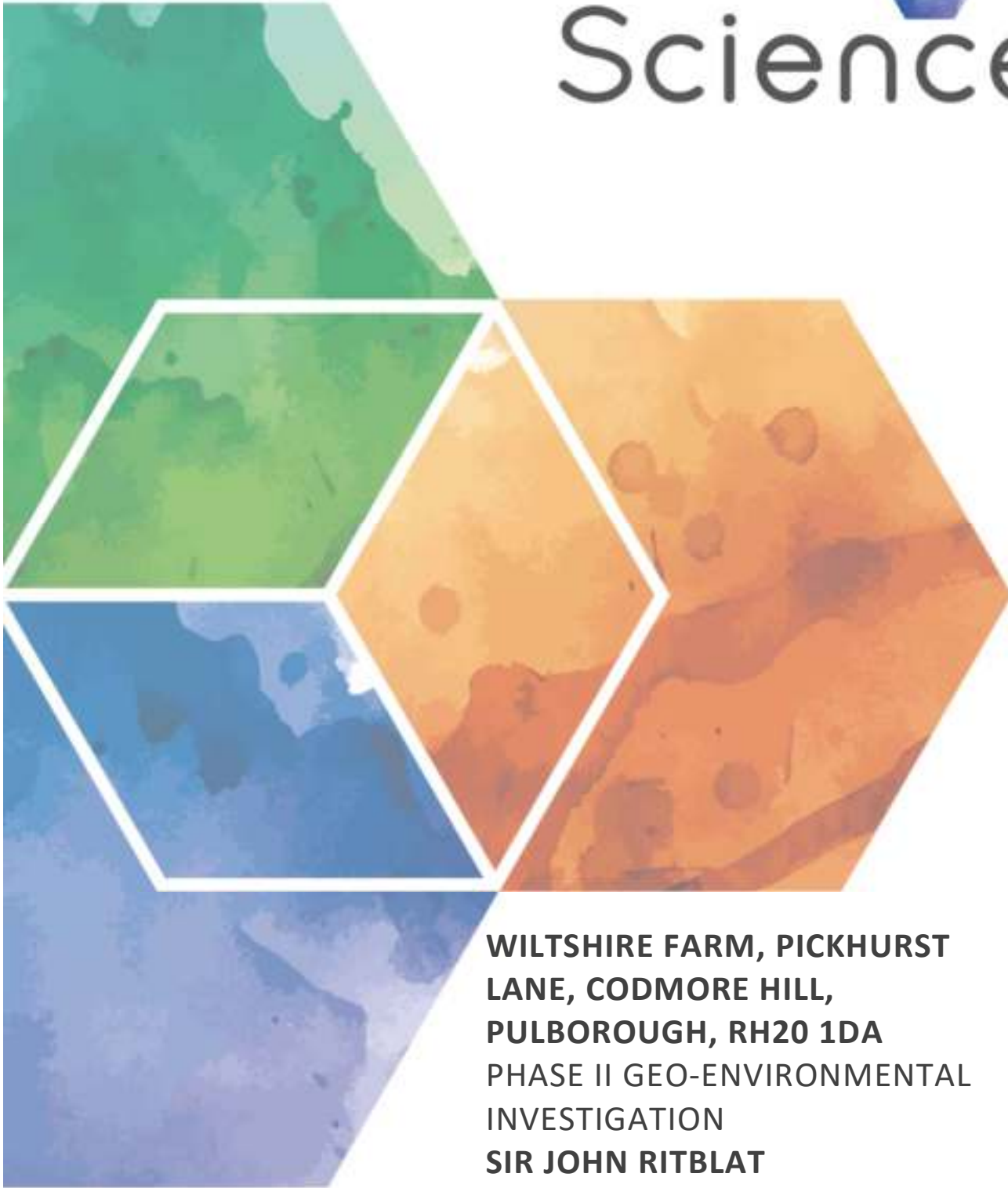


Land Science



**WILTSHIRE FARM, PICKHURST
LANE, CODMORE HILL,
PULBOROUGH, RH20 1DA
PHASE II GEO-ENVIRONMENTAL
INVESTIGATION
SIR JOHN RITBLAT
21ST MARCH 2022
LS6018**

Site:	WILTSHIRE FARM, PICKHURST LANE, CODMORE HILL, PULBOROUGH, RH20 1DA	
Title:	PHASE II GEO-ENVIRONMENTAL INVESTIGATION	
Project:	RESIDENTIAL DEVELOPMENT	
Client:	SIR JOHN RITBLAT	
Contact:	BATCHELLER MONKHOUSE	
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1.0 INTRODUCTION

1.1 General

Land Science was instructed to undertake a Phase II Geo-Environmental Ground Investigation in relation to the proposed redevelopment at Wiltshire Farm, Pickhurst Lane, Codmore Hill, Pulborough, RH20 1DA. The location is shown on Figure 1, which is centred at grid reference TQ 05330 20735.

1.2 Client

The Client for this appointment was Sir John Ritblat through his agent Batcheller Monkhouse. This report may only be used by this named client and their directly appointed project team for the purposes set out in the report conditions. It was understood that the Client already owned the property, and that this investigation was not a pre-purchase appraisal.

1.3 Area Under Investigation

The area under investigation comprised a barn located to the south, which was used for storage and, an agricultural field to the north, used for pasture. The layout is indicated on Figure 2. The area was approximately 0.60 hectares. Photographs can be found in Appendix A.

1.4 Form of Development

The proposed development was understood to comprise the demolition of the existing agricultural building to form part of the new gardens to the south, and construction of the new dwelling to the north. Figure 3 illustrates the layout of the proposed redevelopment. The findings of this report may be not valid if the proposed development is altered.

1.5 Previous Investigations

The following previous investigations relevant to the site were available:

- Phase I Geo-Environmental Investigation, Land Science, January 2022

The Phase II Ground Investigation has been carried out in accordance with the recommendations of the previous report. This report must be read in conjunction with the previous report.

1.6 Scope of Work

The work carried out is described in detail in following sections but in summary included:

- An intrusive investigation comprising 5no. dynamic sampler boreholes.
- Preliminary chemical testing of selected soil in the field and laboratory

The fieldwork was conducted on 25th February 2022, under the supervision of Land Science.

1.7 Geo-Environmental Objectives

A phase II intrusive investigation was required, to provide a generic quantitative risk assessment (GQRA)

The reports were required to assess risks associated with end users, the proposed redevelopment, adjacent land uses, and the wider environment, in the context of the planning regime.

2.0 STANDARDS AND REFERENCES

2.1 Standards

Where practicable, the investigation was undertaken in accordance with the following primary standards and guidance:

- Land Contamination Risk Management (LCRM) Environment Agency 2020
- BS10175:2011+A1:2013, Investigation of Potentially Contaminated Sites.
- National Planning Policy Framework, July 2018.
- Building Regulations Approved Document C: Site preparation and resistance to contaminants and moisture, HM Government, July 2013.
- NHBC Standards Chapter 4.1: Land Quality - Managing Ground Conditions, 2019.

Other technical sources have been cited in respect of specific aspects of the investigation, as referenced throughout the text.

2.2 References

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

- 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, EPR13 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)

3.0 INTRUSIVE INVESTIGATION

3.1 Investigation Strategy

Based on the findings of the conceptual site model, the intrusive investigation strategy is as follows:

- Dynamic sampler boreholes were used to minimise disruption to the site.
- DS01 was located to target the footprint of the proposed dwelling
- DS02-DS05 were located specifically in and around the barn area to investigate the potential contamination from associated land uses

Position	Targets				Testing, installations etc
	Provisional Depth	Existing Location	Proposed Location	Areas of concern	
DS01	5m	Field (North)	Dwelling footprint	Agricultural land use	DS, PID
DS02	2m	North of barn	Garden	Barn, agricultural activities, storage	
DS03		Barn			
DS04					
DS05		Access Road			

3.2 Dynamic (Windowless) Sampling (DS)

Dynamic Sampling entails 1m long hollow tubes with liners driven into the ground and retracted in order to obtain samples. The process is repeated sequentially to the target depth, unless impenetrable strata or borehole instability prevent further progress. The liners are split, logged, tested, and subsampled as required.

4.0 GROUND CONDITIONS

4.1 General

The expected ground conditions were anticipated to comprise Weald Clay Formation to depth, which was confirmed. A thin capping of Topsoil was noted in the northern field with Topsoil also noted to the north of the barn area, with a Made ground sub strata. Made Ground was encountered in and around the barn area while concrete hardstanding was confirmed within the barn.

A summary of the encountered conditions is presented below.

Base Depth (mbgl)					Strata
DS01	DS02	DS03	DS04	DS05	
-	-	0.20	0.12	-	Hardstanding
0.30	0.05	-	-	-	Topsoil
-	0.30	0.50	0.35	0.30	Made Ground
5.00+	2.00+	2.00+	2.00+	2.00+	Weald Clay Formation

The identification of materials encountered as specific geological strata is tentative and should be used as a guide, and interpolation between or below investigation points should be treated with caution.

4.2 Hardstanding

Positions DS03 and DS04 were located within the Barn; concrete was encountered to depths of between 0.12mbgl and 0.20mbgl. Reinforcement was not noted.

4.3 Topsoil

A thin cover of topsoil was encountered at surface to depths of 0.30mbgl and generally described as brown slightly silty, slightly sandy, CLAY. These materials are identified separately from Made Ground, even though they may have been disturbed through human activity and may contain man made materials such as fragments of brick and concrete etc.

4.4 Made Ground

Made Ground was encountered to depths of 0.50mbgl and generally comprised brown and grey slightly silty, gravelly SAND. Gravels are fine to coarse, angular to sub angular brick, concrete and flint fragments.

4.5 Roots and Rootlets

Roots and rootlets were identified in all positions, as follows.

Position	Depth	Roots	Rootlets
DS01	0.30mbgl	Rare	Abundant
DS02	0.05mbgl	Rare	Abundant
	0.30mbgl	Occasional	Occasional

Position	Depth	Roots	Rootlets
DS03	0.50mbgl	Rare	Rare
DS04	0.35mbgl	Occasional	Occasional
DS05	0.30mbgl	Rare	Occasional

4.6 Field Evidence of Contamination

No evidence of possible soil contamination (such as staining, malodours, or brightly coloured soils) was identified in the field.

Made Ground was identified within DS02-DS05 to a base depth between 0.03-0.50mbgl, and such materials may be imported from an unknown source or mixed with hazardous materials, and as such may contain a wide range of potential contaminants. All such materials should be treated as suspect unless proven otherwise. Preliminary testing has been carried out, as described in section 6.0.

A fragment of cementitious material (possible Asbestos Containing Material) was identified in DS04 and screened for the presence of asbestos, as described in section 6.0. The result came back as negative.

4.7 Groundwater

Groundwater was not encountered during excavation of any of the investigative positions. Groundwater levels may vary seasonally and with variations in rainfall. Water may also become perched upon cohesive strata or around features such as foundations, and may also occur from leaking drains and water mains etc.

5.0 FIELD TESTING

5.1 PID Screening (PID)

The samples of soil were screened for VOC's in headspace broadly in accordance with the methodology set-out in CIRIA C682. Due to interference from humidity and other factors, Land Science adopts a method detection limit of 1.0ppm to avoid reporting false positive readings.

None of the samples exhibited VOC's above the detection limit.

The purpose of the screening was to identify samples which may be impacted by organic contaminants (such as VOC's, SVOC's, petroleum hydrocarbons, diesel, etc) and to assist in prioritising samples for laboratory analysis.

6.0 LABORATORY TESTING

6.1 Geochemical Laboratory Analysis

Samples were selected for geochemical (contamination) analysis, based on the following:

- Made Ground was encountered, which may contain a wide range of contaminants. Selected samples of Made Ground from all positions (DS01-DS05) were tested for a routine screening suite (LS1A) and were also screened for Asbestos.
- A suspected ACM was identified in DS04, a representative sample was collected and sent for identification, if positive further quantification analysis is to be undertaken.
- Selected representative samples from each area of the site were analysed for herbicides and pesticides, given the associated land use of the site.
- Samples from around the barn (DS02-DS05) were tested for TPH7 given the potential usage of the area. Samples were randomly selected in the absence of positive PID readings.

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

Sample	Strata	Suite			
		LS1A	Asbestos Quan.	TPH7	Herb/Pest
DS01 (0.25mbgl)	Topsoil	x	-	-	x
DS02 (0.25mbgl)	Made Ground	x	-	x	-
DS03 (0.45mbgl)	Made Ground	x	-	x	x
DS04 (0.13mbgl)	Made Ground	-	x	-	-
DS04 (0.30mbgl)	Made Ground	x	-	x	-
DS05 (0.25mbgl)	Made Ground	x	-	x	x

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

Suite	Definition
LS1A (soil)	Screening suite: pH, fraction of organic carbon, Metals and Non Metals, water soluble Sulphate, Sulphide, total Cyanide, total Phenols, speciated PAH's. 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.
Asbestos Quantification	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with dispersion staining techniques.
TPH7	Speciated TPH: Total petroleum hydrocarbons CWG banding incl. aliphatic and aromatic split plus BTEX and MTBE.
Herbicide/pesticide	Analysis of unknown pesticides by GCMS. Samples are added to the injection port and vaporised. The vapour is carried on to a glass capillary column and separated from co-extracted compounds and matrix.

The results are discussed in the relevant sections.

7.0 HUMAN HEALTH

7.1 Screening Values

As the basis of a tier 1 screening assessment, the results have been compared directly against published standards for human health.

Several different partly overlapping schemes are currently in use in the UK, based on the Environment Agency's CLEA Model but with differing toxicological parameters. For the purpose of this report these schemes have and have been applied in the following hierarchy:

- Suitable For Use levels (S4UL) recently published by LQM in association with the CIEH.
- Category 4 Screening Levels (C4SL) recently published by the DEFRA and CL:AIRE.

Whilst other standards exist, such as the LQM Generic Assessment Criterion and the Environment Agency's Soil Guideline Values, these are considered to have been superseded by the above publications.

The soil chemical analysis results have been compared against respective screening values for residential land uses with plant uptake (i.e. residential properties with private gardens, where homegrown produce could form a proportion of dietary intake).

For contaminants where the respective screening value is dependent on Soil Organic Matter (SOM), the corresponding value for 2.5% was used (the arithmetic mean SOM value for the soil was 3.0%).

Where no standard exists, the contaminant is either not considered a priority in terms of human health (at least in the scenario being considered), or no screening value has been published.

7.2 Screening results

None of the results exceeded the screening criteria, with the exception of the following:

Determinand	Screening value	Results exceeding the screening value
Benzo(b)fluoranthene	3.3mg/kg	DS03 0.45m (4.1mg/kg), DS05 0.25m (8.3mg/kg)
Benzo(a)pyrene	2.7mg/kg	DS02 0.25m (3.3mg/kg), DS03 0.45m (4.5mg/kg), DS05 0.25m (8.8mg/kg)
Di-benzo(a,h)anthracene	0.28mg/kg	DS02 0.25m (0.46mg/kg), DS03 0.45m (0.6mg/kg), DS05 0.25m (1.4mg/kg)

7.3 Benzo(a)Pyrene

With respect to Polycyclic Aromatic Hydrocarbons (PAH's) and for this assessment Land Science have adopted the surrogate marker approach described in Appendix C or the C4SL suite of documents i.e./ using benzo(a)pyrene as a representative compound for all genotoxic PAH's that may be present in soils at this site. This approach was used as benzo(a)pyrene was detected in the samples, and the other PAH's identified above the individual screening values were all classed as genotoxic. The table below summarises the revised screening assessment:

Determinand	GAC	Concentration		Results above GAC value
		Mean	Max	
Benzo(a)Pyrene (as surrogate marker)	5.0	4.32	8.8	DS05 0.25m (8.8mg/kg)

7.4 Speciated TPH

The risks from TPH's are assessed differently from other contaminants. The ratio of an individual group of carbon bands to the respective GAC is calculated (a Hazard Quotient) and these are totalled to derive a sample specific Hazard Index. A Hazard Index exceeding 1.0 suggests a potential significant risk to human health in the exposure scenario considered. The calculated Hazard Indexes are summarised below.

Sample	Total TPH	Hazard Index	Notes
DS02 (0.25mbgl)	101mg/kg	0.08	No significant risk identified
DS03 (0.45mbgl)	394mg/kg	0.29	
DS04 (0.30mbgl)	59mg/kg	0.07	
DS05 (0.25mbgl)	172mg/kg	0.15	

7.5 Asbestos

A total of four samples of Made Ground were screened for the presence of Asbestos, none of the samples tested positive for asbestos. An additional sample of pACM was sent for Asbestos quantification, with the sample testing negative.

7.6 Herbicides & Pesticides

A total of three samples of were screened for the presence of Herbicides and Pesticides, none of the samples tested positive for Herbicides / Pesticides. The full methodology is described in the analytical report.

7.7 Summary

The screening identified elevated levels of PAH's within DS05 0.25m in excess of the respective Benzo(a)Pyrene (as surrogate marker) screening values. The remaining determinands were all below. TPH's posed no significant risk; Asbestos and Herbicides and Pesticides were not detected in any sample.

8.0 BUILT ENVIRONMENT

8.1 Soft Landscaping

A number of documents include guidance on screening levels of phytotoxic contaminants within soils, including:

- BS3882:2015 "Specification for topsoil and requirements for use" (although stipulated as not to be used in contaminated land risk assessment).
- ICRL in publication 70/90 1990 'Notes on the Restoration and Aftercare of Metalliferous Mining Sites for Pasture and Grazing' (although indirectly withdrawn) (where marked *).
- Code of Practice for Agricultural Use of Sewage Sludge (England and Wales 1996) for arable use (as opposed to grazing) and relating to priority phytotoxic elements only.

The results of the chemical analysis for determinands known to pose a potential phytotoxic risk to plant growth are summarised on the following table, together with the respective adopted screening values for plant growth. The results of the chemical analysis were evaluated singularly without the use of statistical tools.

Element	Phytotoxicity Value (mg/kg)			Arable (grassland)	Results in excess of screening value
	pH <6.0	pH 6.0-7.0	pH >7.0	pH >5.2	
Zinc	200	200	300	300 (300)	No exceedances
Copper	100	135	200	200 (330)	
Nickel	60	75	110	110 (180)	
Cadmium	50*			3.0 (3.0)	
Arsenic	1,000*			50 (50)	

8.2 Potable Water Supplies

The risk of chemical attack on water supply pipework has been assessed following the general Principals set out in the joint Water UK/HBF *Contaminated Land Assessment Guidance* dated January 2014. A summary of the main chemical criteria is reproduced below.

Test group (in mg/kg)	Polyethylene (PE)	Polyvinyl Chloride (PVC)	Metal or Aluminium Barrier
VOC's	0.5	0.125	Pass
VOC's + BTEX & MTBE	0.1	0.03	Pass
SVOC's (excl. PAH's etc.)	2.0	1.4	Pass
SVOC's + Phenols	2.0	0.4	Pass
SVOC's + Cresols & Chlorinated Phenols	2.0	0.04	Pass
Mineral oil EC11-20	10	Pass	Pass
Mineral oil EC21-40	500	Pass	Pass

9.0 SUMMARY CONTAMINATION ASSESSMENT

9.1 Introduction

The preliminary conceptual site model identified potential risks to associated with contaminants in soils and vapours generated from organic contaminants. As summarised below:

Soils	Pathways	Rating	Receptor	Rating	Overall Rating
High	Dermal contact with soil and soil-borne dust	High	End Users	High	High
High	Ingestion of soil and soil-borne dust	High	End Users	High	High
High	Inhalation of soil-borne dust	High	End Users	High	High
High	Consumption of homegrown produce	High	End Users	High	High
High	Inhalation of soil-borne dust	Very Low	Adjacent Land	Low	Low
High	Plant uptake, phytotoxic effects	Moderate	Planting	Low	Moderate
High	Chemical attack	Moderate	Concrete	Moderate	Moderate
High	Chemical attack	Moderate	Pipework	Moderate	Moderate
High	Leaching-out, migration to water table	Low	Groundwater	Unlikely	Unlikely
High	Leaching-out, migration to water bodies	Low	Surface Water	Low	Low

Vapours	Pathways	Rating	Receptor	Rating	Overall Rating
Moderate	Inhalation, ignition	Low	End Users	High	Moderate
Moderate	Inhalation, ignition	Low	Adjacent Land	Low	Low
Moderate	Root asphyxiation, phytotoxic effects	Low	Planting	Low	Low
Moderate	Not a significant hazard	-	Concrete	Moderate	Unlikely
Moderate	Chemical attack	Low	Pipework	Moderate	Moderate
Moderate	Not a significant hazard	-	Groundwater	Unlikely	Unlikely
Moderate	Not a significant hazard	-	Surface Water	Low	Unlikely

No risks were identified from ground gases and or groundwater, and no findings of the investigation caused this to be reappraised.

9.2 End Users

The results of the chemical analysis indicated elevated PAHs within the Made Ground in DS05; the concentration of Benzo(a)Pyrene exceeded the surrogate marker threshold set 5.0mg/kg. However, the mean concentration across the 4 samples taken in Made Ground in the barn area was 4.35mg/kg, which was below the surrogate marker threshold. The criterion is also based on plant uptake (meaning the inclusion of homegrown vegetables forming a significant contribution to overall dietary intake); the higher criterion excluding this pathway is slightly higher, at 5.3mg/kg. None of the other results exceeded respective thresholds. No risks from vapours were recorded. The results, taken as a whole, do not represent a significant risk to human health.

9.3 Adjacent Land Users

Although slightly elevated PAHs were identified, in the absence of any transportation methods (ie. shallow groundwater, bare open soils in dry dusty conditions) and sensitive land uses (ie. residential or allotments etc.) no significant risks were identified.

9.4 Soft Landscaping

No elevated levels of potentially phytotoxic metals were recorded in the analysis. No positive PID readings were recorded and the bandings of TPH's were all above EC12 (i.e. not volatile). The walkover did not identify evidence of potential phytotoxic effects. It is concluded that no risk was posed in this respect.

9.5 Potable Water Supplies

Slightly elevated TPH readings were found in the southern half of the site, in excess of the screening values for unprotected water mains. If mains are to be laid through this area, it is recommended that the specification for pipework and backfill etc is agreed with the water utility in advance; it may be necessary to use aluminium barrier pipework (such as 'Protectaline'). If laid in the north of the site, through the field, protection is not warranted.

9.6 Concrete

The thickness of Made Ground was limited, and the levels of pH and soil soluble sulphate fell within the criteria for standard cement specification. As such, the Made Ground does not pose any significant hazard. Levels in the underlying Weald Clay is a building control matter and will be checked in due course as part of any geotechnical investigation.

9.7 Groundwater and Surface Water

Groundwater was not encountered in the boreholes, with the site underlain by unproductive strata of the Weald Clay. There was no evidence of or potential for lateral migration of contaminants across the field towards the nearby watercourse. No significant risks have been identified.

9.8 Conclusions

Confirmation of the agreed water mains specification should be provided to the planning authority and/or building control, and evidence provided that it has been installed.

No other risks have been identified and therefore no remediation is considered necessary. As a matter of good site practice, a discovery strategy should be followed during construction in case any evidence of previously unknown contamination is uncovered (see section 9.9).

This report should be submitted to the planners for their consideration and approval in good time before commencing on site. The Local Authority or other bodies may have different or further requirements.

9.9 Discovery Strategy

During groundworks, a watching brief is required by a competent environmental consultant or engineer. Should visual signs or olfactory signs of unexpected contamination be identified then the following is required:

- Stop works in the location of identified gross contamination.
- Inform the Site Manager and Environmental Consultant.
- Environmental consultant to inform Local Planning Authority Principal Pollution Control Officer, with no further works undertaken in the area until any new recommendations have been agreed.
- Excavate the impacted area until impacted material is visually removed.
- The excavated material can be temporarily stockpiled on site, for pre-treatment and waste classification, prior to being disposed of offsite at a suitably licensed facility in accordance with the above (as detailed in Section 4.4).

Unexpected contamination may include:

- Visible fragments of asbestos board / tile or fibre (lagging);
- Soil headspace readings >100 ppm (using photo-ionisation detector [PID]);
- Significant discolouration of the soil;
- Visible hydrocarbon seeps; and,
- Strong hydrocarbon odour in the hand.

10.0 PRELIMINARY WASTE ASSESSMENT

10.1 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.

10.2 Non-Waste

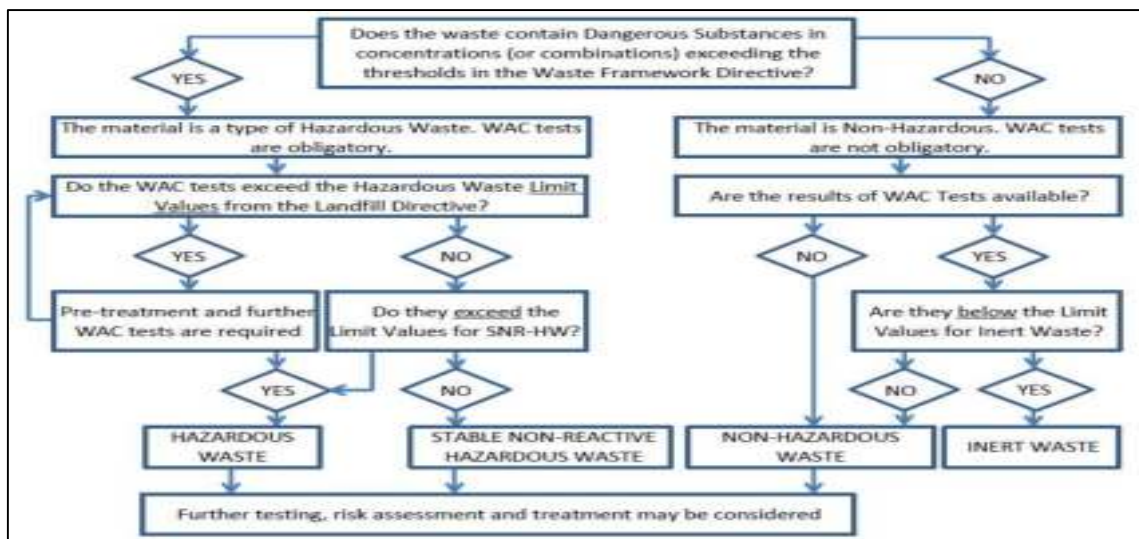
Soils may potentially be handled as Non-Waste and re-used on site (or on other sites) in accordance with various protocols such as those published by the EA or CL:AIRE. Typical requirements include:

- That the re-use of material will not endanger human health, cause nuisance, or harm the wider environment (controlled waters, ecosystems, etc.)
- That there is there a clear Environmental benefit from the activity, and that the waste is being used as a substitute for non-waste material.
- The materials are suitable for use in terms of chemical and geotechnical parameters without further treatment.
- The holder is certain that the materials will be used in a safe manner, and only the necessary quantities of materials are being used.
- Where the activities do not require a waste management licence (e.g. landfilling).
- A Waste Recovery Plan (EA) or Materials Management Plan (CL:AIRE) are produced and followed, and audited in a Verification Plan.

Soil	Suitability for re-use on site			Notes
	Landscaping	Hard cover	Not suitable	
Made Ground			X	Elevated PAH's

10.3 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	
Made Ground- DS01 (0.25m) DS02 (0.25m) DS03 (0.45m) DS04 (0.30m) DS05 (0.25m)			X		The soil analysis met the criteria for Non -Hazardous Waste. No WAC testing undertaken.

Further WAC testing may be considered for soils identified as Non-Hazardous, as the tests may enable those materials to be re-classified as Inert and therefore represent a potential saving on disposal costs.

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

11.0 SUMMARY AND CONCLUSIONS

This summary is a brief precis of the main findings and conclusions of the investigation. For detailed information, the reader is referred to the main report.

11.1 General

The intrusive investigation included 5no Dynamic Sampler Boreholes. The area under investigation comprised a barn located to the south of the site, the north of the site formed part of an agricultural field, although not in use currently. The proposed development was understood to comprise the demolition of the existing agricultural building to the south of the site and the construction of a new residential bungalow with associated driveway to the north and gardens to the south of the site.

11.2 Soils Encountered

Base Depth (mbgl)					Strata
DS01	DS02	DS03	DS04	DS05	
-	-	0.20	0.12	-	Hardstanding
0.30	0.05	-	-	-	Topsoil
-	0.30	0.50	0.35	0.30	Made Ground
5.00+	2.00+	2.00+	2.00+	2.00+	Weald Clay Formation

11.3 Groundwater

No groundwater encountered to depth.

11.4 Soil Contamination

No contamination risks have been identified, other than to agree and adopt a suitable specification for new water mains with the water utility if laid across the southern end of the site.

11.5 Waste Disposal

The chemical results confirmed that the Made Ground should be handled as non-hazardous Waste for disposal purposes. It is likely that natural soils could be handled as Inert Waste.

11.6 Further Action

Confirmation of the agreed water mains specification should be provided to the planning authority and/or building control, and evidence provided that it has been installed. A discovery strategy should be adopted in case any unexpected contamination is uncovered during construction.

This report should be submitted to planning authority and building control in good time for approval.

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.

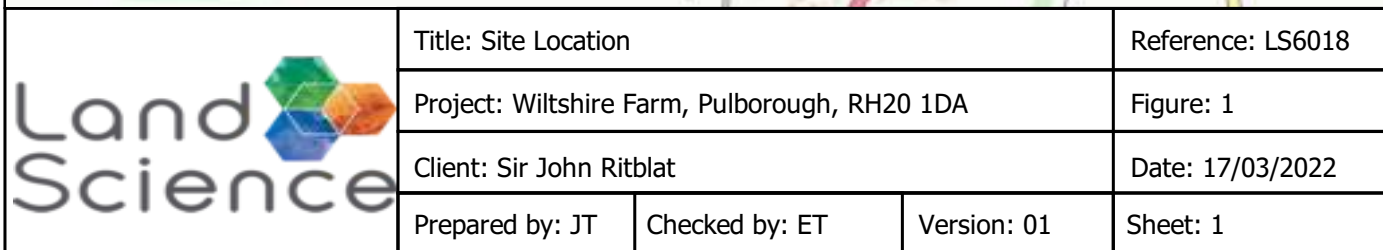
Variations with time

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

FIGURES

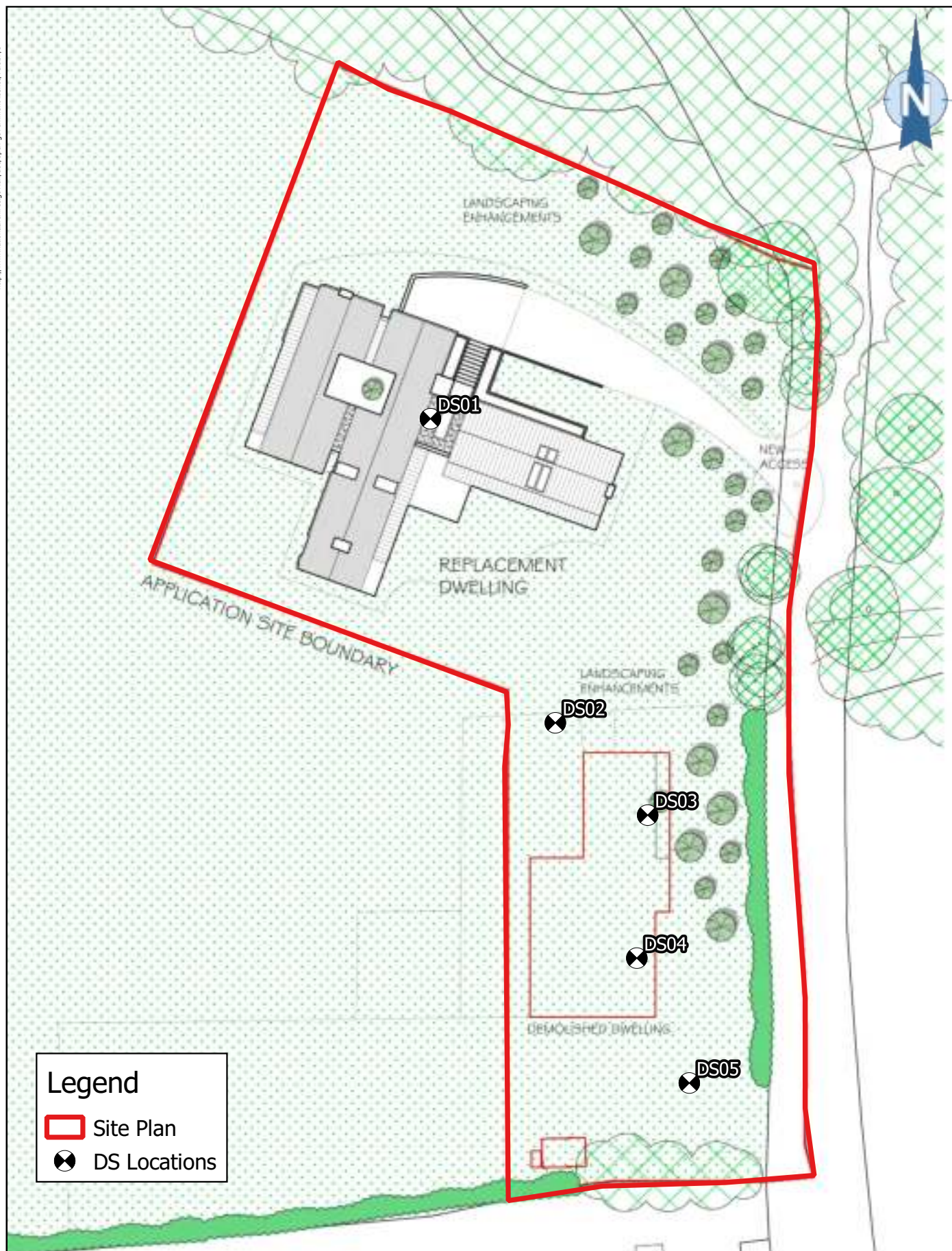




Legend

- Site Plan
- DS Locations

	Title: Investigation Layout			Reference: LS6018
	Project: Wiltshire Farm, Pulborough, RH20 1DA			Figure: 2
	Client: Sir John Ritblat			Date: 17/03/2022
	Prepared by: JT	Checked by: ET	Version: 01	Sheet: 1



Legend

- Site Plan
- DS Locations



Title: Proposed Layout

Reference: LS6018

Project: Wiltshire Farm, Pulborough, RH20 1DA

Figure: 3

Client: Sir John Ritblat

Date: 17/03/2022

Prepared by: JT

Checked by: ET

Version: 01

Sheet: 1

APPENDIX A



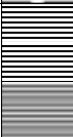
TITLE:	Site Photographs	REF:	LS6018	PREPARED:	JT
PROJECT:	Wiltshire Farm, Pickhurst Lane, Codmore Hill, Pulborough RH20 1DA	FIGURE:	1	CHECKED:	ET
CLIENT:	Sir John Ritblat	DATE:	18/03/2022	VERSION	V1

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0345 604 6494

UNIT 10, 19 ALBERT DRIVE BURGESS HILL, **WEST SUSSEX**, RH15 9TN
2ND FLOOR, 25-28 FIELD STREET, **LONDON**, WC1X 9DA

APPENDIX B

				Brighton London Bristol 0845 604 6494 www.landscience.co.uk		Site Wiltshire Farm, Pulborough, RH20 1DA		Number DS01
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Sir John Ritblat		Job Number LS6018
		Location		Dates 25/02/2022		Engineer Land Science		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.25	E				(0.30)	Grass over brown slightly silty, slightly sandy CLAY with abundant rootlets and rare roots. Sand is fine to medium. (TOPSOIL)		
					0.30	Brown and orangey mottled light grey and slightly blue CLAY. (WEALD CLAY FORMATION)		
0.95	E				(1.30)			
1.45 1.50 1.50	D IV(P) 94 kPa HP 150kPa				1.60	Brown and orange mottled blackish ironstone and clay matrix. (WEALD CLAY FORMATION)		
1.95	D				(0.40)			
					2.00	Brown mottled light grey slightly blackish and orange MUDSTONE. (WEALD CLAY FORMATION)		
2.45 2.50	D HP 225kPa							
2.95 3.00	D HP 225kPa				(2.20)			
3.45 3.50	D HP 225kPa							
3.95 4.00	D HP 225kPa				4.20	Stiff dark grey mottled light brown CLAY. (WEALD CLAY FORMATION)		
4.45 4.50	D HP 225kPa				(0.80)			
4.95 4.95	HP 225kPa D				5.00			
Remarks GROUNDWATER: No groundwater was encountered. CASING: No casing used. INSTALLATION: No installation was used. BACKFILL: Backfilled with arisings. NOTES: Hand excavated inspection pit to 1.00mbgl. Borehole completed to target depth of 5.00mbgl.							Scale (approx) 1:25	Logged By OD
							Figure No. ls6018.DS01	

				Brighton London Bristol 0845 604 6494 www.landscience.co.uk		Site Wiltshire Farm, Pulborough, RH20 1DA		Number DS02
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Sir John Ritblat		Job Number LS6018
		Location		Dates 25/02/2022		Engineer Land Science		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.25	E				0.05 (0.25) 0.30	Grass and moss over dark brown, slightly silty SAND. Sand is fine to medium with abundant rootlets and rare roots. (TOPSOIL) Brown slightly silty, gravelly SAND with occasional rootlets and rare roots. Sand is fine to medium. Gravels are fine to coarse, angular to subangular concrete and tarmac. (MADE GROUND) Stiff orangey brown mottled light greyish blue CLAY. (WEALD CLAY FORMATION)	  	
0.95	E				(1.70)			
1.45	D							
1.95	D				2.00	Complete at 2.00m		
Remarks GROUNDWATER: No groundwater was encountered. CASING: No casing used. INSTALLATION: No installation was used. BACKFILL: Backfilled with arisings. NOTES: Hand excavated inspection pit to 1.00mbgl. Borehole completed to target depth of 2.00mbgl.							Scale (approx) 1:25	Logged By OD
							Figure No. ls6018.DS02	

Land Science				Brighton London Bristol 0845 604 6494 www.landscience.co.uk		Site Wiltshire Farm, Pulborough, RH20 1DA		Number DS03	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Sir John Ritblat		Job Number LS6018	
		Location		Dates 25/02/2022		Engineer Land Science		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.45	E				(0.20)	Concrete. (HARDSTANDING)			
					0.20	Dark brown and grey gravelly SAND with rare roots and rootlets. Sand is fine to medium. Gravels are fine to coarse, angular to sub angular, brick, concrete and flint fragments. (MADE GROUND)			
					(0.30)				
0.95	E				0.50	Brown and orangey mottled light grey and slightly blue CLAY. (WEALD CLAY FORMATION)			
1.45	D				(1.40)				
1.95	D				1.90	Brown and orangey mottled light grey and slightly blue MUDSTONE. (WEALD CLAY FORMATION)			
					(0.10)				
					2.00				
						Complete at 2.00m			
Remarks GROUNDWATER: No groundwater was encountered. CASING: No casing used. INSTALLATION: No installation was used. BACKFILL: Backfilled with arisings. NOTES: Hand excavated inspection pit to 1.00mbgl. Borehole completed to target depth of 2.00mbgl.								Scale (approx) 1:25	Logged By OD
								Figure No. ls6018.DS03	

Land Science Brighton London Bristol 0845 604 6494 www.landscience.co.uk				Site Wiltshire Farm, Pulborough, RH20 1DA				Number DS04	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Sir John Ritblat		Job Number LS6018	
		Location		Dates 25/02/2022		Engineer Land Science		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.30	E				(0.12)	Concrete. (HARDSTANDING)			
					0.12	Brown and grey slightly silty, gravelly SAND with occasional roots and rootlets. Sand is fine to medium. Gravels are fine to coarse, angular to sub angular brick, concrete and flint fragments. (MADE GROUND) ... Potentially asbestos containing material at 0.13mbgl.			
					(0.23)				
0.95	E				0.35	Brown and orangey mottled light grey and slightly blue CLAY. (WEALD CLAY FORMATION)			
					(1.25)				
1.45	D				1.60	Brown and orangey mottled light grey and slightly blue MUDSTONE. (WEALD CLAY FORMATION)			
				(0.40)					
1.95	D				2.00	Complete at 2.00m			
Remarks GROUNDWATER: No groundwater was encountered. CASING: No casing used. INSTALLATION: No installation was used. BACKFILL: Backfilled with arisings. NOTES: Hand excavated inspection pit to 1.00mbgl. Borehole completed to target depth of 2.00mbgl.							Scale (approx) 1:25	Logged By OD	
							Figure No. ls6018.DS04		

				Brighton London Bristol 0845 604 6494 www.landscience.co.uk		Site Wiltshire Farm, Pulborough, RH20 1DA		Number DS05
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Sir John Ritblat		Job Number LS6018
		Location		Dates 25/02/2022		Engineer Land Science		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.25	E				(0.30) 0.30	Brown and grey slightly silty, gravelly SAND occasional rootlets and rare roots. Sand is fine to medium. Gravels are fine to coarse, angular to sub angular brick, concrete and flint fragments. (MADE GROUND) ... Plastic membrane at 0.25mbgl.		
0.95	E				(1.50)	Brown and orangey mottled light grey and slightly blue stiff CLAY. (WEALD CLAY FORMATION)		
1.45	D							
1.95	D				1.80 (0.20) 2.00	Brown and orangey mottled light grey and slightly blue MUDSTONE. (WEALD CLAY FORMATION)		
						Complete at 2.00m		
Remarks GROUNDWATER: No groundwater was encountered. CASING: No casing used. INSTALLATION: No installation was used. BACKFILL: Backfilled with arisings. NOTES: Hand excavated inspection pit to 1.00mbgl. Borehole completed to target depth of 5.00mbgl.							Scale (approx) 1:25	Logged By OD
							Figure No. ls6018.DS05	

APPENDIX C



Results

Land Science
Unit 10
19 Albert Drive
Burgess Hill
West Sussex
RH15 9TN

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

e: results@landscience.co.uk

Analytical Report Number : 22-42758

Project / Site name:	Wiltshire Farm, Pulborough, RH20 1DA	Samples received on:	01/03/2022
Your job number:	LS6018	Samples instructed on/ Analysis started on:	01/03/2022
Your order number:		Analysis completed by:	10/03/2022
Report Issue Number:	1	Report issued on:	10/03/2022
Samples Analysed:	1 bulk sample - 5 soil samples		

Signed:

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-42758

Project / Site name: Wiltshire Farm, Pulborough, RH20 1DA

Lab Sample Number				2190177	2190178	2190179	2190181	2190182
Sample Reference				DS01	DS02	DS03	DS04	DS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.25	0.45	0.30	0.25
Date Sampled				25/02/2022	25/02/2022	25/02/2022	25/02/2022	25/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	34	32	44	< 0.1
Moisture Content	%	0.01	NONE	19	12	6.5	9.3	9.5
Total mass of sample received	kg	0.001	NONE	0.80	0.80	0.80	0.70	0.80

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EC	EC	EC	EC	EC

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.4	8.3	10.6	10.7	9.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0098	0.085	0.37	0.40	0.26
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	17	47	52
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.013	0.023	0.028	0.0066	0.018

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.31	< 0.05	0.54
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.48	< 0.05	0.43
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.51	< 0.05	0.44
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	2.3	4.5	0.38	4.0
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.64	1.4	< 0.05	1.4
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	5.8	8.9	0.96	8.9
Pyrene	mg/kg	0.05	MCERTS	< 0.05	5.2	7.8	0.89	8.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	3.4	4.7	0.65	6.7
Chrysene	mg/kg	0.05	MCERTS	< 0.05	2.1	2.9	0.44	4.3
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	3.2	4.1	0.68	8.3
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.6	2.2	0.40	4.4
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	3.3	4.5	0.70	8.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.7	2.2	0.42	5.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.46	0.60	< 0.05	1.4
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	2.0	2.5	0.52	6.5
Coronene	mg/kg	0.05	NONE	< 0.05	0.92	1.4	< 0.05	3.1

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	32.4	48.8	6.04	72.6
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Analytical Report Number: 22-42758

Project / Site name: Wiltshire Farm, Pulborough, RH20 1DA

Lab Sample Number				2190177	2190178	2190179	2190181	2190182
Sample Reference				DS01	DS02	DS03	DS04	DS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.25	0.45	0.30	0.25
Date Sampled				25/02/2022	25/02/2022	25/02/2022	25/02/2022	25/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	12	6.7	9.7	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	69	96	69	99	150
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.90	0.86	0.47	0.69	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	0.4	0.5	0.5	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	21	12	15	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	20	16	17	23
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	31	22	66	95
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	13	11	14	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	39	38	23	25	38
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	44	51	48	52	83

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	-	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	-	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	-	22	74	< 8.0	32
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_1D_AL	mg/kg	10	MCERTS	-	26	74	< 10	32

TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-	< 2.0	5.8	< 2.0	6.0
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-	11	44	< 10	21
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-	64	270	43	110
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	MCERTS	-	75	320	49	140

Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	None Detected	-	None Detected	-	None Detected
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U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 22-42758

Project / Site name: Wiltshire Farm, Pulborough, RH20 1DA

Lab Sample Number				2190180
Sample Reference				DS04
Sample Number				None Supplied
Depth (m)				0.13
Date Sampled				25/02/2022
Time Taken				None Supplied
Analytical Parameter (Bulk Analysis)	Units	Limit of detection	Accreditation Status	
Asbestos Identification	Type	N/A	ISO 17025	No Asbestos Detected

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 22-42758

Project / Site name: Wiltshire Farm, Pulborough, RH20 1DA

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2190177	DS01	None Supplied	0.25	Brown clay and sand with vegetation and gravel
2190178	DS02	None Supplied	0.25	Brown clay and sand with stones and vegetation.
2190179	DS03	None Supplied	0.45	Brown clay and loam with stones and brick.
2190181	DS04	None Supplied	0.3	Brown clay and sand with stones and gravel
2190182	DS05	None Supplied	0.25	Brown clay and sand with rubble and brick.

Analytical Report Number : 22-42758

Project / Site name: Wiltshire Farm, Pulborough, RH20 1DA

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in Bulks	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
GC Pesticide Screen (TIC)	Analysis of unknown pesticides by GCMS	GC Pesticide Screen (TIC)	L064B	D	NONE
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method	L009	D	MCERTS

Analytical Report Number : 22-42758

Project / Site name: Wiltshire Farm, Pulborough, RH20 1DA

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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:

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



41W0L-1DJ77-EZZ2W

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

Job name

Wiltshire Farm

Description/Comments

Project

LS6018

Site

Wiltshire Farm

Classified by

Name: **Tom Kistruck**
 Date: **10 Mar 2022 16:41 GMT**
 Telephone: **01444 882 084**
 Company: **Land Science**
Unit 10
19 Albert Drive
Burgess Hill
RH15 9TN

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
 Hazardous Waste Classification

Date

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	DS01	0.25	Non Hazardous		2
2	DS02	0.25	Non Hazardous		4
3	DS03	0.45	Non Hazardous		7
4	DS04	0.30	Non Hazardous		10
5	DS05	0.25	Non Hazardous		13

Related documents

#	Name	Description
1	Land Science Template WM3 v1.1	waste stream template used to create this Job

Report

Created by: Tom Kistruck

Created date: 10 Mar 2022 16:41 GMT

Appendices	Page
Appendix A: Classifier defined and non EU CLP determinands	16
Appendix B: Rationale for selection of metal species	17
Appendix C: Version	18

Classification of sample: DS01

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

Sample details

Sample name:	LoW Code:
DS01	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.25 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
19%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **19% No Moisture Correction applied (MC)**

#	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							
1	pH				7.4 pH		7.4 pH	7.4 pH		
2	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
3	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
4	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
5	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
6	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7							
7	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8							
8	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7							
9	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0							
10	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0							
11	benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
12	chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
13	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
14	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
15	benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
16	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5							
17	dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3							

#	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							
18	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	coronene	205-881-7	191-07-1		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
20	arsenic { arsenic trioxide }	033-003-00-0	215-481-4		13 mg/kg	1.32	17.164 mg/kg	0.00172 %		
21	barium { barium sulfate }	231-784-4	7727-43-7		69 mg/kg	1.7	117.267 mg/kg	0.0117 %		
22	beryllium { beryllium oxide }	004-003-00-8	215-133-1		0.9 mg/kg	2.775	2.498 mg/kg	0.00025 %		
23	boron { diboron trioxide }	005-008-00-8	215-125-8		0.4 mg/kg	3.22	1.288 mg/kg	0.000129 %		
24	cadmium { cadmium oxide }	048-002-00-0	215-146-2		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
25	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8		<1.2 mg/kg	1.923	<2.308 mg/kg	<0.000231 %		<LOD
26	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7		14 mg/kg	1.126	15.762 mg/kg	0.00158 %		
27	lead { lead chromate }	082-004-00-2	231-846-0	1	25 mg/kg	1.56	38.995 mg/kg	0.0025 %		
28	mercury { mercury dichloride }	080-010-00-X	231-299-8		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
29	nickel { nickel chromate }	028-035-00-7	238-766-5		12 mg/kg	2.976	35.715 mg/kg	0.00357 %		
30	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<LOD
31	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		39 mg/kg	1.785	69.622 mg/kg	0.00696 %		
32	zinc { zinc chromate }	024-007-00-3	236-878-9		44 mg/kg	2.774	122.062 mg/kg	0.0122 %		
Total:								0.0413 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: DS02

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

Sample details

Sample name:	LoW Code:
DS02	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.25 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
12%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **12% No Moisture Correction applied (MC)**

#	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									
1	pH				8.3	pH		8.3	pH	8.3 pH		
2	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
3	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
4	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
5	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
6	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
7	phenanthrene				2.3	mg/kg		2.3	mg/kg	0.00023 %		
		201-581-5	85-01-8									
8	anthracene				0.64	mg/kg		0.64	mg/kg	0.000064 %		
		204-371-1	120-12-7									
9	fluoranthene				5.8	mg/kg		5.8	mg/kg	0.00058 %		
		205-912-4	206-44-0									
10	pyrene				5.2	mg/kg		5.2	mg/kg	0.00052 %		
		204-927-3	129-00-0									
11	benzo[a]anthracene				3.4	mg/kg		3.4	mg/kg	0.00034 %		
	601-033-00-9	200-280-6	56-55-3									
12	chrysene				2.1	mg/kg		2.1	mg/kg	0.00021 %		
	601-048-00-0	205-923-4	218-01-9									
13	benzo[b]fluoranthene				3.2	mg/kg		3.2	mg/kg	0.00032 %		
	601-034-00-4	205-911-9	205-99-2									
14	benzo[k]fluoranthene				1.6	mg/kg		1.6	mg/kg	0.00016 %		
	601-036-00-5	205-916-6	207-08-9									
15	benzo[a]pyrene; benzo[def]chrysene				3.3	mg/kg		3.3	mg/kg	0.00033 %		
	601-032-00-3	200-028-5	50-32-8									
16	indeno[123-cd]pyrene				1.7	mg/kg		1.7	mg/kg	0.00017 %		
		205-893-2	193-39-5									
17	dibenz[a,h]anthracene				0.46	mg/kg		0.46	mg/kg	0.000046 %		
	601-041-00-2	200-181-8	53-70-3									

#	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							
18	benzo[ghi]perylene	205-883-8	191-24-2		2 mg/kg		2 mg/kg	0.0002 %		
19	coronene	205-881-7	191-07-1		0.92 mg/kg		0.92 mg/kg	0.000092 %		
20	arsenic { arsenic trioxide }	033-003-00-0	215-481-4		12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
21	barium { barium sulfate }	231-784-4	7727-43-7		96 mg/kg	1.7	163.154 mg/kg	0.0163 %		
22	beryllium { beryllium oxide }	004-003-00-8	215-133-1		0.86 mg/kg	2.775	2.387 mg/kg	0.000239 %		
23	boron { diboron trioxide }	005-008-00-8	215-125-8		0.4 mg/kg	3.22	1.288 mg/kg	0.000129 %		
24	cadmium { cadmium oxide }	048-002-00-0	215-146-2		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
25	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8		<1.2 mg/kg	1.923	<2.308 mg/kg	<0.000231 %		<LOD
26	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7		20 mg/kg	1.126	22.518 mg/kg	0.00225 %		
27	lead { lead chromate }	082-004-00-2	231-846-0	1	31 mg/kg	1.56	48.354 mg/kg	0.0031 %		
28	mercury { mercury dichloride }	080-010-00-X	231-299-8		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
29	nickel { nickel chromate }	028-035-00-7	238-766-5		13 mg/kg	2.976	38.691 mg/kg	0.00387 %		
30	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<LOD
31	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		38 mg/kg	1.785	67.837 mg/kg	0.00678 %		
32	zinc { zinc chromate }	024-007-00-3	236-878-9		51 mg/kg	2.774	141.481 mg/kg	0.0141 %		
33	benzene	601-020-00-8	200-753-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
34	toluene	601-021-00-3	203-625-9		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
35	ethylbenzene	601-023-00-4	202-849-4		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
36	o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
37	TPH (C6 to C40) petroleum group		TPH		101 mg/kg		101 mg/kg	0.0101 %		
Total:								0.0627 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
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 because No PIDs

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0101%)

Classification of sample: DS03

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

Sample details

Sample name:	LoW Code:
DS03	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.45 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
6.5%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 6.5% No Moisture Correction applied (MC)

#	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							
1	pH				10.6 pH		10.6 pH	10.6 pH		
2	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
3	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	acenaphthylene				0.31 mg/kg		0.31 mg/kg	0.000031 %		
5	acenaphthene				0.48 mg/kg		0.48 mg/kg	0.000048 %		
6	fluorene				0.51 mg/kg		0.51 mg/kg	0.000051 %		
7	phenanthrene				4.5 mg/kg		4.5 mg/kg	0.00045 %		
8	anthracene				1.4 mg/kg		1.4 mg/kg	0.00014 %		
9	fluoranthene				8.9 mg/kg		8.9 mg/kg	0.00089 %		
10	pyrene				7.8 mg/kg		7.8 mg/kg	0.00078 %		
11	benzo[a]anthracene				4.7 mg/kg		4.7 mg/kg	0.00047 %		
12	chrysene				2.9 mg/kg		2.9 mg/kg	0.00029 %		
13	benzo[b]fluoranthene				4.1 mg/kg		4.1 mg/kg	0.00041 %		
14	benzo[k]fluoranthene				2.2 mg/kg		2.2 mg/kg	0.00022 %		
15	benzo[a]pyrene; benzo[def]chrysene				4.5 mg/kg		4.5 mg/kg	0.00045 %		
16	indeno[123-cd]pyrene				2.2 mg/kg		2.2 mg/kg	0.00022 %		
17	dibenz[a,h]anthracene				0.6 mg/kg		0.6 mg/kg	0.00006 %		

#	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								
18	benzo[ghi]perylene	205-883-8	191-24-2		2.5 mg/kg		2.5 mg/kg	0.00025 %			
19	coronene	205-881-7	191-07-1		1.4 mg/kg		1.4 mg/kg	0.00014 %			
20	arsenic { arsenic trioxide }	033-003-00-0	215-481-4		6.7 mg/kg	1.32	8.846 mg/kg	0.000885 %			
21	barium { barium sulfate }	231-784-4	7727-43-7		69 mg/kg	1.7	117.267 mg/kg	0.0117 %			
22	beryllium { beryllium oxide }	004-003-00-8	215-133-1		0.47 mg/kg	2.775	1.304 mg/kg	0.00013 %			
23	boron { diboron trioxide }	005-008-00-8	215-125-8		0.5 mg/kg	3.22	1.61 mg/kg	0.000161 %			
24	cadmium { cadmium oxide }	048-002-00-0	215-146-2		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
25	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8		<1.2 mg/kg	1.923	<2.308 mg/kg	<0.000231 %			<LOD
26	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7		16 mg/kg	1.126	18.014 mg/kg	0.0018 %			
27	lead { lead chromate }	082-004-00-2	231-846-0	1	22 mg/kg	1.56	34.316 mg/kg	0.0022 %			
28	mercury { mercury dichloride }	080-010-00-X	231-299-8		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %			<LOD
29	nickel { nickel chromate }	028-035-00-7	238-766-5		11 mg/kg	2.976	32.739 mg/kg	0.00327 %			
30	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %			<LOD
31	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		23 mg/kg	1.785	41.059 mg/kg	0.00411 %			
32	zinc { zinc chromate }	024-007-00-3	236-878-9		48 mg/kg	2.774	133.159 mg/kg	0.0133 %			
33	benzene	601-020-00-8	200-753-7		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
34	toluene	601-021-00-3	203-625-9		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
35	ethylbenzene	601-023-00-4	202-849-4		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
36	o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
37	TPH (C6 to C40) petroleum group		TPH		394 mg/kg		394 mg/kg	0.0394 %			
Total:									0.0828 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
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 because No PIDs

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0394%)

Classification of sample: DS04

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

Sample details

Sample name:	LoW Code:
DS04	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.30 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.3%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **9.3% No Moisture Correction applied (MC)**

#	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									
1	pH				10.7	pH		10.7	pH	10.7 pH		
2	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
3	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
4	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
5	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
6	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
7	phenanthrene				0.38	mg/kg		0.38	mg/kg	0.000038 %		
		201-581-5	85-01-8									
8	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
9	fluoranthene				0.96	mg/kg		0.96	mg/kg	0.000096 %		
		205-912-4	206-44-0									
10	pyrene				0.89	mg/kg		0.89	mg/kg	0.000089 %		
		204-927-3	129-00-0									
11	benzo[a]anthracene				0.65	mg/kg		0.65	mg/kg	0.000065 %		
	601-033-00-9	200-280-6	56-55-3									
12	chrysene				0.44	mg/kg		0.44	mg/kg	0.000044 %		
	601-048-00-0	205-923-4	218-01-9									
13	benzo[b]fluoranthene				0.68	mg/kg		0.68	mg/kg	0.000068 %		
	601-034-00-4	205-911-9	205-99-2									
14	benzo[k]fluoranthene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
	601-036-00-5	205-916-6	207-08-9									
15	benzo[a]pyrene; benzo[def]chrysene				0.7	mg/kg		0.7	mg/kg	0.00007 %		
	601-032-00-3	200-028-5	50-32-8									
16	indeno[123-cd]pyrene				0.42	mg/kg		0.42	mg/kg	0.000042 %		
		205-893-2	193-39-5									
17	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									

#	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								
18	benzo[ghi]perylene	205-883-8	191-24-2		0.52 mg/kg		0.52 mg/kg	0.000052 %			
19	coronene	205-881-7	191-07-1		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
20	arsenic { arsenic trioxide }	033-003-00-0	215-481-4		9.7 mg/kg	1.32	12.807 mg/kg	0.00128 %			
21	barium { barium sulfate }	231-784-4	7727-43-7		99 mg/kg	1.7	168.252 mg/kg	0.0168 %			
22	beryllium { beryllium oxide }	004-003-00-8	215-133-1		0.69 mg/kg	2.775	1.915 mg/kg	0.000191 %			
23	boron { diboron trioxide }	005-008-00-8	215-125-8		0.5 mg/kg	3.22	1.61 mg/kg	0.000161 %			
24	cadmium { cadmium oxide }	048-002-00-0	215-146-2		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
25	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8		<1.2 mg/kg	1.923	<2.308 mg/kg	<0.000231 %			<LOD
26	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7		17 mg/kg	1.126	19.14 mg/kg	0.00191 %			
27	lead { lead chromate }	082-004-00-2	231-846-0	1	66 mg/kg	1.56	102.948 mg/kg	0.0066 %			
28	mercury { mercury dichloride }	080-010-00-X	231-299-8		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %			<LOD
29	nickel { nickel chromate }	028-035-00-7	238-766-5		14 mg/kg	2.976	41.668 mg/kg	0.00417 %			
30	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %			<LOD
31	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		25 mg/kg	1.785	44.63 mg/kg	0.00446 %			
32	zinc { zinc chromate }	024-007-00-3	236-878-9		52 mg/kg	2.774	144.256 mg/kg	0.0144 %			
33	benzene	601-020-00-8	200-753-7		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
34	toluene	601-021-00-3	203-625-9		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
35	ethylbenzene	601-023-00-4	202-849-4		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
36	o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
37	TPH (C6 to C40) petroleum group		TPH		49 mg/kg		49 mg/kg	0.0049 %			
Total:									0.0565 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
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 because No PIDs

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0049%)

Classification of sample: DS05

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

Sample details

Sample name:	LoW Code:
DS05	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.25 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.5%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.5% No Moisture Correction applied (MC)

#	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							
1	pH				9.6 pH		9.6 pH	9.6 pH		
2	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
3	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4	acenaphthylene				0.54 mg/kg		0.54 mg/kg	0.000054 %		
5	acenaphthene				0.43 mg/kg		0.43 mg/kg	0.000043 %		
6	fluorene				0.44 mg/kg		0.44 mg/kg	0.000044 %		
7	phenanthrene				4 mg/kg		4 mg/kg	0.0004 %		
8	anthracene				1.4 mg/kg		1.4 mg/kg	0.00014 %		
9	fluoranthene				8.9 mg/kg		8.9 mg/kg	0.00089 %		
10	pyrene				8.5 mg/kg		8.5 mg/kg	0.00085 %		
11	benzo[a]anthracene				6.7 mg/kg		6.7 mg/kg	0.00067 %		
12	chrysene				4.3 mg/kg		4.3 mg/kg	0.00043 %		
13	benzo[b]fluoranthene				8.3 mg/kg		8.3 mg/kg	0.00083 %		
14	benzo[k]fluoranthene				4.4 mg/kg		4.4 mg/kg	0.00044 %		
15	benzo[a]pyrene; benzo[def]chrysene				8.8 mg/kg		8.8 mg/kg	0.00088 %		
16	indeno[123-cd]pyrene				5.2 mg/kg		5.2 mg/kg	0.00052 %		
17	dibenz[a,h]anthracene				1.4 mg/kg		1.4 mg/kg	0.00014 %		

#	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								
18	benzo[ghi]perylene	205-883-8	191-24-2		6.5 mg/kg		6.5 mg/kg	0.00065 %			
19	coronene	205-881-7	191-07-1		3.1 mg/kg		3.1 mg/kg	0.00031 %			
20	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	12 mg/kg	1.32	15.844 mg/kg	0.00158 %			
21	barium { barium sulfate }	231-784-4	7727-43-7		150 mg/kg	1.7	254.928 mg/kg	0.0255 %			
22	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9	1.1 mg/kg	2.775	3.053 mg/kg	0.000305 %			
23	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2	0.8 mg/kg	3.22	2.576 mg/kg	0.000258 %			
24	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 %			<LOD
25	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<1.2 mg/kg	1.923	<2.308 mg/kg	<0.000231 %			<LOD
26	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	23 mg/kg	1.126	25.895 mg/kg	0.00259 %			
27	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	95 mg/kg	1.56	148.182 mg/kg	0.0095 %			
28	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %			<LOD
29	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7	17 mg/kg	2.976	50.597 mg/kg	0.00506 %			
30	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %			<LOD
31	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	38 mg/kg	1.785	67.837 mg/kg	0.00678 %			
32	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9	83 mg/kg	2.774	230.254 mg/kg	0.023 %			
33	benzene	601-020-00-8	200-753-7	71-43-2	<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
34	toluene	601-021-00-3	203-625-9	108-88-3	<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
35	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
36	o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	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]	<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
37	TPH (C6 to C40) petroleum group		TPH		172 mg/kg		172 mg/kg	0.0172 %			
Total:									0.1 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
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 because No PIDs

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0172%)

Appendix A: Classifier defined and non EU CLP determinands

• 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

• **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.

Data source: <http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en>

Data source date: 16 Jun 2014

Hazard Statements: STOT SE 2; H371

• **barium sulfate** (EC Number: 231-784-4, CAS Number: 7727-43-7)

Description/Comments: No hazard statements

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/89983> Sigma Aldrich SDS dated 15/4/19

Data source date: 02 Apr 2020

Hazard Statements: None.

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

EU CLP index number: 601-023-00-4

Description/Comments:

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

03 Jun 2015 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

• **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

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. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

barium {barium sulfate}

No hexavalent chromium noted.

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics (edit as required)

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 (edit as required)

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. (edit as required) 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 (edit as required)

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments (edit as required)

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. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil. (edit as required)

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.1, May 2018**

HazWasteOnline Classification Engine Version: 2022.25.4995.9469 (25 Jan 2022)

HazWasteOnline Database: 2022.25.4995.9469 (25 Jan 2022)

This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018

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 2019 - UK: 2019 No. 720 of 27th March 2019

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

17th ATP - Regulation (EU) 2021/849 of 11 March 2021