

The Environment Agency supports the use of Sustainable Drainage Systems (SuDS). Surface run-off from roads, car parking and public or amenity areas, should have a suitable series of treatment steps to prevent groundwater pollution.

9.0 CONTAMINATION LABORATORY TESTING

9.1 Scheduled Testing

Waste classification testing (LS2) on one sample was included in the scope of works, to provide a preliminary assessment for waste handling. In the absence of any areas to specifically target, a representative sample of Topsoil was selected for testing. This sample was also tested for a routine screening suite (LS1A) and asbestos.

The scope and extent of testing was considered appropriate and in accordance with the Conceptual Site Model and preliminary risk assessment.

Sample	Strata	LS1	Asbestos	LS2
TP02, 0.10m	Topsoil	✓	✓	✓

The relevant screening suites are defined below. Where duplicate analysis exists between suites, each test is performed only once:

Suite	Definition
LS1 (soil)	Screening suite: pH, fraction of organic carbon, Metals and Non Metals, water soluble Sulphate, Sulphide, total Cyanide, total Phenols, speciated PAH's.
Asbestos	Asbestos screen: Laboratory screening for fibres and Asbestos Containing Materials; identification where identified. Using polarising light and dispersion staining as described in HSG 248, HSE Contract Research Report No 83/1996 and in Davies et al, 1996.
LS2	Waste Acceptance Criteria: Total Organic Carbon, Loss on Ignition, BTEX, speciated PCB's, Mineral Oil (EC10 – EC40), pH, Acid Neutralisation Capacity, speciated PAH's, 10:1 leachable Metals and Non Metals.

The results are discussed in the relevant sections.

10.0 PRELIMINARY CONTAMINATION ASSESSMENT

Contaminated land risks are evaluated on following a source-pathway-receptor ('SPR') approach, in accordance with best practice. A full geo-environmental risk assessment was outside the scope of this report. However, based on the findings of the desk study, no significant sources of potential contamination, natural or man-made, arising in soils, ground gases or groundwater phases, were suspected. The ground and groundwater conditions encountered in section 5.0 did not identify any potentially suspect ground condition. In the absence of any sources, no SPR linkages exist, and consequently no risk has been identified.

However, as always, any Made Ground, shallow soils which have been disturbed, or those showing field evidence of possible contamination such as staining, should be treated as suspect, handled with appropriate care, and relevant advice sought from a qualified professional.

11.0 PRELIMINARY WASTE ASSESSMENT

11.1 General

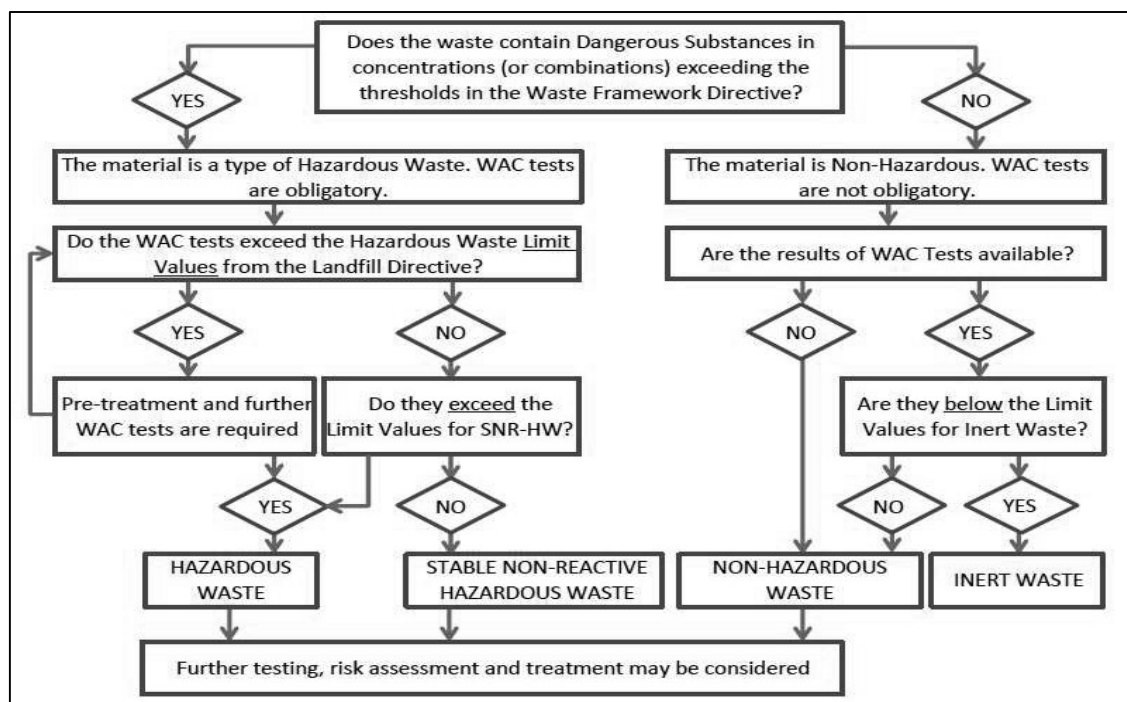
Waste may be defined as any substance or object in Annex 1 of the Waste Framework Directive which the holder discards, intends to discard, or is required to discard. Subject to certain provisions, soils may either be handled as either:

- Non-Waste, and re-used (on or off-site), or
- Waste, and disposed of (to a waste management facility).

The waste producer has a legal duty of care to ensure that waste materials are handled properly and sent to the appropriate licenced facility. Further inspection, testing, segregation etc will be required on site, and the advice of a suitably qualified consultant sought wherever necessary. Substantial tax penalties and fines are being levied by the regulators. The advice contained in this section is preliminary only.

11.2 Waste Disposal

Where materials are not re-used, they must be handled as Waste, and must be sent to a licenced waste management facility. The classification of waste is prescribed under the Waste Framework Directive and the Landfill Directive, as summarised below. Different waste management facilities may also have specific acceptance criteria, and their advice should be sought.



The results of the soil analysis have been classified as follows:

Soil	Hazardous		Non Hazardous		Details
	Hazardous	Stable Non- Reactive	Non- Hazardous	Inert	
Topsoil (TP02, 0.10m)			✓		The soil analysis was not identified as hazardous, but the WAC test did not meet the requirements for Inert waste. Interpretation: Non-Hazardous waste. The tests failing the criteria were: Total Organic Carbon (TOC) (%)*.

*The very slightly elevated TOC (3.4% compared to a screening criteria of 3%) may be the result of vegetation in the sample (roots) and that the waste disposal site should be contacted to confirm their limits and whether the material can be classified as Inert waste.

With reference to the current List of Wastes (formerly European Waste Catalogue), waste soils and stone derived from construction and demolition sites may be disposed of under either of the following codes as appropriate:

Waste	Code	Description
Hazardous	17 05 03*	soil and stones containing dangerous substances
Non-Hazardous	17 05 04	soil and stones other than those mentioned in 17 05 03

(Note, the asterix is a Mirror Entry, as defined in the List of Wastes, conferring the relationship with the non-hazardous code 17-05-04).

REFERENCES

A number of technical references have been referred to in the preparation of this document, including:

- Smith, I. (2014) Smith's Elements of Soil Mechanics. Chichester. Wiley Blackwell. 9th Edition.
- Highways England 2009. Interim Advice Note 73/06 revision 1: Design Guidance for Road Pavement foundations (draft HD25)
- BRE Design Guide 365. Soakaway design ("DG365")
- Radon: Guidance on protective measures for new buildings, BRE Report BR 211, 2015 2ND edition
- Groundwater protection: Principles and practice (GP3) August 2013 Version 1.1
- Revised EU Waste Framework Directive 2008 2008/98/EC [transposed into English law under The Waste (England and Wales) Regulations 2011]
- European Community (EC) Directive 1999/31/EC [transposed into English law under the Landfill (England and Wales) Regulations 2002]
- Defining Waste Recovery - Permanent Deposit of Waste on Land, EPA13 v1.0, EA 2010
- The definition of waste: Development Industry Code of Practice, v2, CL:AIRE 2011
- Guidance on the classification and assessment of waste Technical Guidance WM3 ("WM3") EA publication (1st edition 2015)

REPORT CONDITIONS

The Client

This report may also be used only by the client named in section 1 and their appointed project team for the purpose of design, obtaining planning, building regulations approval, and in connection with finance. This report must not be used by any other persons or for other purposes without express written agreement of Land Science.

General

Land Science takes all reasonable professional care in preparation of this report, using current standards and industry practice. However, the evaluation of ground conditions depends on an interpretation and extrapolation of the conditions revealed by a limited data set. The level of risk is related to the extent of investigation and no site is ever free of risk. The client should understand their risks and liabilities. We accept no liability whatsoever in respect of:

- The scope, extent or design of an investigation.
- Any conditions not directly revealed by the investigation.
- Published standards or methodologies used or adopted in this report.
- The opinion of any other party including any regulator, authority or stakeholder.
- Any dispute, claim or consequential loss arising from any findings of this report.
- Third party information and data.

This report relates solely to ground-related matters as set out in the objectives and makes no representation on other matters such as ecology, arboriculture, invasive plant species, the condition of buildings and structures, hazardous building materials such as insulation or asbestos, the locations of boundaries, unexploded ordnance, and or planning constraints etc. Further reports should be commissioned in this respect as appropriate.

Regulators and Approvals

This (and any other) report should be submitted to relevant authorities for their own assessments and to provide their approval or comments accordingly. This should be in good time before commencing on site in case additional work is to be carried out.

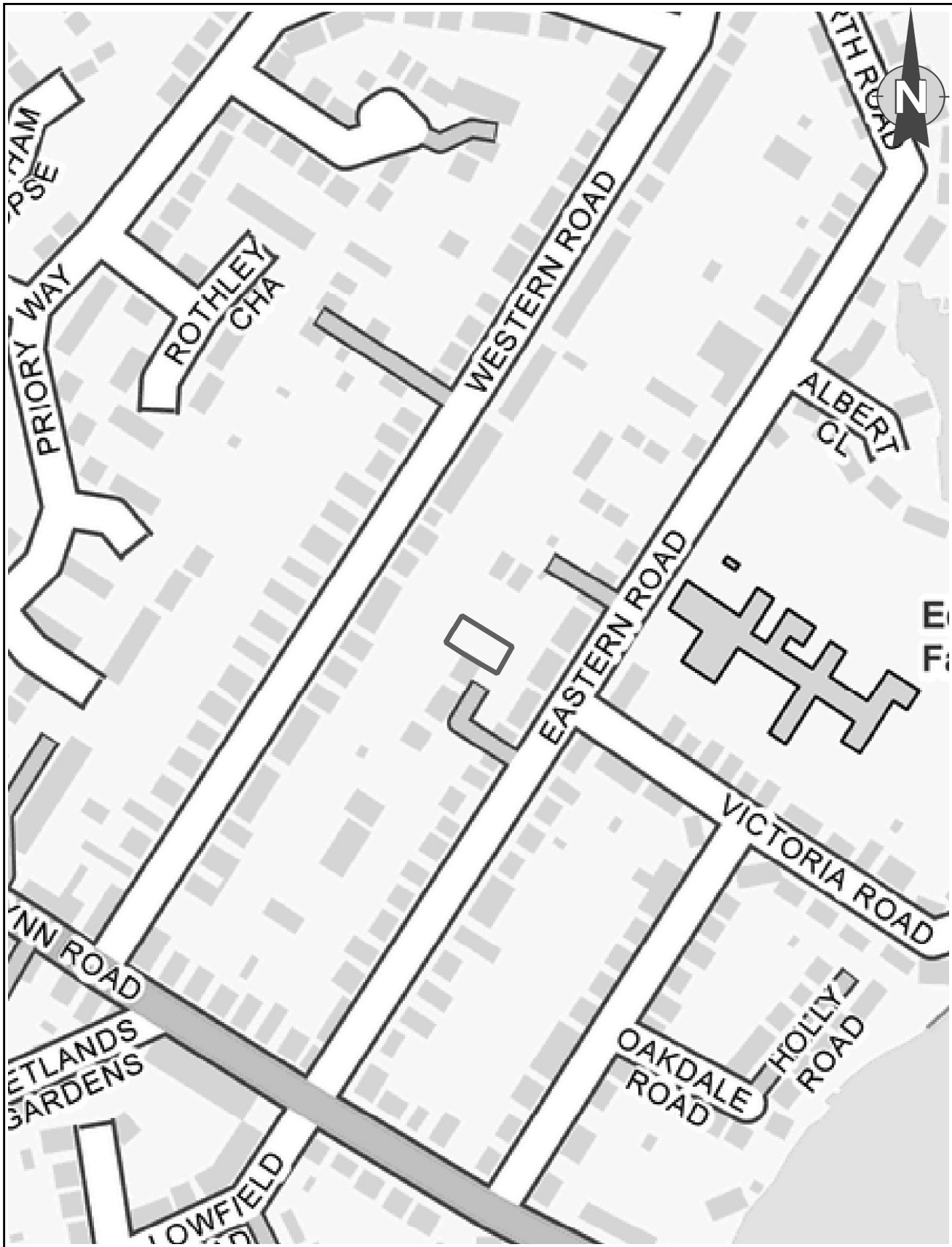
Standards, technical guidance and regulatory positions change over time and which may therefore affect the findings and recommendations made in this report; this should be verified by the client prior to any critical project milestones. Where this information is used in design, the designer should verify that the information is appropriate and has been used correctly.

Variations with time

The report relates to conditions revealed at the time of the investigation and any monitoring visits. Some parameters may vary over time or seasonally; groundwater levels, ground gas compositions, or concentrations of contaminants are particularly variable in this respect. Further monitoring or verification should be considered as appropriate.

GLOSSARY OF TERMS

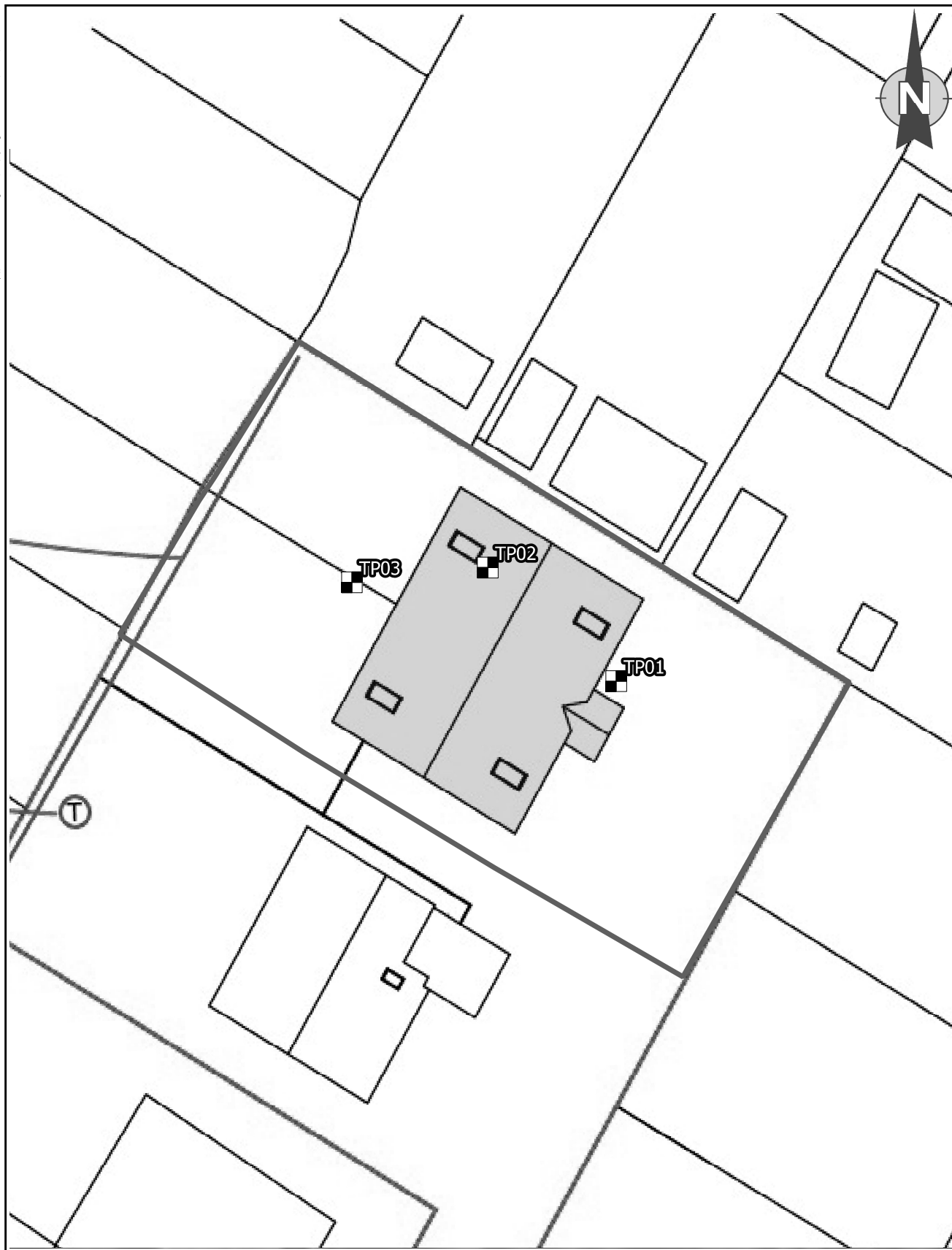
ACM	Asbestos Containing Material
BGS	British Geological Survey
BRE	Building Research Establishment
BS	British Standard
C4SL	Category 4 Screening Level
CBR	California Bearing Ratio
CDM	Construction Design and Management regulations
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CLEA	Contaminated Land Exposure Assessment model
CSM	Conceptual Site Model
EA	Environment Agency
EQS	Environmental Quality Standards
FOC	Fraction of Organic Carbon
GAC	Generic Assessment Criterion
GQRA	Generic Quantitative Risk Assessment
mbgl	Meters Below Ground Level
NHBC	National House Building Council
mOD	Metres above Ordnance Datum
PAH's	Polycyclic Aromatic Hydrocarbons
PHE	Public Health England
PID	Photo-Ionisation Detector
PQRA	Preliminary Quantitative Risk Assessment
PSD	Particle Size Distribution Test
RMS	Remediation Method Statement
S4UL	Suitable for Use Level
SOM	Soil Organic Matter
SPZ	Source Protection Zone
SPT	Standard Penetration Test
SSSI	Sites of Special Scientific Interest
ST-WEL	Short Term Workplace Exposure Limit
SVOC's	Semi-Volatile Organic Compounds
TPH	Total Petroleum Hydrocarbons
TRRL / TRL	Transport Road Research Laboratory
TWA-WEL	Time Weighted Average Workplace Exposure Limit
UK HBF	United Kingdom House Building Federation
VOC's	Volatile Organic Compounds
WAC	Waste Acceptance Criteria



	Title: Site Location			Reference: LS6737
	Project: 2 The Spinney, Eastern Road, Haywards Heath			Figure: 1
	Client: Wood & Associates LLP			Date: 22/02/23
	Prepared by: EP	Checked by: ET	Version: 01	Sheet: 1 of 1



	Title: Investigation Layout			Reference: LS6737
	Project: 2 The Spinney, Eastern Road, Haywards Heath			Figure: 2
	Client: Wood & Associates LLP			Date: 22/02/23
	Prepared by: EP	Checked by: ET	Version: 01	Sheet: 1 of 1



	Title: Proposed Site Layout			Reference: LS6737
	Project: 2 The Spinney, Eastern Road, Haywards Heath			Figure: 3
	Client: Wood & Associates LLP			Date: 22/02/23
	Prepared by: EP	Checked by: ET	Version: 01	Sheet: 1 of 1

APPENDIX A

SITE WALKOVER RECORD



The walkover is restricted only to aspects related to the Land Science report and the stated objectives therein. The walkover does not replace other surveys such as asbestos, arboriculture, ecology, utilities etc which the client should consider. The client should review the walkover and provide any further relevant information where available.

SITE DETAILS			
Project	2 The Spinney, Eastern Road, Haywards Heath		
Reference	LS6737	Date of walkover	31/01/2023
Engineer	Emily Prosser		
CURRENT USE			
Existing land uses	The area under investigation comprised the garden space of an existing residential property. The site was located to the NE of the property and was laid to lawn.		
Status	Occupied – as an existing garden.		
Suspected asbestos	No immediate evidence.		
Below ground structures	No immediate evidence.		
Hardstandings	A small area of hardstanding was noted overlapping from the driveway of the neighbouring property.		
Soft landscaping	The entire site was laid to lawn.		
General condition	Recently cleared and tidied.		
Boundaries	Boundaries were formed by timber fencing to the NE, SE and NW and open onto the existing property to the SW.		
Adjacent land uses	The site was surrounded by other residential dwellings to all aspects.		
TOPOGRAPHY			
General lie of the land	Located on a relatively level elevated area.		
General lie of the site	Sloped relatively uniformly to the NW, with a change in elevation across the site of ~1.50-2.00m.		
Abrupt changes in slope	None recorded.		
Excavations and Depressions	None recorded.		

Raised ground	<i>None recorded.</i>
GROUND STABILITY	
Signs of landslip	<i>N/A</i>
Cracking in buildings and walls etc	<i>N/A</i>
Subsidence on ground surface	<i>N/A</i>
GROUND CONDITIONS	
Possible filled-in ground	<i>N/A</i>
Possible built-up ground	<i>N/A</i>
Exposed soils	<i>N/A</i>
Desiccation	<i>N/A</i>
Disturbance	<i>N/A</i>
WATER CONDITIONS	
Wet boggy ground	<i>N/A</i>
Wells and ditches	<i>N/A</i>
Ponds or ponding	<i>N/A</i>
Streams / Rivers	<i>N/A</i>
ECOLOGY	
Burrows	<i>N/A</i>
VEGETATION	
Reeds or water loving plants	<i>N/A</i>
Sparse growth or die back	<i>N/A</i>
Invasive species	<i>N/A</i>
TREES	
Relevant trees height/species	<i>A row of small, young, newly planted trees was noted along the NW boundary of the site.</i>
Off-site	<i>A tall mature deciduous tree was noted in the garden of the existing property, to the SW of the site.</i>

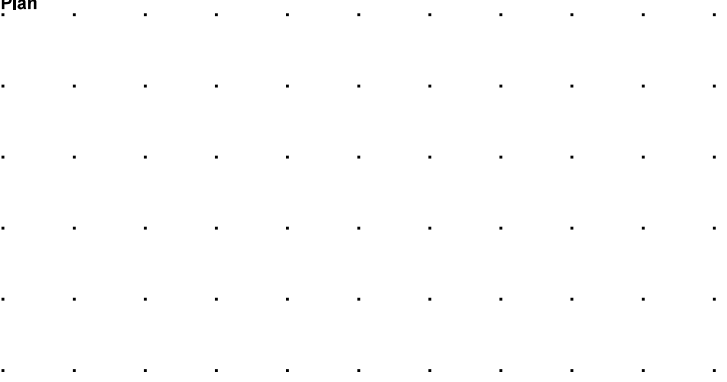
Hedgerows	<i>An evergreen hedge was noted along the easterly portion of the NE boundary.</i>
Recent felling and older stumps	N/A
CONTAMINATION	
Tipped materials	N/A
Areas of possible fill	N/A
Discolouration/sheens of waterbodies	N/A
Surface staining	N/A
Chemicals storage	N/A
Drums and tanks	N/A
Petrol interceptor	N/A
Soakaways	N/A
LOCAL INFORMATION	
Place/road names	
3rd party information	
OTHER INFORMATION	

APPENDIX B



TITLE:	Site Photographs			REF:	LS6737	PREPARED:	EP
PROJECT:	2 The Spinney, Eastern Road, Haywards Heath			PAGE:	1 of 1	CHECKED:	ET
CLIENT:	Wood & Associates LLP			DATE:	08/02/2023	VERSION:	V1

APPENDIX C

				Brighton London Bristol 0845 604 6494 www.landscience.co.uk		Site 2 The Spinney, Eastern Road, Haywards Heath		Trial Pit Number TP01					
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Wood & Associates LLP		Job Number LS6737					
		Location		Dates 31/01/2023		Project Contractor Land Science		Sheet 1/1					
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water				
0.10	D				(0.20)	Grass over dark brown, slightly gravelly, silty CLAY. Gravels are rare fine to medium, subangular to subrounded flint, charcoal, plastic and glass. Rare roots and abundant rootlets noted throughout. (TOPSOIL)							
0.40	HP 62.5kPa				0.20			x					
0.40	D				(0.30)	Dark brown orange, slightly silty, firm, heavy CLAY. Rare rootlets noted throughout. (UPPER TUNBRIDGE WELLS SAND)		x					
					0.50			x					
						Light brown orange very silty, firm CLAY. (UPPER TUNBRIDGE WELLS SAND)		x					
					(0.60)			x					
0.90	HP 62.5kPa							x					
0.90	D				1.10	Light brown orange mottled grey blue slightly sandy, very silty, firm CLAY. (UPPER TUNBRIDGE WELLS SAND)		x					
					(0.40)			x					
1.40	HP 75kPa				1.50	Light brown orange, mottled grey blue, slightly clayey SILTSTONE. (UPPER TUNBRIDGE WELLS SAND)		x					
1.40	D				(0.15)			x					
1.55	D				1.65			x					
1.65	D					Complete at 1.65m		x					
Plan 						Remarks GROUNDWATER: No groundwater encountered. STABILITY: No instability encountered. BACKFILL: Trial hole backfilled with arisings. DIMENSIONS: 1.90m (l) 0.35m (w) (approx). NOTES: Trial hole complete at 1.65m.							
												Scale (approx) 1:25	Logged By EP

				Brighton London Bristol 0845 604 6494 www.landscience.co.uk		Site 2 The Spinney, Eastern Road, Haywards Heath		Trial Pit Number TP02	
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Wood & Associates LLP		Job Number LS6737	
		Location		Dates 31/01/2023		Project Contractor Land Science		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.10	D				0.25	Grass over dark brown, slightly gravelly, silty, CLAY. Gravels are rare fine to medium, subangular to subrounded, flint, charcoal, plastic and glass. Rare roots and abundant rootlets noted throughout. (TOPSOIL)			
0.40 0.40	HP 112.5kPa D				0.25	Dark brown, soft becoming firm, slightly silty, stiff, heavy CLAY. Rare rootlets noted throughout. (UPPER TUNBRIDGE WELLS SAND)			
0.80 0.80	HP 100kPa D				0.65	Light brown orange, very silty, stiff CLAY. (UPPER TUNBRIDGE WELLS SAND)			
1.30	D				0.90	Light brown orange mottled blue grey gravelly, SILT. Gravels are fine to medium, subangular to subrounded siltstone. (UPPER TUNBRIDGE WELLS SAND)			
1.50 1.50	HP 150kPa D				0.30	Light brown orange, mottled blue grey, slightly clayey, SILTSTONE. (UPPER TUNBRIDGE WELLS SAND)			
					Complete at 1.50m				
Plan						Remarks			
.						GROUNDWATER: No groundwater encountered. STABILITY: No instability encountered. BACKFILL: Trial hole backfilled with arisings. DIMENSIONS: 1.30m (l) 0.30m (w) (approx). NOTES: Trial hole complete at 1.50m.			
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						Scale (approx) 1:25	Logged By EP	Figure No. LS6737.TP02	