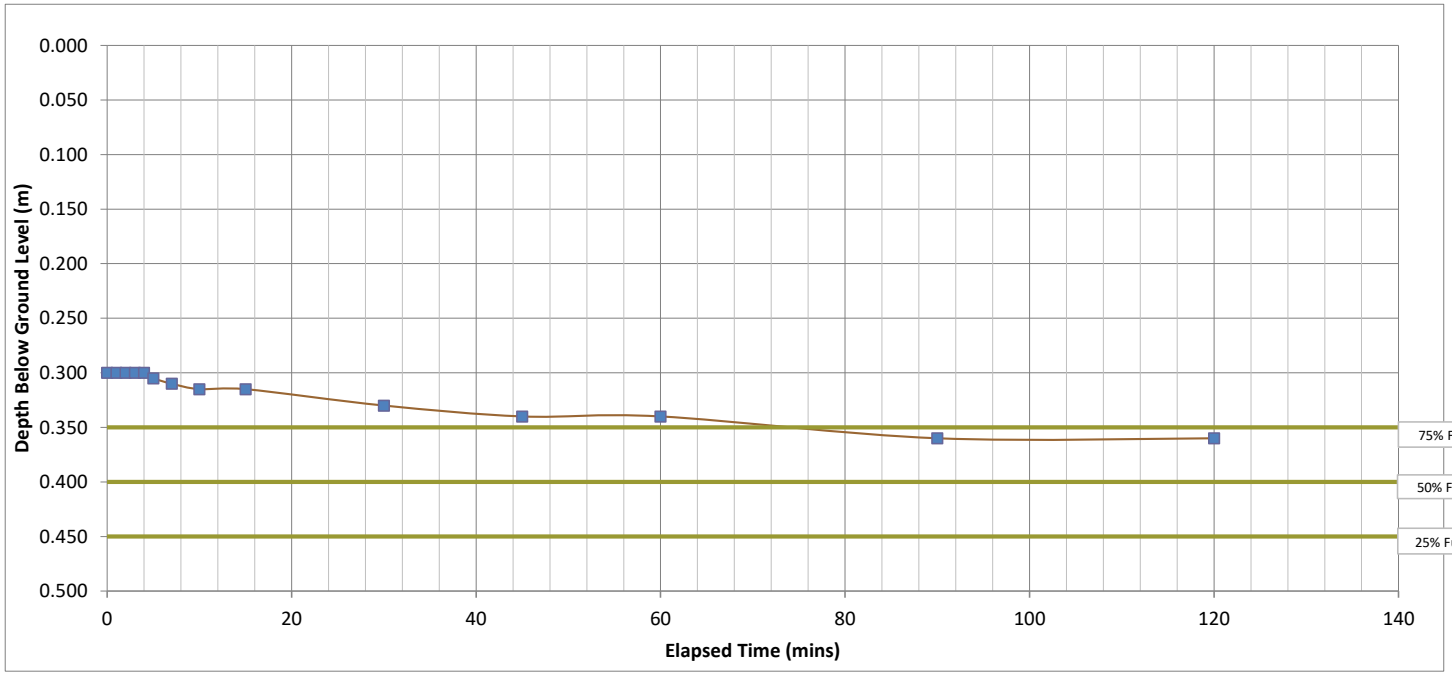
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	HP05	Test 1
Date	28/06/2024	
Geology in test section	sandy CLAY	
Depth to Base of Hole	0.50	m
Effective Depth	0.20	m
Hole Width	0.37	m
Hole Length	0.33	m
Depth to water at start of test below ground level	0.30	m
Depth to water at end of test below ground level	0.36	m
Effective storage depth to 75% full	0.15	m
(Depth below GL)	0.35	m
Effective storage depth to 50% full	0.10	m
(Depth below GL)	0.40	m
Effective storage depth to 25% full	0.05	m
(Depth below GL)	0.45	m
Height to 50% depth	0.10	m3
Effective Storage Volume V*p75-25*	0.02	m3
Time tp25 at which water is 75% of effective depth (minutes)	75.00	mins
Time tp25 at which water is 25% of effective depth (minutes)	-	mins
Time for water level to fall between Vp75 -25	-	mins
Time for water level to fall between Vp75 -25	-	secs
Internal surface area of hole up to 50% depth including base	0.47	m2
Soil Infiltration Rate, f	-	m/s

Time Elapsed (mins:sec)	Depth of Water below GL (m)
0.00	0.300
1.00	0.300
2.00	0.300
3.00	0.300
4.00	0.300
5.00	0.305
7.00	0.310
10.00	0.315
15.00	0.315
30.00	0.330
45.00	0.340
60.00	0.340
90.00	0.360
120.00	0.360

Measured Data



Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

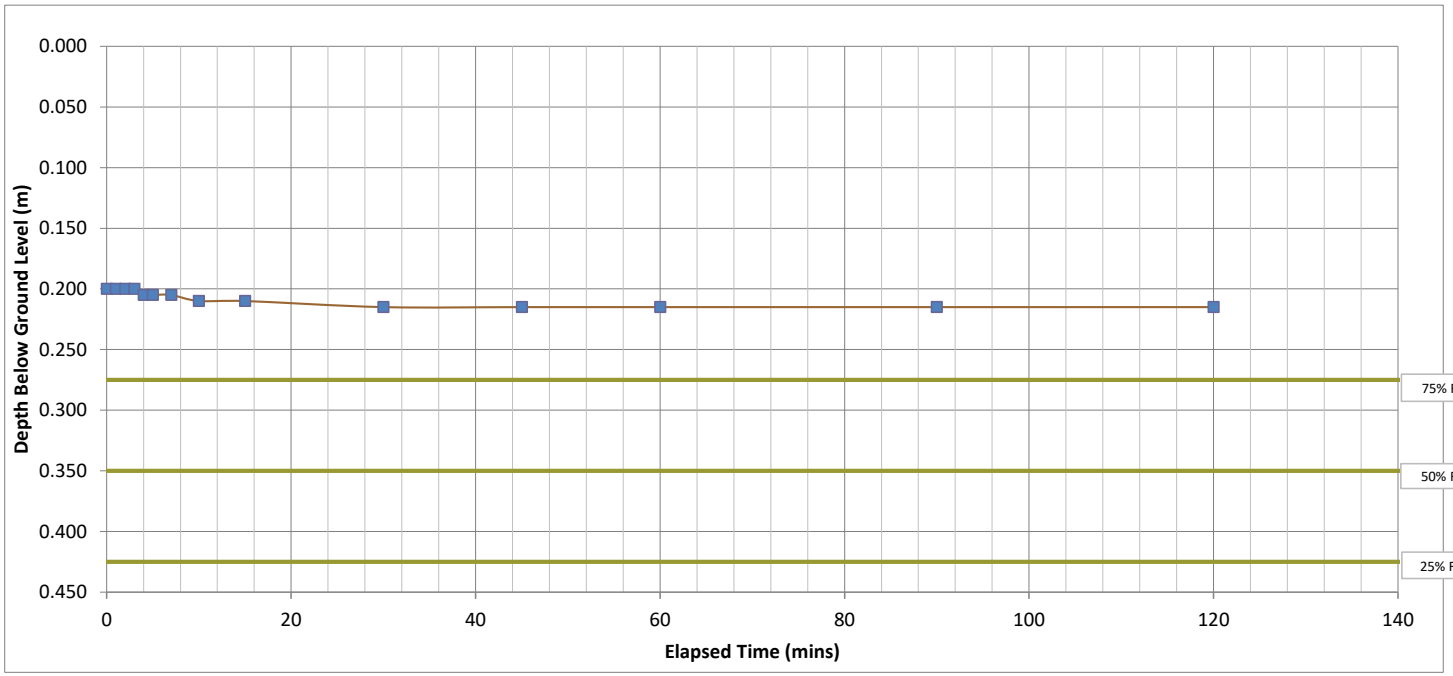
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	HP06	Test 1
Date	28/06/2024	
Geology in test section	sandy CLAY	
Depth to Base of Hole	0.50	m
Effective Depth	0.30	m
Hole Width	0.31	m
Hole Length	0.33	m
Depth to water at start of test below ground level	0.20	m
Depth to water at end of test below ground level	0.22	m
Effective storage depth to 75% full	0.23	m
(Depth below GL)	0.28	m
Effective storage depth to 50% full	0.15	m
(Depth below GL)	0.35	m
Effective storage depth to 25% full	0.08	m
(Depth below GL)	0.43	m
Height to 50% depth	0.15	m3
Effective Storage Volume V*p75-25*	0.03	m3
Time tp25 at which water is 75% of effective depth (minutes)	-	mins
Time tp25 at which water is 25% of effective depth (minutes)	-	mins
Time for water level to fall between Vp75 -25	-	mins
Time for water level to fall between Vp75 -25	-	secs
Internal surface area of hole up to 50% depth including base	0.42	m2
Soil Infiltration Rate, f	-	m/s

Time Elapsed (mins:sec)	Depth of Water below GL (m)
0.00	0.200
1.00	0.200
2.00	0.200
3.00	0.200
4.00	0.205
5.00	0.205
7.00	0.205
10.00	0.210
15.00	0.210
30.00	0.215
45.00	0.215
60.00	0.215
90.00	0.215
120.00	0.215

Measured Data



Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

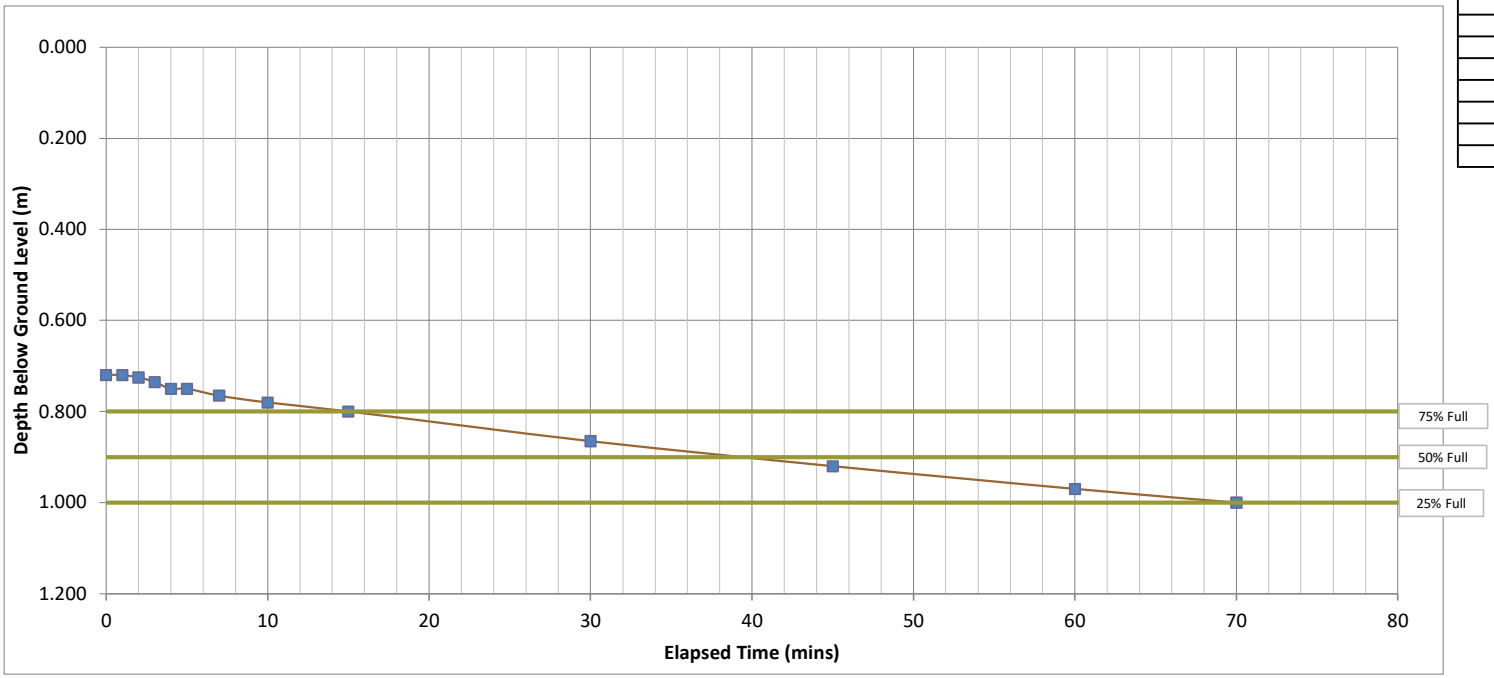
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	TP01	Test 1
Date	28/06/2024	
Geology in test section	sandy CLAY	
Depth to Base of Hole	1.10	m
Effective Depth	0.40	m
Hole Width	0.50	m
Hole Length	1.00	m
Depth to water at start of test below ground level	0.70	m
Depth to water at end of test below ground level	1.00	m
Effective storage depth to 75% full	0.30	m
(Depth below GL)	0.80	m
Effective storage depth to 50% full	0.20	m
(Depth below GL)	0.90	m
Effective storage depth to 25% full	0.10	m
(Depth below GL)	1.00	m
Height to 50% depth	0.20	m3
Effective Storage Volume V*p75-25*	0.20	m3
Time tp25 at which water is 75% of effective depth (minutes)	15.0	mins
Time tp25 at which water is 25% of effective depth (minutes)	70.0	mins
Time for water level to fall between Vp75 -25	55.0	mins
Time for water level to fall between Vp75 -25	3300.0	secs
Internal surface area of hole up to 50% depth including base	2.15	m2
Soil Infiltration Rate, f	2.82E-05	m/s

Time Elapsed (mins:sec)	Depth of Water below GL (m)
0.00	0.720
1.00	0.720
2.00	0.725
3.00	0.735
4.00	0.750
5.00	0.750
7.00	0.765
10.00	0.780
15.00	0.800
30.00	0.865
45.00	0.920
60.00	0.970
70.00	1.000

Measured Data



Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

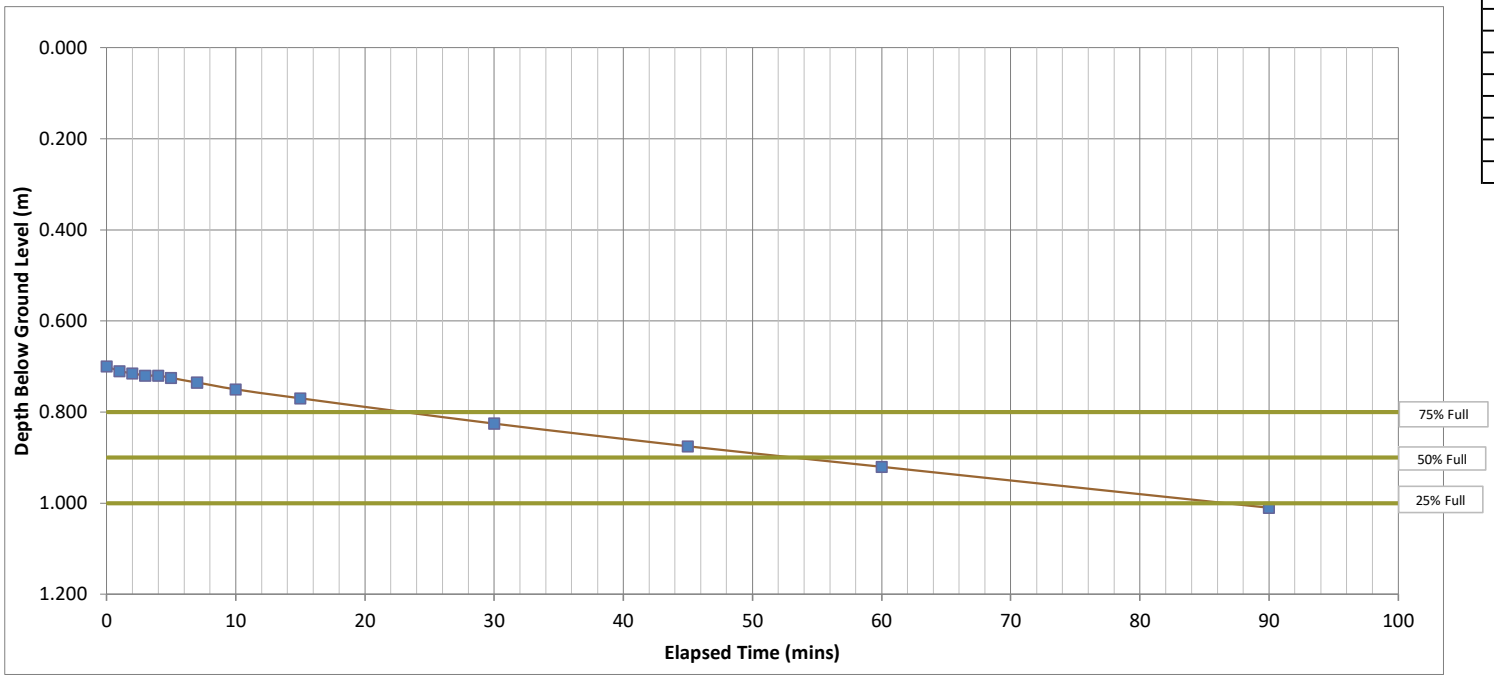
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	TP01	Test 2
Date	28/06/2024	
Geology in test section	sandy CLAY	
Depth to Base of Hole	1.10	m
Effective Depth	0.40	m
Hole Width	0.50	m
Hole Length	1.00	m
Depth to water at start of test below ground level	0.70	m
Depth to water at end of test below ground level	1.00	m
Effective storage depth to 75% full	0.30	m
(Depth below GL)	0.80	m
Effective storage depth to 50% full	0.20	m
(Depth below GL)	0.90	m
Effective storage depth to 25% full	0.10	m
(Depth below GL)	1.00	m
Height to 50% depth	0.20	m3
Effective Storage Volume V*p75-25*	0.20	m3
Time tp25 at which water is 75% of effective depth (minutes)	23.0	mins
Time tp25 at which water is 25% of effective depth (minutes)	87.0	mins
Time for water level to fall between Vp75 -25	64.0	mins
Time for water level to fall between Vp75 -25	3840.0	secs
Internal surface area of hole up to 50% depth including base	2.15	m2
Soil Infiltration Rate, f	2.42E-05	m/s

Time Elapsed (mins:sec)	Depth of Water below GL (m)
0.00	0.700
1.00	0.710
2.00	0.715
3.00	0.720
4.00	0.720
5.00	0.725
7.00	0.735
10.00	0.750
15.00	0.770
30.00	0.825
45.00	0.875
60.00	0.920
90.00	1.010

Measured Data



Earth Environmental & Geotechnical Ltd

Tel / Fax: 01225 858823
Web: www.earthenvironmental.co.uk
Email: southwest@earthenvironmental.co.uk

SOAKAWAY TEST

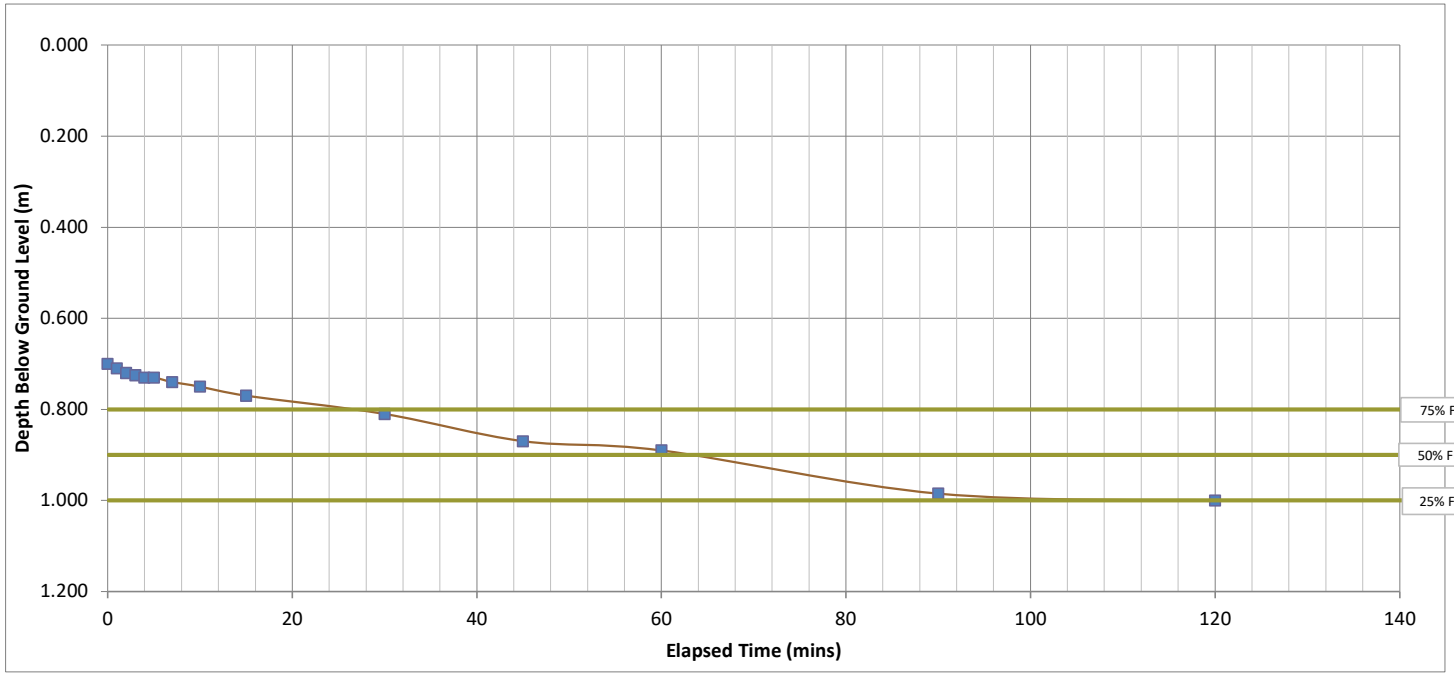
(To: BRE 365 2016)

Job No:	R3759
Site:	Gravelly Crescent
Client:	Boutique Modern

Location Reference:	TP01	Test 3
Date	28/06/2024	
Geology in test section	sandy CLAY	
Depth to Base of Hole	1.10	m
Effective Depth	0.40	m
Hole Width	0.50	m
Hole Length	1.00	m
Depth to water at start of test below ground level	0.70	m
Depth to water at end of test below ground level	1.00	m
Effective storage depth to 75% full	0.30	m
(Depth below GL)	0.80	m
Effective storage depth to 50% full	0.20	m
(Depth below GL)	0.90	m
Effective storage depth to 25% full	0.10	m
(Depth below GL)	1.00	m
Height to 50% depth	0.20	m3
Effective Storage Volume V*p75-25*	0.20	m3
Time tp25 at which water is 75% of effective depth (minutes)	23.0	mins
Time tp25 at which water is 25% of effective depth (minutes)	120.0	mins
Time for water level to fall between Vp75 -25	97.0	mins
Time for water level to fall between Vp75 -25	5820.0	secs
Internal surface area of hole up to 50% depth including base	2.15	m2
Soil Infiltration Rate, f	1.60E-05	m/s

Time Elapsed (mins:sec)	Depth of Water below GL (m)
0.00	0.700
1.00	0.710
2.00	0.720
3.00	0.725
4.00	0.730
5.00	0.730
7.00	0.740
10.00	0.750
15.00	0.770
30.00	0.810
45.00	0.870
60.00	0.890
90.00	0.985
120.00	1.000

Measured Data



APPENDIX 3

LABORATORY TEST RESULTS (CONTAMINATION)

John Grace
Earth Environmental & Geotechnical (Southern Ltd)
Suite 18
Wyvols Court
Reading
RG7 1WY

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 24-07408

Site Reference:	Gravelly Crescent
Project / Job Ref:	R3759
Order No:	R3759/01/07/2024/AT
Sample Receipt Date:	02/07/2024
Sample Scheduled Date:	02/07/2024
Report Issue Number:	1
Reporting Date:	08/07/2024

Authorised by:

[redacted]

Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 24-07408	**~Date Sampled**	28/06/24	28/06/24	28/06/24	28/06/24	28/06/24
Earth Environmental & Geotechnical (Southern Ltd)	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Gravelly Crescent	**~TP / BH No**	TP01	TP01	HP01	HP02	HP04
~Project / Job Ref: R3759	**~Additional Refs**	MG	CLAY	MG	CLAY	MG
~Order No: R3759/01/07/2024/AT	**~Depth (m)**	0.40 - 0.60	0.70 - 0.90	0.40 - 0.50	0.40 - 0.50	0.10 - 0.30
Reporting Date: 08/07/2024	**DETS Sample No**	724273	724274	724275	724276	724277

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Screen (S)	N/a	N/a	**ISO17025**			Not Detected		
pH	pH Units	N/a	**MCERTS**			7.5		
Total Cyanide	mg/kg	< 1	NONE			< 1		
Complex Cyanide	mg/kg	< 1	NONE			< 1		
Free Cyanide	mg/kg	< 1	NONE			< 1		
Total Sulphate as SO_4	mg/kg	< 200	**MCERTS**			253		
Total Sulphate as SO_4	%	< 0.02	**MCERTS**			0.03		
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**			18		
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**			0.02		
Sulphide	mg/kg	< 5	NONE			< 5		
Organic Matter (SOM)	%	< 0.1	**MCERTS**			1.8		
Arsenic (As)	mg/kg	< 2	**MCERTS**	10	16	19	10	14
Barium (Ba)	mg/kg	< 2.5	**MCERTS**	66	88	137	76	124
Beryllium (Be)	mg/kg	< 0.5	**MCERTS**	0.9	1.3	1.4	0.8	0.9
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	0.2	1.1	0.5	0.4	0.5
Chromium (Cr)	mg/kg	< 2	**MCERTS**	23	24	34	19	22
Chromium (hexavalent)	mg/kg	< 2	NONE			< 2		
Copper (Cu)	mg/kg	< 4	**MCERTS**	12	14	30	29	75
Lead (Pb)	mg/kg	< 3	**MCERTS**	19	17	52	32	159
Mercury (Hg)	mg/kg	< 1	**MCERTS**	< 1	< 1	< 1	< 1	2
Nickel (Ni)	mg/kg	< 3	**MCERTS**	18	33	28	16	18
Selenium (Se)	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	**MCERTS**	34	45	52	32	36
Zinc (Zn)	mg/kg	< 3	**MCERTS**	50	63	102	59	149
Total Phenols (monohydric)	mg/kg	< 2	NONE			< 2		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
~Sample details provided by customer and can affect the validity of results
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate						
DETS Report No: 24-07408	**~Date Sampled**	28/06/24	28/06/24	28/06/24		
Earth Environmental & Geotechnical (Southern Ltd)	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: Gravelly Crescent	**~TP / BH No**	HP05	HP05	HP06		
~Project / Job Ref: R3759	**~Additional Refs**	MG	MG	MG		
~Order No: R3759/01/07/2024/AT	**~Depth (m)**	0.26 - 0.35	0.40 - 0.50	0.30 - 0.50		
Reporting Date: 08/07/2024	**DETS Sample No**	724278	724279	724280		

Determinand	**Unit**	**RL**	**Accreditation**	(n)	(n)			
Asbestos Screen (S)	N/a	N/a	**ISO17025**	Not Detected				
pH	pH Units	N/a	**MCERTS**	10.8				
Total Cyanide	mg/kg	< 1	NONE	< 1				
Complex Cyanide	mg/kg	< 1	NONE	< 1				
Free Cyanide	mg/kg	< 1	NONE	< 1				
Total Sulphate as SO_4	mg/kg	< 200	**MCERTS**	1967				
Total Sulphate as SO_4	%	< 0.02	**MCERTS**	0.20				
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**	56				
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**	0.06				
Sulphide	mg/kg	< 5	NONE	< 5				
Organic Matter (SOM)	%	< 0.1	**MCERTS**	7.2				
Arsenic (As)	mg/kg	< 2	**MCERTS**	21	13	13		
Barium (Ba)	mg/kg	< 2.5	**MCERTS**	280	149	73		
Beryllium (Be)	mg/kg	< 0.5	**MCERTS**	1.7	0.8	0.8		
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1		
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	0.7	0.3	0.4		
Chromium (Cr)	mg/kg	< 2	**MCERTS**	21	14	18		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2				
Copper (Cu)	mg/kg	< 4	**MCERTS**	199	68	29		
Lead (Pb)	mg/kg	< 3	**MCERTS**	316	115	110		
Mercury (Hg)	mg/kg	< 1	**MCERTS**	< 1	< 1	< 1		
Nickel (Ni)	mg/kg	< 3	**MCERTS**	68	32	13		
Selenium (Se)	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2		
Vanadium (V)	mg/kg	< 1	**MCERTS**	39	25	35		
Zinc (Zn)	mg/kg	< 3	**MCERTS**	373	174	83		
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-07408	**~Date Sampled**	28/06/24	28/06/24			
Earth Environmental & Geotechnical (Souther	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Gravelly Crescent	**~TP / BH No**	HP01	HP05			
~Project / Job Ref: R3759	**~Additional Refs**	MG	MG			
~Order No: R3759/01/07/2024/AT	**~Depth (m)**	0.40 - 0.50	0.26 - 0.35			
Reporting Date: 08/07/2024	**DETS Sample No**	724275	724278			

Determinand	Unit	RL	Accreditation	(n)				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	0.27			
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.32			
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.26			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.15			
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	0.19			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.19			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.17			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.12			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	0.12			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	1.8			

~Sample details provided by customer and can affect the validity of results
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-07408	**~Date Sampled**	28/06/24	28/06/24			
Earth Environmental & Geotechnical (Souther	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Gravelly Crescent	**~TP / BH No**	HP01	HP05			
~Project / Job Ref: R3759	**~Additional Refs**	MG	MG			
~Order No: R3759/01/07/2024/AT	**~Depth (m)**	0.40 - 0.50	0.26 - 0.35			
Reporting Date: 08/07/2024	**DETS Sample No**	724275	724278			

Determinand	Unit	RL	Accreditation	(n)				
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10			
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21			
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3	< 3			
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10	< 10			
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21			
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	< 42	< 42			

~Sample details provided by customer and can affect the validity of results
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-07408	**~Date Sampled**	28/06/24	28/06/24			
Earth Environmental & Geotechnical (Souther	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Gravelly Crescent	**~TP / BH No**	HP01	HP05			
~Project / Job Ref: R3759	**~Additional Refs**	MG	MG			
~Order No: R3759/01/07/2024/AT	**~Depth (m)**	0.40 - 0.50	0.26 - 0.35			
Reporting Date: 08/07/2024	**DETS Sample No**	724275	724278			

Determinand	Unit	RL	Accreditation	(n)				
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5			
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	5			
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
MTBE : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5			

~Sample details provided by customer and can affect the validity of results
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

Normec DETS Limited
1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate

DETS Report No: 24-07408	**~Date Sampled**	28/06/24	
Earth Environmental & Geotechnical (Southern Ltd)	**~Time Sampled**	None Supplied	
~Site Reference: Gravelly Crescent	**~TP / BH No**	HP01	
~Project / Job Ref: R3759	**~Additional Refs**	MG	
~Order No: R3759/01/07/2024/AT	**~Depth (m)**	0.40 - 0.50	
Reporting Date: 08/07/2024	**DETS Sample No**	724275	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	1.1	3%	5%	6%
Loss on Ignition[MU]	%	< 0.01	4.60	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7	100	--	--
pH[MU]	pH Units	N/a	7.5	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1	--	To be evaluated	To be evaluated

Eluate Analysis	**10:1 mg/l**			**Cumulative 10:1 * mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	0.0013			0.013	0.5	2	25
Barium[U]	0.0043			0.043	20	100	300
Cadmium[U]	< 0.0002			< 0.002	0.04	1	5
Chromium[U]	0.0003			0.003	0.5	10	70
Copper[U]	0.0126			0.125	2	50	100
Mercury[U]	< 0.00004			< 0.0004	0.01	0.2	2
Molybdenum[U]	0.0008			0.008	0.5	10	30
Nickel[U]	0.0005			0.005	0.4	10	40
Lead[U]	< 0.0002			< 0.002	0.5	10	50
Antimony[U]	< 0.0002			< 0.002	0.06	0.7	5
Selenium[U]	< 0.0002			< 0.002	0.1	0.5	7
Zinc[U]	0.006			0.06	4	50	200
Chloride[U]	1.3			13	800	15000	25000
Fluoride[U]	< 0.5			< 5	10	150	500
Sulphate[U]	2.4			24	1000	20000	50000
TDS	35			350	4000	60000	100000
Phenol Index[U]	< 0.01			< 0.1	1	-	-
DOC[U]	10.8			108	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.10						
Dry Matter (%)	88.4						
Moisture (%)	13.2						
Stage 1							
Volume Eluate L10 (litres)	0.89						

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and Normec DETS Limited cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test
~Sample details provided by customer and can affect the validity of results
* DETS are accredited for the testing of leachate and not the leachate preparation stage which is unaccredited

Normec DETS Limited
1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Waste Acceptance Criteria Analytical Certificate

DETS Report No: 24-07408	**~Date Sampled**	28/06/24	
Earth Environmental & Geotechnical (Southern Ltd)	**~Time Sampled**	None Supplied	
~Site Reference: Gravelly Crescent	**~TP / BH No**	HP05	
~Project / Job Ref: R3759	**~Additional Refs**	MG	
~Order No: R3759/01/07/2024/AT	**~Depth (m)**	0.26 - 0.35	
Reporting Date: 08/07/2024	**DETS Sample No**	724278	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	4.2	**3%**	5%	6%
Loss on Ignition[MU]	%	< 0.01	8	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	1.8	100	--	--
pH[MU]	pH Units	N/a	10.8	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1	--	To be evaluated	To be evaluated

Eluate Analysis	**10:1 mg/l**			**Cumulative 10:1 * mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	0.0036			0.036	0.5	2	25
Barium[U]	0.0352			0.352	20	100	300
Cadmium[U]	< 0.0002			< 0.002	0.04	1	5
Chromium[U]	0.0031			0.031	0.5	10	70
Copper[U]	0.0245			0.245	2	50	100
Mercury[U]	0.00008			0.0008	0.01	0.2	2
Molybdenum[U]	0.0048			0.048	0.5	10	30
Nickel[U]	0.0014			0.014	0.4	10	40
Lead[U]	0.0007			0.007	0.5	10	50
Antimony[U]	< 0.0002			< 0.002	0.06	0.7	5
Selenium[U]	0.0007			0.007	0.1	0.5	7
Zinc[U]	0.002			0.02	4	50	200
Chloride[U]	6.7			67	800	15000	25000
Fluoride[U]	< 0.5			< 5	10	150	500
Sulphate[U]	6.6			66	1000	20000	50000
TDS	110			1100	4000	60000	100000
Phenol Index[U]	< 0.01			< 0.1	1	-	-
DOC[U]	8.7			87.3	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.10						
Dry Matter (%)	88.3						
Moisture (%)	13.2						
Stage 1							
Volume Eluate L10 (litres)	0.89						

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and Normec DETS Limited cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test
~Sample details provided by customer and can affect the validity of results
* DETS are accredited for the testing of leachate and not the leachate preparation stage which is unaccredited

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-07408	
Earth Environmental & Geotechnical (Southern Ltd)	
~Site Reference: Gravelly Crescent	
~Project / Job Ref: R3759	
~Order No: R3759/01/07/2024/AT	
Reporting Date: 08/07/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
724273	TP01	MG	0.40 - 0.60	14.3	Light brown sandy clay
724274	TP01	CLAY	0.70 - 0.90	14.2	Light brown sandy clay with stones
724275	HP01	MG	0.40 - 0.50	11.6	Brown sandy clay
724276	HP02	CLAY	0.40 - 0.50	14.1	Brown sandy clay
724277	HP04	MG	0.10 - 0.30	14.5	Brown sandy clay with stones
724278	HP05	MG	0.26 - 0.35	11.7	Brown sandy gravel with stones and concrete
724279	HP05	MG	0.40 - 0.50	14.7	Brown sandy gravel with stones and concrete
724280	HP06	MG	0.30 - 0.50	13.3	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S
~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-07408

Earth Environmental & Geotechnical (Southern Ltd)

~Site Reference: Gravelly Crescent

~Project / Job Ref: R3759

~Order No: R3759/01/07/2024/AT

Reporting Date: 08/07/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received
~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

UKAS TESTING
4480

Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 24-07408
Earth Environmental & Geotechnical (Southern Ltd)
~Site Reference: Gravelly Crescent
~Project / Job Ref: R3759
~Order No: R3759/01/07/2024/AT
Reporting Date: 08/07/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	U	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (COD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichlorometha	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered
~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

List of HWOL Acronyms and Operators
DETS Report No: 24-07408
Earth Environmental & Geotechnical (Southern Ltd)
~Site Reference: Gravelly Crescent
~Project / Job Ref: R3759
~Order No: R3759/01/07/2024/AT
Reporting Date: 08/07/2024

Acronym	**Description**
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
Mineral Oil (C10 - C40) (BS EN 12457-2) - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aliphatic C5 - C34 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C35 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C35 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
Total BTEX (BS EN 12457-2) - HS_1D_MS_Total
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Parameter	Matrix Type	Expanded Uncertainity Measurement	Unit
TOC	Soil	12.2	%
Loss on Ignition	Soil	22.9	%
BTEX	Soil	11.2	%
Sum of PCBs	Soil	43.4	%
Mineral Oil	Soil	9.0	%
Total PAH	Soil	18.5	%
pH	Soil	0.335	Units
Acid Neutralisation Capacity	Soil	18.0	%
Clay Content	Soil	15.0	%
Silt Content	Soil	14.0	%
Sand Content	Soil	13.0	%
Loss on Ignition	Soil	22.9	%
pH	Soil	0.335	Units
Carbonate	Soil	12.0	%
Total Nitrogen	Soil	12.0	%
Phosphorus (Extractable)	Soil	24.0	%
Potassium (Extractable)	Soil	20.0	%
Magnesium (Extractable)	Soil	26.0	%
Zinc	Soil	21.6	%
Copper	Soil	18.2	%
Nickel	Soil	24.3	%
Available Sodium	Soil	23.0	%
Available Calcium	Soil	23.0	%
Electrical Conductivity	Soil	10.0	%

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

DXKEH-09RY1-17XIB

Job name

Gravelly Cresent

Description/Comments

Project

R3759

Site

Gravelly Cresent

Classified by

Name:
John Grace
Date:
08 Aug 2024 16:53 GMT
Telephone:
0845 2508100

Company:
Earth Environmental & Geotechnical Ltd
Houldsworth Mill Business & Arts Centre
Houldsworth Street
Stockport
SK5 6DA

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: -

Course	Date
Hazardous Waste Classification	-

Purpose of classification

2 - Material Characterisation

Address of the waste

Gravelly Crescent **Post Code** BN15 9EP

SIC for the process giving rise to the waste

41202 Construction of domestic buildings

Description of industry/producer giving rise to the waste

redevelopment of brownfield land

Description of the specific process, sub-process and/or activity that created the waste

excavation of foundations

Description of the waste

Made Ground

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP01	0.40 - 0.60	Non Hazardous		3
2	TP01[2]	0.70 - 0.90	Non Hazardous		5
3	HP01	0.40 - 0.50	Non Hazardous		7
4	HP02	0.40 - 0.50	Non Hazardous		10
5	HP04	0.10 - 0.30	Non Hazardous		12
6	HP05	0.26 - 0.35	Non Hazardous		14
7	HP05[2]	0.40 - 0.50	Non Hazardous		17
8	HP06	0.30 - 0.50	Non Hazardous		19

Related documents

#	Name	Description
1	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: John Grace

Created date: 08 Aug 2024 16:53 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	21
Appendix B: Rationale for selection of metal species	22
Appendix C: Version	23

Classification of sample: TP01

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP01
Sample Depth:
0.40 - 0.60 m
Moisture content:
14.3%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14.3% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10	mg/kg	1.32	13.203	mg/kg	0.00132 %		
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.9	mg/kg	2.775	2.498	mg/kg	0.00025 %		
3	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2	mg/kg	1.142	0.228	mg/kg	0.0000228 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23	mg/kg	1.462	33.616	mg/kg	0.00336 %		
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		12	mg/kg	1.126	13.511	mg/kg	0.00135 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	19	mg/kg		19	mg/kg	0.0019 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<**LOD**
9	nickel { nickel diiodide }	028-029-00-4	236-666-6	13462-90-3		18	mg/kg	5.324	95.837	mg/kg	0.00958 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<**LOD**
11	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		50	mg/kg	4.398	219.896	mg/kg	0.022 %		
										Total:	0.0407 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP01[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP01[2]
Sample Depth:
0.70 - 0.90 m
Moisture content:
14.2%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14.2% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16	mg/kg	1.32	21.125	mg/kg	0.00211 %		
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.3	mg/kg	2.775	3.608	mg/kg	0.000361 %		
3	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.1	mg/kg	1.142	1.257	mg/kg	0.000126 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24	mg/kg	1.462	35.077	mg/kg	0.00351 %		
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		14	mg/kg	1.126	15.762	mg/kg	0.00158 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	17	mg/kg		17	mg/kg	0.0017 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<**LOD**
9	nickel { nickel diiodide }	028-029-00-4	236-666-6	13462-90-3		33	mg/kg	5.324	175.702	mg/kg	0.0176 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<**LOD**
11	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		63	mg/kg	4.398	277.069	mg/kg	0.0277 %		
										Total:	0.0556 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: HP01

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
HP01
Sample Depth:
0.40 - 0.50 m
Moisture content:
11.6%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11.6% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		19	mg/kg	1.32	25.086	mg/kg	0.00251 %		
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.4	mg/kg	2.775	3.885	mg/kg	0.000389 %		
3	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<LOD
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5	mg/kg	1.142	0.571	mg/kg	0.0000571 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		34	mg/kg	1.462	49.693	mg/kg	0.00497 %		
6	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30	mg/kg	1.126	33.777	mg/kg	0.00338 %		
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	52	mg/kg		52	mg/kg	0.0052 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
10	nickel { nickel diiodide }	028-029-00-4	236-666-6	13462-90-3		28	mg/kg	5.324	149.08	mg/kg	0.0149 %		
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
12	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		102	mg/kg	4.398	448.588	mg/kg	0.0449 %		
13	TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<LOD
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		benzene				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
20		pH				7.5	pH		7.5	pH	7.5 pH		
				PH									
21		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-581-5	85-01-8									
26		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
27		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-912-4	206-44-0									
28		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
37		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.084 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: HP02

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
HP02
Sample Depth:
0.40 - 0.50 m
Moisture content:
14.1%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14.1% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10	mg/kg	1.32	13.203	mg/kg	0.00132 %		
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.8	mg/kg	2.775	2.22	mg/kg	0.000222 %		
3	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4	mg/kg	1.142	0.457	mg/kg	0.0000457 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		29	mg/kg	1.126	32.651	mg/kg	0.00327 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	32	mg/kg		32	mg/kg	0.0032 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<**LOD**
9	nickel { nickel diiodide }	028-029-00-4	236-666-6	13462-90-3		16	mg/kg	5.324	85.189	mg/kg	0.00852 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<**LOD**
11	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		59	mg/kg	4.398	259.478	mg/kg	0.0259 %		
										Total:	0.0463 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: HP04

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
HP04
Sample Depth:
0.10 - 0.30 m
Moisture content:
14.5%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14.5% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.9	mg/kg	2.775	2.498	mg/kg	0.00025 %		
3	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<LOD
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5	mg/kg	1.142	0.571	mg/kg	0.0000571 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22	mg/kg	1.462	32.154	mg/kg	0.00322 %		
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		75	mg/kg	1.126	84.442	mg/kg	0.00844 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	159	mg/kg		159	mg/kg	0.0159 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		2	mg/kg	1.353	2.707	mg/kg	0.000271 %		
9	nickel { nickel diiodide }	028-029-00-4	236-666-6	13462-90-3		18	mg/kg	5.324	95.837	mg/kg	0.00958 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
11	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		149	mg/kg	4.398	655.291	mg/kg	0.0655 %		
										Total:	0.106 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: HP05

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
HP05
Sample Depth:
0.26 - 0.35 m
Moisture content:
11.7%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11.7% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		21	mg/kg	1.32	27.727	mg/kg	0.00277 %		
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.7	mg/kg	2.775	4.718	mg/kg	0.000472 %		
3	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.7	mg/kg	1.142	0.8	mg/kg	0.00008 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21	mg/kg	1.462	30.693	mg/kg	0.00307 %		
6	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		199	mg/kg	1.126	224.052	mg/kg	0.0224 %		
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	316	mg/kg		316	mg/kg	0.0316 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<**LOD**
10	nickel { nickel diiodide }	028-029-00-4	236-666-6	13462-90-3		68	mg/kg	5.324	362.053	mg/kg	0.0362 %		
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<**LOD**
12	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		373	mg/kg	4.398	1640.426	mg/kg	0.164 %		
13	TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<**LOD**
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		benzene				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				5	mg/kg		5	mg/kg	0.0005 %		
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
20		pH				10.8	pH		10.8	pH	10.8 pH		
				PH									
21		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				0.27	mg/kg		0.27	mg/kg	0.000027 %		
			201-581-5	85-01-8									
26		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
27		fluoranthene				0.32	mg/kg		0.32	mg/kg	0.000032 %		
			205-912-4	206-44-0									
28		pyrene				0.26	mg/kg		0.26	mg/kg	0.000026 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.15	mg/kg		0.15	mg/kg	0.000015 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.17	mg/kg		0.17	mg/kg	0.000017 %		
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.12	mg/kg		0.12	mg/kg	0.000012 %		
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.12	mg/kg		0.12	mg/kg	0.000012 %		
			205-883-8	191-24-2									
37		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.269 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: No free phase product in soil sample

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

xylene: (conc.: 0.0005%)

Classification of sample: HP05[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
HP05[2]
Sample Depth:
0.40 - 0.50 m
Moisture content:
14.7%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14.7% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13	mg/kg	1.32	17.164	mg/kg	0.00172 %		
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.8	mg/kg	2.775	2.22	mg/kg	0.000222 %		
3	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<LOD
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.343	mg/kg	0.0000343 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14	mg/kg	1.462	20.462	mg/kg	0.00205 %		
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		68	mg/kg	1.126	76.56	mg/kg	0.00766 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	115	mg/kg		115	mg/kg	0.0115 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
9	nickel { nickel diiodide }	028-029-00-4	236-666-6	13462-90-3		32	mg/kg	5.324	170.378	mg/kg	0.017 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
11	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		174	mg/kg	4.398	765.239	mg/kg	0.0765 %		
										Total:	0.118 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: HP06

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
HP06
Sample Depth:
0.30 - 0.50 m
Moisture content:
13.3%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13.3% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13	mg/kg	1.32	17.164	mg/kg	0.00172 %		
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.8	mg/kg	2.775	2.22	mg/kg	0.000222 %		
3	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<LOD
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4	mg/kg	1.142	0.457	mg/kg	0.0000457 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		18	mg/kg	1.462	26.308	mg/kg	0.00263 %		
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		29	mg/kg	1.126	32.651	mg/kg	0.00327 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	110	mg/kg		110	mg/kg	0.011 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
9	nickel { nickel diiodide }	028-029-00-4	236-666-6	13462-90-3		13	mg/kg	5.324	69.216	mg/kg	0.00692 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
11	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		83	mg/kg	4.398	365.028	mg/kg	0.0365 %		
										Total:	0.0633 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **lead compounds with the exception of those specified elsewhere in this Annex (worst case)**

GB MCL index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic.

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

There isn't enough Metal and Cr(VI) to make the Metal chromate

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel diiodide}

There isn't enough Metal and Cr(VI) to make the Metal chromate

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight

zinc {zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2]}

Not enough Cr(VI) to make hazardous levels of the Metal chromate

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide]

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.213.6193.11387 (31 Jul 2024)
HazWasteOnline Database: 2024.213.6193.11387 (31 Jul 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023
GB MCL List v3.0 - version 3.0 of 11th January 2024
GB MCL List v4.0 - version 4.0 of 2nd March 2024
GB MCL List v5.0 - version 5.0 of 26th June 2024

APPENDIX 4

REPORT LIMITATIONS

REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

Other than that, expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important 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 will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2024 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. 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 Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd 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, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.
No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and 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. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data 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 Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

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. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground 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 contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

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.