



**Land at Fort Road East
Wick
Littlehampton
West Sussex**

**Quantitative Ground Contamination
Risk Assessment**

Report Beneficiary:

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EXECUTIVE SUMMARY

The following presents a summary of the main findings of the report. It is emphasised that no reliance should be placed on any individual point until the whole of the report has been read as other sections of the report may put into context the information contained herein.

The development proposals for the site at Fort Road East, Wick, Littlehampton, West Sussex are understood to comprise the demolition of the existing building on site and the construction of a warehouse/office building.

The preliminary contamination risk assessment previously undertaken by Ashdown Site Investigation Ltd. identified potential pollutant linkages associated with the historical uses of the site.

Reference to geological datasets indicates that the site is expected to be underlain by the Raised Beach Deposits and Intertidal Deposits overlying the White Chalk Subgroup. The ground investigation confirmed the underlying soils to comprise a variable thickness of made ground, overlying Raised Beach Deposits and Intertidal Deposits and, locally in turn, the White Chalk Subgroup deposits.

The Raised Beach Deposits and Intertidal Deposits is classed as a Secondary A Aquifer. The White Chalk Subgroup is classed as a Principal Aquifer. The site does not lie within an Environment Agency Source Protection Zone. Groundwater was not encountered during the short duration of the ground investigation.

Whilst the concentrations of heavy metals and PAH compounds recorded are not considered to pose an unacceptable risk to end users, asbestos fibres were recorded to be present within the shallow made ground soils.

The made ground is therefore considered to pose an unacceptable risk to future end users and remedial measures are considered to be necessary within proposed soft landscaped areas. Consideration may need to be given to the potential presence of a tree root protection zone relating to an off-site tree in the design of remedial measures.

The concentrations of petroleum hydrocarbons within some of the made ground soils also exceed the threshold values for the use of PE water supply pipework. Southern Water should be consulted as to the appropriate water supply pipework to be used as part of the development.

The remedial measures for the site should be detailed within a remediation strategy once Local Planning Authority approval has been received for the risk assessment.

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	SITE CONTEXT	2
2.1	Site Description	2
2.2	Geological and Hydrogeological Data	2
3.	GROUND INVESTIGATION	4
3.1	Introduction	4
3.2	Exploratory Holes	4
3.3	Sampling	4
3.4	Installations	4
3.5	Laboratory Testing	5
4.	GROUND CONDITIONS	6
4.1	Stratigraphy	6
4.2	Stability	6
4.3	Groundwater Conditions	7
5.	QUANTITATIVE CONTAMINATION ASSESSMENT	8
5.1	Introduction	8
5.2	Preliminary Conceptual Model	8
5.3	Assessment Strategy	8
5.4	Analysis of Contamination Test Results	9
5.5	Made Ground	9
5.6	Historical Use of the Site	10
5.7	Quantitative Contamination Risk Assessment	12
5.8	Risks to Other Potential Receptors	12
5.9	Recommendations	12
5.10	Discovery Strategy	13
5.11	Handling and Disposal of Waste	13
5.12	Local Authority Approval	16

FIGURES AND APPENDICES

FIGURES

- Figure 1 Site Location Plan
- Figure 2 Site Plan

APPENDIX A

- Proposed Development Layout

APPENDIX B

- Exploratory Hole Notes
- Exploratory Hole Records
- DPSH-B Dynamic Probe Records

APPENDIX C

- Contamination Laboratory Test Results

APPENDIX D

- Classification of Probability, Consequence and Risk

APPENDIX E

- Preliminary Conceptual Model

APPENDIX F

- Quantitative Conceptual Model

APPENDIX G

- HazWaste Online Output Sheets

1. INTRODUCTION

It is proposed to redevelop the site at Fort Road East, Wick, Littlehampton, West Sussex. The development proposals are understood to comprise the demolition of the existing building on site and the construction of a warehouse/office building. A copy of the proposed development layout is included as Appendix A.

Ashdown Site Investigation Ltd. has previously undertaken a preliminary ground contamination risk assessment report¹ for the site. The assessment identified potential pollutant linkages associated with the historical use of the site as a depot, destructor and works, together with historical demolition and redevelopment works at the site.

Ashdown Site Investigation Ltd. was requested to undertake a ground investigation and to quantify the potential risks identified by the preliminary assessment to support a planning application for the site.

The specific objectives of the works were to:

- a) Investigate the shallow ground and groundwater conditions prevailing at the site;
- b) Test for the presence of contaminants identified by the preliminary conceptual model;
- c) Develop a quantitative conceptual model of the site identifying pollutant linkages relating to end users of the proposed development works, to controlled waters beneath and in the vicinity of the site, or to other off-site sensitive receptors, if identified; and
- d) Provide an indicative assessment of the waste classification of the materials tested.

The scope of the works covered by this report, and the terms and conditions under which they were undertaken, were set out within the offer letter Q10988/rev1, dated 1st July 2021. The instruction to proceed was received from the client.

This report must be read in conjunction with the preliminary ground contamination risk assessment report for the site.

Further works are planned to be undertaken to investigate the deep ground conditions and a geotechnical assessment report will be issued under separate cover.

¹ Project Ref: P15267, Report Ref: R14930, dated 6th August 2021
Land at Fort Road East, Wick, Littlehampton, West Sussex

2. SITE CONTEXT

2.1 Site Description

The site comprises an approximately triangular shaped plot of land located at Fort Road East, Wick, Littlehampton, West Sussex and is centred on the approximate Ordnance Survey national grid reference TQ 0226 0265. A site location plan is presented as Figure 1.

At the time of the intrusive works, the site remained as it was during the walkover survey and comprised a single storey building located centrally on the site, with small extensions on the southern and eastern faces of the building, with concrete yard area present to the east of the building.

A soft landscaped area was present to the west of the building and this sloped down significantly toward road level, approximately 1.5m below the level of the building. The concrete area in the south of the site also sloped down towards the road.

A Biffa waste depot is located to the south east of the site. Residential properties and associated gardens are present to the north of the site, open verge land and Fort Road East are present to the west and south west of the site, with a small commercial estate present on the south western side of Fort Road East.

2.2 Geological and Hydrogeological Data

The below provides a summary of the geological and hydrogeological setting of the site, further information is provided within the preliminary risk assessment report.

2.2.1 Expected Geology and Aquifer Designation

The stratigraphic succession that may be expected to underlie the site is presented in the following table.

Table 1. Expected Strata and Aquifer Designation

Type	Stratum	Aquifer Designation
Superficial	Raised Beach Deposits and Intertidal Deposits.	Secondary A Aquifer
Bedrock	White Chalk Subgroup	Principal Aquifer

The Raised Beach Deposits consist of marine sand, silt, and pebbly sand, with sandy gravel and 'clean' flint shingle. For the most part the deposit is either bedded or chaotic and may be in the form of dunes, sheets or banks. These deposits are above the level of the present shoreline as a result of earth movement or a general fall in sea level.

The Intertidal Deposits represent present day intertidal mud flats. Typically, they comprise very weak (soft) and highly compressible organic clay and silt, laterally grading into fine to coarse sand and gravel in creek (channel) beds.

The White Chalk Subgroup comprises a weak, white chalk locally with flint bands together with scattered nodular flints. It may be expected to have a deeply convoluted upper surface as a result of solution weathering.

R15030

2.2.2 Radon

Table 2. Radon

Section	Risk Assessment
Radon Affected Areas	The site is reported to be within an area where between 1% and 3% of properties are above the action level requiring radon gas protection measures to be installed in new buildings.
Radon Protection Measures	No radon protection measures are reported by the British Geological Survey to be necessary in the construction of new dwellings or extensions.

2.2.3 Groundwater Abstractions

The closest groundwater abstraction licence is recorded to lie 458m to the south west of the site. The licence is for general washing and process washing.

2.2.4 Surface Water Abstractions

The closest surface water abstraction licence is recorded to lie 698m to the south west of the site. The licence is for spray irrigation.

2.2.5 Potable Abstractions

No potable abstraction licences are indicated within 2km of the site.

2.2.6 Groundwater Source Protection Zones

The site does not lie within an Environment Agency Source Protection Zone.

2.2.7 Surface Water Features

No significant surface water features are recorded within 250m of the site.

3. GROUND INVESTIGATION

3.1 Introduction

The ground investigation comprised the excavation of a series of dynamic sampler boreholes and a hand dug pit. Monitoring standpipes were installed in selected exploratory holes to enable future monitoring. The intrusive work was carried out 20th September 2021. The exploratory hole locations are shown on Figure 2.

Descriptions of the strata encountered and comments on groundwater conditions are shown in the exploratory hole records given in Appendix B, together with notes to assist in their interpretation.

3.2 Exploratory Holes

3.2.1 *Dynamic Sampler Boreholes*

Five boreholes, designated WS01 to WS05, were each drilled to a depth of 3.00m below ground level.

The boreholes were formed by a series of 1.0m long, open ended, hollow steel tubes of up to 100mm diameter, each containing a removable plastic liner. The tubes, progressively reducing in diameter, were driven into the ground by means of a track-mounted drop weight. Each tube was extracted from the ground using a hydraulically operated jack and the enclosed sample was recovered in its plastic liner.

The system enables sub-samples to be taken for detailed examination and laboratory testing.

3.2.2 *Trial Pit*

A single trial pit, designated TP01, was dug using hand tools to a depth of 0.80m below ground level to enable representative samples to be obtained.

3.3 Sampling

Disturbed samples of soil were taken at the depths shown in the exploratory hole records and were collected in plastic bags, plastic tubs or amber jars fitted with gas tight lids.

On collection the amber jars were stored in cool boxes with cooling blocks to maintain temperatures below 4°C until transferred to refrigerators upon return to the office and subsequently forwarded to the external accredited chemical testing laboratory.

3.4 Installations

Monitoring standpipes were installed to depths of 3.00m in boreholes WS01, WS03 and WS04 to enable future monitoring. Descriptions of the installations are shown on the exploratory hole records in Appendix B.

3.5 Laboratory Testing

Laboratory testing was scheduled by Ashdown Site Investigation Ltd. Results from the laboratory tests are provided in Appendix C.

3.5.1 Chemical Testing

Chemical (contamination) testing of selected samples was undertaken by a laboratory with recognised (UKAS and MCERTS) accreditation for quality control.

4. GROUND CONDITIONS

4.1 Stratigraphy

4.1.1 Surface Covering

In general, each of the boreholes were excavated through a surface cover of concrete some 150mm to 200mm in thickness. A shallow thickness of asphalt (50mm) was encountered overlying the concrete in borehole WS01.

Within TP01 topsoil some 200mm thick was recorded.

No specific surfacing materials were encountered in borehole WS04.

4.1.2 Made Ground

Made ground, generally comprising gravelly silty sand and gravelly sandy silty clay, was recorded to the full depth of trial pit TP01 and to depths of between 0.40m and 1.10m below ground level in the boreholes. The gravel fraction comprised variable quantities of brick, flint, mortar, glass, ceramic, metal, plastic, charcoal-like and clinker-like material.

4.1.3 Raised Beach Deposits and Intertidal Deposits

Underlying the made ground within boreholes WS02, WS03, WS04 and WS05, the investigation generally progressed into undisturbed generally firm varying stiff, and locally soft, slightly gravelly sandy clay deposits, extending to depths of between 1.30m and 2.40m below ground level.

Loose varying medium dense sand soils, with a variable proportion of silt and gravel, was recorded beneath the made ground in borehole WS01 and beneath the clay soils in the remaining boreholes. The in situ dynamic probing indicate the potential presence of loose soils to depths of between 2.00m and 5.40m below ground level.

With the exception of borehole WS01, these soils persisted to the full depth of the investigation and are considered to represent the Raised Beach Deposits and Intertidal Deposits indicated on the published geological map.

4.1.4 White Chalk Subgroup

Beneath the Raised Beach Deposits and Intertidal Deposits, where penetrated in WS01, the borehole encountered structureless chalk. These deposits, considered to be representative of the White Chalk Subgroup indicated on the published geology map, continued to the full depth of the borehole.

4.2 Stability

Instability was recorded locally within the coarse-grained soils encountered.

4.3 Groundwater Conditions

Each of the exploratory holes was recorded to be dry during the short duration of the ground investigation.

It should be noted that water levels within the exploratory holes may not have equilibrated with the groundwater table at the time the readings were recorded and that groundwater levels should be expected to fluctuate seasonally.

5. QUANTITATIVE CONTAMINATION ASSESSMENT

5.1 Introduction

The risk assessment for the site considers the sources of contamination identified, the receptors that may be present in view of the development proposals and the contaminant pathways by which these may be linked.

A complete pollutant linkage is only deemed to exist where all three are present and a site is considered suitable for use where no complete pollutant linkages are identified.

Where a complete pollutant linkage is considered to be present, an assessment of the level of risk associated with the pollutant linkage has been carried out in line with published guidance².

The level of risk is determined using the risk matrix presented in the following table. Classifications of probability, consequence and risk are presented in Appendix D.

Table 3. Risk Assessment Matrix

		Probability			
		Very Low	Low	Moderate	High
Consequence	Very Minor	Negligible	Very Low	Low	Low/Moderate
	Minor	Very Low	Low	Low/Moderate	Moderate
	Moderate	Low	Low/Moderate	Moderate	High
	Severe	Low/Moderate	Moderate	High	Very High

5.2 Preliminary Conceptual Model

The preliminary conceptual model for the proposed development, generated as part of the preliminary risk assessment, is presented in Appendix E.

5.3 Assessment Strategy

The investigation comprised a non-targeted spread of exploratory holes to provide spatial coverage of the site.

Soils representing the shallow made ground were sampled and tested from each exploratory hole for the contaminants of concern identified by the preliminary conceptual model.

In addition, samples of made ground and deeper undisturbed soils were tested for concentrations of petroleum hydrocarbons to assess the potential for such contamination as a result of the historical use of the site.

² Contaminated Land Risk Assessment: A guide to good practice, CIRIA C552, 2001.

5.4 Analysis of Contamination Test Results

Comparison of the results of the laboratory testing has been made against the 'Suitable For Use Levels' (S4UL)³ or, in lieu of an S4UL being developed for lead, the Category 4 Screening Level (C4SL)⁴. These are collectively referred to as soil screening values (SSV).

In view of the development proposal, the SSV utilised in this assessment are those calculated for the generic "Commercial" land use⁵ with the amendments discussed within the LQM/CIEH report. The critical receptor for this land use is considered to be a full time female staff member working at the site between the ages of 17 and 65. Exposure routes that are considered include the potential for direct ingestion of the soil, the outdoor and indoor ingestion of dust and the potential inhalation of dust and vapours.

For the assessment of risk to controlled waters a qualitative assessment has been undertaken based upon the concentrations of contaminants recorded within the soil samples and the information obtained about the sensitivity of the underlying strata or nearby surface water receptors.

5.5 Made Ground

Five samples of the made ground soils encountered across the site were tested for concentrations of heavy metals and PAH compounds, as well as screened for the presence of asbestos.

The following table summarises the SSV along with the maximum and minimum concentrations of the contaminants tested for from the made ground soils.

Table 4. Summary of Test Results for Made Ground Soils

	Contaminant	SSV (mg/kg)	No. of Samples	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	LOD (mg/kg)	No. of Exceedances
Heavy Metals	Arsenic	640	5	7	15	< 2	0
	Water Soluble Boron	240000	5	<LOD	2	< 1	0
	Cadmium	190	5	<LOD	1.6	< 0.2	0
	Chromium	8600	5	11	28	< 2	0
	Hexavalent Chromium	33	5	<LOD	<LOD	< 2	0
	Copper	68000	5	8	49	< 4	0
	Lead	2330	5	36	877	< 3	0
	Mercury	1100	5	<LOD	<LOD	< 1	0
	Nickel	980	5	6	13	< 3	0
	Selenium	12000	5	<LOD	<LOD	< 3	0
	Zinc	730000	5	41	703	< 3	0

³ Nathanail, C.P, et al., The LQM/CIEH S4ULs for Human Health Risk Assessment, 2015, Land Quality Press, Nottingham. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3071.

⁴ SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. Final Project Report, published by DEFRA, 2014.

⁵ As defined within Science Report SC050021/SR3, January 2009, with the amendments discussed in the LQM/CIEH report.

R15030

	Contaminant	SSV (mg/kg)	No. of Samples	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	LOD (mg/kg)	No. of Exceedances
PAH Compounds (1% SOM)	Naphthalene	190	5	<LOD	<LOD	< 0.1	0
	Acenaphthylene	83000	5	<LOD	0.13	< 0.1	0
	Acenaphthene	84000	5	<LOD	0.59	< 0.1	0
	Fluorene	63000	5	<LOD	0.69	< 0.1	0
	Phenanthrene	22000	5	<LOD	19.1	< 0.1	0
	Anthracene	520000	5	<LOD	3.69	< 0.1	0
	Fluoranthene	23000	5	<LOD	36.8	< 0.1	0
	Pyrene	54000	5	<LOD	35.4	< 0.1	0
	Benz(a)anthracene	170	5	<LOD	9.26	< 0.1	0
	Chrysene	350	5	<LOD	7.68	< 0.1	0
	Benzo(b)fluoranthene	44	5	<LOD	7.58	< 0.1	0
	Benzo(k)fluoranthene	1200	5	<LOD	2.74	< 0.1	0
	Benzo(a)pyrene	35	5	<LOD	6.67	< 0.1	0
	Indeno(123-cd)pyrene	500	5	<LOD	3.86	< 0.1	0
	Dibenz(ah)anthracene	3.5	5	<LOD	1.02	< 0.1	0
	Benzo(ghi)perylene	3900	5	<LOD	3.69	< 0.1	0
	Asbestos	ND	5	ND	Detected	-	1

None of the samples of made ground recorded concentrations of heavy metals or PAH compounds above their respective SSV.

However, the sample of made ground from WS02 recorded the presence of chrysotile asbestos fibres. The presence of asbestos within the made ground is considered to pose an unacceptable risk to the proposed end users of the site where such soils may remain unremediated in areas of soft landscaping.

It is noted that an asbestos survey of existing structures and infrastructure⁶ was beyond the brief of this report. The risk assessment has been undertaken on the basis that should asbestos be identified within buildings or infrastructure, with particular attention to the possible suspected asbestos cement roof and fascia panels, these materials will be removed appropriately by licensed contractors and asbestos materials disposed of in accordance with legal requirements prior to demolition or other works in order to avoid further asbestos contamination of the soils at the site.

At the concentrations recorded, the heavy metals and PAH compounds would not be expected to exhibit significant mobility and are not considered to pose an unacceptable risk to controlled waters beneath the site.

5.6 Historical Use of the Site

Ten sample of made ground and undisturbed soils were tested for concentrations of petroleum hydrocarbons with the results speciated by equivalent carbon weight fractions.

⁶ As defined under Section 5(a) of the Control of Asbestos Regulations, 2012.

R15030

The following table lists the SSV for petroleum hydrocarbon equivalent carbon weight fractions calculated for 1% organic content.

Table 5. SSV for petroleum hydrocarbon equivalent carbon weight fractions

Petroleum Hydrocarbon Fraction	SSV (mg/kg)	Petroleum Hydrocarbon Fraction	SSV (mg/kg)
Aliphatic EC 5-6	3200	Aromatic EC 5-7	26000
Aliphatic EC >6-8	7800	Aromatic EC >7-8	56000
Aliphatic EC >8-10	2000	Aromatic EC >8-10	3500
Aliphatic EC >10-12	9700	Aromatic EC >10-12	16000
Aliphatic EC >12-16	59000	Aromatic EC >12-16	36000
Aliphatic EC >16-35	1600000	Aromatic EC >16-21	28000
Aliphatic EC >35-44	1600000	Aromatic EC >21-35	28000
		Aromatic EC >35-44	28000

Whilst full speciation of the concentrations of petroleum hydrocarbons by aromatic and aliphatic fractions was not undertaken, the results of the testing undertaken can still be compared with the more stringent of the screening values for the respective equivalent carbon weight fraction and, where the concentration recorded is found to be lower, it can be reasonably concluded that no significant risk is present.

Very low concentrations of petroleum hydrocarbons were recorded in the samples tested, all significantly lower than the more conservative SSV for each equivalent carbon weight fraction. The concentrations present decreased with depth at each position, with no detectable concentrations recorded in the deeper samples of made ground or undisturbed soils.

The concentrations of petroleum hydrocarbons present are not considered to pose an unacceptable risk to end users or controlled waters beneath the site.

Comparison of the test results has been undertaken with the threshold values for the use of PE water supply pipework⁷ which indicates that the protection of water supply services is likely to be required, due to the concentrations of heavy range fuels recorded within the sample of made ground from WS03.

However, it is noted that the testing undertaken to date does not encompass all of the contaminants that may be required by water supply companies for assessment purposes.

It is strongly recommended that designers consult with the proposed water supply company to ascertain whether they require further laboratory testing and assessment specific to proposed routes of services.

⁷ Southern Water, Contaminated Land Assessment Guidance
Land at Fort Road East, Wick, Littlehampton, West Sussex

5.7 Quantitative Contamination Risk Assessment

5.7.1 Basis of Assessment

The development is to comprise a new commercial building together with areas of soft landscaping where end users can expect to come into contact with the underlying soils and where soil derived dusts may be generated.

The proposed development layout is presented in Appendix A. Should the proposed development plans be altered, a revised risk assessment may be required.

5.7.2 Contamination Sources Identified

The following source of contamination has been identified by the quantitative contamination risk assessment:

- Made ground containing asbestos fibres and concentrations of petroleum hydrocarbons above the threshold value for the use of PE water supply pipework.

5.7.3 Quantitative Conceptual Model

The quantitative conceptual model for the proposed development is presented in Appendix F.

5.8 Risks to Other Potential Receptors

All construction workers must undertake their own risk assessment, based upon the works to be carried out and the proposed method by which this will be achieved, in accordance with current health and safety legislation. Their assessment should take into account all available information about the site, including that present within this report.

Appropriate working procedures and PPE should be adopted to ensure the health and safety of the site operatives. Instruction should be given in the recognition of potentially hazardous materials. All site personnel should be appropriately briefed on the discovery strategy, presented below, and what actions they must take in the event that further evidence of contamination is identified or suspected.

5.9 Recommendations

As complete pollutant linkages relating to end users have been identified at the site, it is considered that remedial measures will be required as part of the proposed development to sever the pollutant linkages.

Given the source of contamination identified at the site and the limited amount of proposed soft cover, it is considered that the provision of a cover system of suitable soils within all proposed soft landscaped areas, together with any protective measures for incoming water mains, would adequately sever the identified pollutant linkages with end users.

Attention is drawn to the presence of a mature tree located to the north of the site. It is strongly recommended that the local Tree Protection Officer should be consulted to ascertain whether

this tree is subject to tree protection orders, as remedial measures within tree protection zones may need to be specified differently to elsewhere on the site.

The remediation works ultimately adopted should be detailed within a separate remediation strategy, along with a verification plan. This should be produced once this risk assessment report has been reviewed and approved by the appropriate authority.

5.10 Discovery Strategy

In addition to any remedial works, it is also recommended that if, during the course of the site clearance and development works, any materials not previously identified by the investigation that are suspected of being 'contaminants' are encountered, then the following procedure should apply:

- All works in that area should cease and the site manager should be informed.
- Advice should be sought from suitably qualified and experienced personnel as to whether any further site inspection, sampling, testing and/or assessment is deemed necessary.
- If required, the conclusions of any assessment and any proposed remedial works (if required) should be agreed by the local authority.
- If necessary, full details of any remedial works should be included in a verification report for the site.

Suspected 'contamination' may take the following form, though it is noted that this list is not exhaustive and site operatives should ask if they are at all unsure of any findings:

- Soil or water looks oily and/or has an oily odour
- Soil or water has a solvent type of odour
- Significant quantities of man-made materials within fill such as paint cans, car parts, glass fragments
- Suspected asbestos containing materials (insulating boards, cement, loose fibres etc.)
- Significant volumes of clinker like or ashy material
- Sand bags, and/or subsurface concrete structures
- Animal carcasses or evidence of animal burial pits

5.11 Handling and Disposal of Waste

5.11.1 Background to Waste

"A material is considered to be waste when the producer or holder discards it, intends to discard it, or is required to discard it"⁸.

Soils excavated during construction works are therefore generally considered to be waste (as per Example 3 in the *General Guide*) unless they are:

"Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated". These materials are excluded from the Waste Framework Directive (WFD)⁹ (the *General Guide* is based on the WFD).

⁸ Decide if a material is waste or not: general guide, Updated 29th December 2020

<https://www.gov.uk/government/publications/legal-definition-of-waste-guidance/decide-if-a-material-is-waste-or-not>

⁹ 2008 Waste Framework Directive (Directive 2008/98/EC)

Soils that meet the by-product test¹⁰ would also not be considered a waste.

Soils may also be used as a non-waste (on the same site or another site) in accordance with the CL:AIRE code of practice¹¹, but only if the soils meet the four principles for use of materials as a non-waste.

Soils and other materials taken for disposal should be handled, transferred and disposed of as controlled waste in accordance with current waste management^{12,13} and duty of care regulations¹⁴ and comply with current codes of practice¹⁵. Waste transfer notes detailing the site address, the waste type, details of the haulage contractor and full details of the disposal site must be kept by the waste producer.

Specifically, the disposal of any asbestos containing materials should be undertaken by appropriately trained personnel. The disposal of such material and other hazardous waste should be undertaken in accordance with the Hazardous Waste Regulations 2005¹⁶.

It is a legal requirement to correctly assess and classify waste¹⁷. Classification of waste requires analysis of total contaminant concentrations within the soils, as specified in WM3¹⁸: The guidance notes that "Landfill WAC analysis (specifically leaching test results) must **not** be used for waste classification and hazardous waste assessment purposes." Characterisation of the waste in full accordance with current guidance¹⁹ was beyond the scope of this assessment.

5.11.2 Analysis of Laboratory Test Results

Analysis of the results of the laboratory testing was undertaken using the HazWasteOnline™²⁰ tool. The HazWasteOnline tool classifies soils in accordance with European Waste Catalogue (2002) following guidance published by the Environment Agency (WM3). It is noted that the HazWasteOnline tool cannot account for the presence of asbestos.

The output sheets generated by the tool are presented in Appendix G.

The following table summarises the classification of soils tested, the appropriate code from the List of Wastes (LoW) and, where undertaken, the findings of the WAC testing.

¹⁰ As per Section 6.2 of the *General Guide*

¹¹ CL:AIRE Definition of Waste: Development Industry Code of Practice, Version 2, March 2011

¹² The Waste (England and Wales) Regulation 2011

¹³ Section 34, Environmental Protection Act 1990

¹⁴ The Environmental Protection (Duty of Care) Regulations 1991

¹⁵ Waste Duty of Care Code of Practice, Updated 26th November 2018

¹⁶ <https://www.gov.uk/government/publications/waste-duty-of-care-code-of-practice/waste-duty-of-care-code-of-practice>

¹⁷ Hazardous Waste (England and Wales) Regulations 2005

¹⁸ Disposal of waste to landfill, Published 30th January 2020.

¹⁹ <https://www.gov.uk/guidance/dispose-of-waste-to-landfill>

²⁰ Technical Guidance WM3: Waste Classification – Guidance on the assessment of waste, 1st Edition v1.1.GB, Jan 2021

²¹ As discussed in BS EN 14899:2005 Characterisation of waste

²² <https://www.hazwasteonline.com/>

Table 6. Summary of Classification of Samples from HazWasteOnline Analysis

Exploratory Hole Location	Sample Depth (m bgl)	Strata	Classification	Code from LoW	WAC Test Results (where testing undertaken)
TP01	0.30	Made Ground	Non Hazardous	17 05 04	Does not meet Inert WAC
WS02 ^a	0.20	Made Ground	Non Hazardous	17 05 04	-
WS03	0.20	Made Ground	Hazardous	17 05 03*	Meets Hazardous WAC
WS04	0.40	Made Ground	Non Hazardous	17 05 04	
WS05	0.30	Made Ground	Non Hazardous	17 05 04	-

* The asterisk at the end of the code indicates that it is hazardous waste

^a Bundle of chrysotile asbestos fibres encountered in sample

The sample of made ground from WS03 has been classified as hazardous construction and demolition waste, with a code from the List of Wastes (LoW) of 17-05-03* due to the concentrations of zinc within the sample.

The other samples of made ground soils tested have been classified as non-hazardous construction and demolition waste, with a code from the LoW of 17-05-04. However, it is noted that the classification for WS02 does not account for the presence of chrysotile asbestos fibres within the sample.

In relation to asbestos within waste, WM3 states:

"The assessment of asbestos containing waste considers both the presence of asbestos as

- fibres that are free and dispersed, and
- identifiable pieces of asbestos containing material

If the waste contains fibres that are free and dispersed then the waste will be hazardous if the waste material *as a whole* contains 0.1% or more asbestos by weight.

Where waste soils contain identifiable pieces of asbestos containing material (i.e. any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye), these materials should be removed from soil and assessed separately.

The asbestos containing materials will be considered hazardous if the concentration of asbestos within that material is 0.1% or more by mass. It is noted that in general any asbestos cement, insulating board, lagging etc. can be assumed to contain more than 0.1% asbestos by weight and should therefore be treated as hazardous waste.

Where asbestos fibres are present within a soil mass as a whole at greater than 0.1% by weight, or where identifiable pieces of asbestos containing material are present but cannot be removed, then the waste would be regarded as a mixed waste and classified accordingly (see example 1 in the guidance for advice on how to apply list of waste codes to mixed waste). The following codes should be assigned to the asbestos waste as appropriate:

- 17 06 05* Construction material containing asbestos
- 17 06 01* Insulation material containing asbestos

The asterisk (*) at the end of a code indicates that the waste is classified as hazardous. 17 06 05* would normally be used in preference to 17 06 01* for the asbestos in asbestos contaminated soil and stones."

As only one of the five samples screened has recorded asbestos to be present, it would appear unlikely that the mass of asbestos within the soils as a whole would be greater than 0.1%. However, this is likely to require confirmation by undertaking asbestos quantification analysis on the sample from WS02.

All the laboratory test results should be forwarded to the haulier/landfill to agree how soils from different parts of the site are to be handled and establish their correct disposal routes, and what treatment or disposal options are available for the made ground soils.

It is noted that the disposal site has the final decision on whether to accept any materials.

5.12 Local Authority Approval

It is recommended that this report is submitted to the Local Planning Authority to support the planning application for the site. The report may also be required by the warrantor and building control.

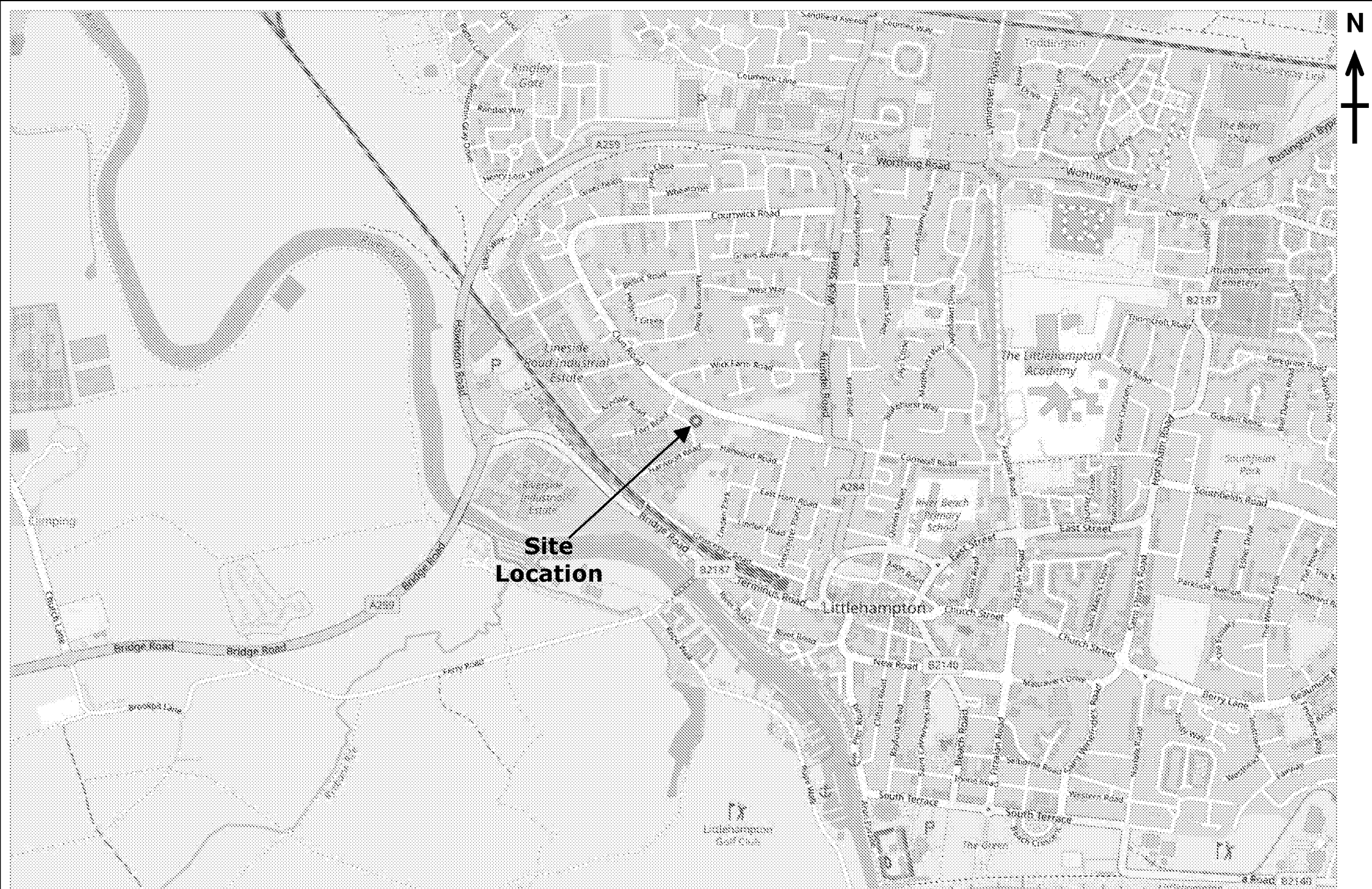
The recommendations made and conclusions drawn should be considered to be provisional until such time as the report has been approved by the regulators and comments have been provided in respect of producing a remediation strategy for the site.

Ashdown Site Investigation Ltd.

FIGURES

Figure 1 Site Location Plan

Figure 2 Site Plan



© OpenStreetMap contributors, CC BY-SA

ASHDOWN SITE INVESTIGATION GROUP LIMITED Site Location Plan	Site Name	Figure No.	Project Reference
	Land at Fort Road East, Wick, Littlehampton, West Sussex	1	P15360



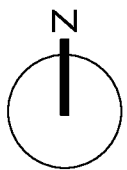
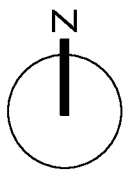
ASHDOWN SITE INVESTIGATION
L·I·M·I·T·E·D

Unit 3
The Old Grain Store
Ditchling Common Business Park
Ditchling
East Sussex
BN6 8SG
01273 483119
contact@ashdownsi.co.uk

Site:
Land at Fort Road East Wick Littlehampton West Sussex
Project Ref:
P15360
Figure No.
2
Drawing Title
Site Plan
Scale
NTS

APPENDIX A

Proposed Development Layout



EL BELOW GROUND ELECTRIC CABLE
(BASED ON UKPN ASSET MAP)

5M 5M EXCLUSION ZONE (ASSUMED)

0.5M 0.5M TOLERANCE ADDED

EXISTING BUILDING, TO BE DEMOLISHED
PROPOSED FOOTPRINT AS PER 'RDJW ARCHITECTS
LIMITED' DRAWING NO.5886SKD1

EXISTING BUILDING FOOTPRINT = 695SQM
PROPOSED BUILDING FOOTPRINT = 1635SQM
PROPOSED OFFICE SPACE = 180SQM (OVER 2 FLOORS)
PROPOSED WAREHOUSE SPACE = 735SQM
(DOUBLE HEIGHT SPACE AND MEZZANINE)

- NOTES:**
- DRAWINGS SHOULD ONLY BE SCALED FOR PLACING ORDERS. DO NOT SCALE FROM THIS DRAWING FOR CONSTRUCTION PURPOSES.
 - ALL DIMENSIONS ARE IN MM, UNLESS STATED OTHERWISE.
 - ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION OR ORDERING.
 - ANY ERRORS OR OMISSIONS TO BE NOTIFIED TO CITIZEN IMMEDIATELY.
 - CONTRACTOR TO READ & CHECK ALL DIMENSIONS PRIOR TO IMPLEMENT ITS REQUIREMENTS PRIOR TO INSTALLATION OF ANY MATERIALS AND COMPONENTS.
 - CITY ENGINEER NOT RESPONSIBLE FOR ANY BUILDING WORK THAT IS CARRIED OUT ON SITE.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL NECESSARY ARCHITECTURAL, STRUCTURAL AND SPECIALIST DRAWINGS, SPECIFICATIONS, SCHEDULES OF WORK AND MM GATA SHEETS.
 - ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE RELEVANT BRITISH AND EUROPEAN STANDARDS, SPECIFICATIONS AND CODES OF PRACTICE.
 - ALL PROPERTY BOUNDARY LINES ARE ASSUMED.
 - IF IN ANY DOUBT, ASK.

B A	07.06.21 01.06.21	Site layout finalised Simplified to only show footprint of building		RS RS	CS CS
	DATE	REVISION		DRN	CHK APPR

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CITYZEN
ARCHITECTURE | ENVIRONMENT

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CIAT
Registered Practice

CUTTINGS LTD
C/O HAWES BUILDING LTD

DESIGNER:
AINARA GOIKOETXEA

PROJECT:
FORT ROAD, LITTLEHAMPTON

PROPOSED SITE PLAN OPTION 2

比例尺:	DATE:
1:100 @ A1	28.05.21

PURPOSE OF DRAWING:

FOR COMMENT

DRAWING: PROJECT REF - ORD NO. (REVISION)

2106-SK-151(B)

APPENDIX B

Exploratory Hole Notes

Exploratory Hole Records

DPSH-B Dynamic Probe Records

NOTES FOR THE INTERPRETATION OF EXPLORATORY HOLE RECORDS

1 Symbols and abbreviations

Samples

U	'Undisturbed' Sample: - 100mm diameter by 450mm long. The number of blows to drive in the sampling tube is shown after the test index letter in the SPT column.
U _o	Sample not obtained
U*	Full penetration of sample not obtained
Pi	Piston Sample: 'Undisturbed' sample 100mm diameter by 600mm long.
D	Disturbed Sample
R	Root Sample
B	Bulk Disturbed Sample
W	Water Sample
J	Jar Sample (sample taken in amber glass jar fitted with gas tight lid)
T	Tub Sample
Vi	Vial Sample

In situ Testing

S	Standard penetration test (SPT): Using the split spoon sampler.
C	Standard Penetration Test (SPT): using a solid cone instead of the sampler - conducted usually in coarse grained soils or weak rocks.
V	Shear Vane Test: Undrained shear strength (cohesion) (kN/m ²) shown within the Vane/Pen Test and N Value column.
H	Hand penetrometer Test: Undrained shear strength (cohesion) (kN/m ²) shown within the Vane/Pen Test and N Value column.
P	Perth Penetrometer Test: Number of blows for 300mm penetration shown under Vane/Pen Test and N Value column.

Excavation Method

CP	Cable Percussion Borehole
WLS	Dynamic Sampler Borehole using windowless sampler tubes
WS	Dynamic Sampler Borehole using window sampler tubes
TP	Trial Pit excavated using mechanic excavator
HDP	Trial Pit excavated using hand tools

2 Soil Description

Description and classification of soils has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of soil, Part 1 Identification and description (BS EN ISO 14688-1) and Part 2 Principles of classification (BS EN 14688-2) as well as the BS5930 code of Practice for Ground Investigations.

3 Rock Description

Description and classification of rocks has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of rock, Part 1 Identification and classification (BS EN ISO 14689-1) as well as the BS5930 code of Practice for Ground Investigations. TCR – Total Core Recovery, SCR – Solid Core Recovery, RQD – Rock Quality Designation, NI – Non Intact, If – indicative fracture spacing (min/ave/max), FI – Fracture Index.

4 Chalk Description

Chalk description is based on BS EN ISO 14688, BS EN ISO 14689 and BS5930. The classification of chalk generally follows the guidance offered by the Construction Industry Research and Information Association (CIRIA) C574, 'Engineering in Chalk'. This is based on assessment of chalk density, discontinuity and aperture spacing, and the proportion of intact chalk to silt of chalk.

Site Name: Land at Fort Road East, Wick, Littlehampton, West Sussex

Job Number: P15360

Start Date: 20/09/2021

End Date: 20/09/2021

Borehole Number: **WS01**

Sheet 1 of 1

Standpipe		Samples and In Situ Testing		Dynamic Probe		Legend		Depth		Stratum Description	
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	0	5	10	15	20	25	30	
J T	0.20										Asphalt.
D	0.35										Concrete.
J T	0.50										MADE GROUND: Orange brown and grey mottled gravelly silty sand.
D	0.60										Gravel is angular to rounded fine to coarse flint.
											Medium dense orange brown slightly gravelly fine to coarse SAND with occasional pockets of clay. Gravel is angular to subrounded fine to coarse flint. (Raised Beach Deposits and Intertidal Deposits)
J T	1.20										Medium dense brown very gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to medium flint. (Raised Beach Deposits and Intertidal Deposits)
D	1.30										becoming cream mottled brown with no pockets of clay below 1.00m depth.
D	1.90										becoming loose below 1.90m depth.
J T	2.30										Structureless CHALK recovered as cream slightly gravelly slightly sandy silt. Gravel is off white. (White Chalk Subgroup, Grade Dm)
D	2.50										
D	2.90										
											End of borehole at 3.00m

Remarks
Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: Standpipe installed to 3.00m depth; 3.00m to 1.00m slotted pipe with gravel surround; 1.00m to ground level plain pipe with bentonite seal; completed with end cap and security cover concreted flush with ground surface.

Excavation Method: WLS

Borehole Diameter: Various

Made By: KS

Site Name: Land at Fort Road East, Wick, Littlehampton, West Sussex

Job Number: P15360

Start Date: 20/09/2021

End Date: 20/09/2021

Borehole Number: **WS02**

Sheet 1 of 1

Standpipe		Samples and In Situ Testing			Dynamic Probe						Depth		Stratum Description	
	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	0	5	10	15	20	25	30	Legend		
													0.00	Concrete.
	J T	0.20											0.15	MADE GROUND: Grey with black staining slightly gravelly slightly sandy clay. Gravel is angular to subrounded fine to coarse flint and brick.
	J T	0.40											0.35	MADE GROUND: Light brown slightly gravelly sandy clay. Gravel is angular to subrounded fine to coarse flint.
	D	0.50												
													0.70	Firm to stiff brown mottled orange brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint. (Raised Beach Deposits and Intertidal Deposits)
	J T	0.80		155										
	H	0.80												
	D	0.90												
	V	1.00	100											
	H	1.20	100											
	D	1.40												
	H	1.40	75											
	J T	1.50												
	H	1.60	60											
														with a pocket of silty sandy between 1.70m and 1.75m depth.
	D	1.80												
	H	1.80	60										1.95	Loose to medium dense orange brown silty fine to coarse SAND. (Raised Beach Deposits and Intertidal Deposits)
	J T	2.10												
	D	2.50												
													3.00	End of borehole at 3.00m

Remarks
Groundwater: Borehole dry on completion.

Stability: Borehole collapsed to 1.23m depth on completion.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: KS

Site Name: Land at Fort Road East, Wick, Littlehampton, West Sussex

Job Number: P15360

Start Date: 20/09/2021

End Date: 20/09/2021

Borehole Number: **WS03**

Sheet 1 of 1

Samples and In Situ Testing			Dynamic Probe				Legend		Depth		Stratum Description				
Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	0	5	10	15	20	25	30				
	JT	0.20										0.00	Concrete.		
	D	0.30											0.15	MADE GROUND: Black and brown gravelly silty fine to coarse sand. Gravel is angular to subrounded fine to coarse flint and brick.	
	JT	0.50											0.40	MADE GROUND: Brown slightly gravelly sandy silty clay. Gravel is angular to subrounded fine to coarse flint and charcoal-like material.	
	D	0.60													
	JT	0.90													
	V	1.00		50									1.00	Firm orange brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint. (Raised Beach Deposits and Intertidal Deposits)	
	JT	1.10													
	H	1.10		60											
	D	1.20												1.30	Loose orange fine to coarse silty SAND. (Raised Beach Deposits and Intertidal Deposits)
	D	1.40													
	JT	1.50													
	D	1.90										2.00	Medium dense orange brown slightly gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse flint. (Raised Beach Deposits and Intertidal Deposits)		
	D	2.20													
									</						

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: Standpipe installed to 3.00m depth; 3.00m to 1.00m slotted pipe with gravel surround; 1.00m to ground level plain pipe with bentonite seal; completed with end cap and security cover concreted flush with ground surface.

Excavation Method: WLS

Borehole Diameter: Various

Made By: KS

Site Name: Land at Fort Road East, Wick, Littlehampton, West Sussex

Job Number: P15360

Start Date: 20/09/2021

End Date: 20/09/2021

Borehole Number: **WS05**

Sheet 1 of 1

Standpipe		Samples and In Situ Testing			Dynamic Probe						Depth		Stratum Description	
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	051015202530						Legend				
JT JT D V JT H H D H H V D H JT D	0.30										0.00	Concrete.		
											0.20	MADE GROUND: Black and brown gravelly silty sand. Gravel is angular to subrounded fine to coarse flint, brick and plastic.		
	0.70										0.60	MADE GROUND: Brown slightly gravelly sandy silty clay with occasional roots. Gravel is angular to subrounded fine to coarse flint and charcoal-like material.		
	0.80													
	1.00		30								1.10	Firm orange brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint. (Raised Beach Deposits and Intertidal Deposits)		
	1.20													
	1.20		60											
	1.40		75											
	1.50													
	1.60		75											
	1.80		60											
	2.00		30									becoming soft at 2.00m depth.		
	2.20													
	2.20		60											
2.50										2.40	Medium dense orange slightly gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse flint. (Raised Beach Deposits and Intertidal Deposits)			
2.70														
											3.00	End of borehole at 3.00m		

Remarks
Groundwater: Borehole dry on completion.

Stability: Borehole collapsed to 0.90m depth on completion.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: KS

End Date: 20/09/2021

Sheet 1 of 1

Remarks Groundwater: Trial pit dry on completion. Stability: Trial pit stable on completion. Notes: n/a	Excavation Method: HDP
	Pit Length: n/a
	Pit Width: n/a
	Made By: KS

APPENDIX C

Contamination Laboratory Test Results



Alex Bewick
Ashdown Site Investigations Ltd
Unit 3 The Grain Store
Ditchling Common Business Park
Ditchling Common
West Sussex
BN6 8SG

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 21-11499

Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex

Project / Job Ref: P15360

Order No: 9827

Sample Receipt Date: 22/09/2021

Sample Scheduled Date: 22/09/2021

Report Issue Number: 1

Reporting Date: 29/09/2021

Authorised by:

Dave Ashworth
Technical Manager

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

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

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



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



Soil Analysis Certificate						
DETS Report No: 21-11499	Date Sampled	20/09/21	20/09/21	20/09/21	20/09/21	20/09/21
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex	TP / BH No	TP01	WS01	WS02	WS02	WS02
Project / Job Ref: P15360	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 9827	Depth (m)	0.30	0.30	0.20	0.40	0.80
Reporting Date: 29/09/2021	DETS Sample No	565329	565330	565331	565332	565333

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected		Detected	
Sample Matrix ^(S)	Material Type	N/a	NONE			Bundle of Chrysotile	
Asbestos Type ^(S)	PLM Result	N/a	ISO17025			Chrysotile	
pH	pH Units	N/a	MCERTS	7.8		8.7	
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	713		645	
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.07		0.06	
Organic Matter (SOM)	%	< 0.1	NONE	3.7		3.3	
Arsenic (As)	mg/kg	< 2	MCERTS	7		15	
W/S Boron	mg/kg	< 1	NONE	< 1		1.7	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.3		0.2	
Chromium (Cr)	mg/kg	< 2	MCERTS	18		14	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2		< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	15		38	
Lead (Pb)	mg/kg	< 3	MCERTS	51		212	
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1		< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS	9		9	
Selenium (Se)	mg/kg	< 2	MCERTS	< 3		< 3	
Zinc (Zn)	mg/kg	< 3	MCERTS	66		164	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
 Subcontracted analysis (S)

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation



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



Soil Analysis Certificate						
DETS Report No: 21-11499	Date Sampled	20/09/21	20/09/21	20/09/21	20/09/21	20/09/21
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex	TP / BH No	WS03	WS03	WS04	WS05	WS05
Project / Job Ref: P15360	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 9827	Depth (m)	0.20	1.10	0.40	0.30	0.70
Reporting Date: 29/09/2021	DETS Sample No	565334	565335	565336	565337	565338

Determinand	Unit	RL	Accreditation	(n)			
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected		Not Detected	Not Detected
Sample Matrix ^(S)	Material Type	N/a	NONE				
Asbestos Type ^(S)	PLM Result	N/a	ISO17025				
pH	pH Units	N/a	MCERTS	9.5		7.8	9.8
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	2634		790	2453
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.26		0.08	0.25
Organic Matter (SOM)	%	< 0.1	NONE	3.4		3	3.6
Arsenic (As)	mg/kg	< 2	MCERTS	12		9	13
W/S Boron	mg/kg	< 1	NONE	< 1		2	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	1.6		< 0.2	0.4
Chromium (Cr)	mg/kg	< 2	MCERTS	28		11	19
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2		< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	49		8	25
Lead (Pb)	mg/kg	< 3	MCERTS	877		36	164
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1		< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	13		6	9
Selenium (Se)	mg/kg	< 2	MCERTS	< 3		< 3	< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	703		41	194

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
 Subcontracted analysis (S)



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



Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 21-11499	Date Sampled	20/09/21	20/09/21	20/09/21	20/09/21	20/09/21
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex	TP / BH No	TP01	WS02	WS03	WS04	WS05
Project / Job Ref: P15360	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 9827	Depth (m)	0.30	0.20	0.20	0.40	0.30
Reporting Date: 29/09/2021	DETS Sample No	565329	565331	565334	565336	565337

Determinand	Unit	RL	Accreditation	(n)				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.13	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.59	< 0.1	0.25
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.69	< 0.1	0.20
Phenanthrene	mg/kg	< 0.1	MCERTS	0.58	0.94	19.10	< 0.1	1.81
Anthracene	mg/kg	< 0.1	MCERTS	0.15	0.31	3.69	< 0.1	0.49
Fluoranthene	mg/kg	< 0.1	MCERTS	1.39	2.90	36.80	< 0.1	4.31
Pyrene	mg/kg	< 0.1	MCERTS	1.33	2.42	35.40	< 0.1	4.36
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.71	1.54	9.26	< 0.1	1.74
Chrysene	mg/kg	< 0.1	MCERTS	0.78	1.55	7.68	< 0.1	2.47
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	1.15	1.99	7.58	< 0.1	3.36
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.31	0.59	2.74	< 0.1	0.91
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.87	1.48	6.67	< 0.1	2.21
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.64	0.96	3.86	< 0.1	1.52
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.14	0.21	1.02	< 0.1	0.36
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.66	0.89	3.69	< 0.1	1.49
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	8.7	15.8	139	< 1.6	25.5

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation



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Soil Analysis Certificate - EPH Banded (Type F)						
DETS Report No: 21-11499	Date Sampled	20/09/21	20/09/21	20/09/21	20/09/21	20/09/21
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex	TP / BH No	TP01	WS01	WS02	WS02	WS02
Project / Job Ref: P15360	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 9827	Depth (m)	0.30	0.30	0.20	0.40	0.80
Reporting Date: 29/09/2021	DETS Sample No	565329	565330	565331	565332	565333

Determinand	Unit	RL	Accreditation					
EPH (>C8 - C10)	mg/kg	< 1	MCERTS	< 1	< 1	2	< 1	< 1
EPH (>C10 - C12)	mg/kg	< 1	MCERTS	< 1	< 1	1	< 1	< 1
EPH (>C12 - C16)	mg/kg	< 1	MCERTS	< 1	< 1	2	< 1	< 1
EPH (>C16 - C21)	mg/kg	< 1	MCERTS	6	< 1	17	< 1	< 1
EPH (>C21 - C40)	mg/kg	< 6	MCERTS	44	49	54	< 6	< 6
EPH (C8 - C40)	mg/kg	< 6	MCERTS	50	49	76	< 6	< 6

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Soil Analysis Certificate - EPH Banded (Type F)						
DETS Report No: 21-11499	Date Sampled	20/09/21	20/09/21	20/09/21	20/09/21	20/09/21
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex	TP / BH No	WS03	WS03	WS04	WS05	WS05
Project / Job Ref: P15360	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 9827	Depth (m)	0.20	1.10	0.40	0.30	0.70
Reporting Date: 29/09/2021	DETS Sample No	565334	565335	565336	565337	565338

Determinand	Unit	RL	Accreditation	(n)				
EPH (>C8 - C10)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH (>C10 - C12)	mg/kg	< 1	MCERTS	6	< 1	< 1	2	< 1
EPH (>C12 - C16)	mg/kg	< 1	MCERTS	10	< 1	< 1	3	< 1
EPH (>C16 - C21)	mg/kg	< 1	MCERTS	100	< 1	< 1	26	< 1
EPH (>C21 - C40)	mg/kg	< 6	MCERTS	202	< 6	< 6	158	< 6
EPH (C8 - C40)	mg/kg	< 6	MCERTS	318	< 6	< 6	188	< 6



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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2

DETS Report No: 21-11499		Date Sampled	20/09/21		Landfill Waste Acceptance Criteria Limits		
Ashdown Site Investigations Ltd		Time Sampled	None Supplied				
Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex		TP / BH No	TP01				
Project / Job Ref: P15360		Additional Refs	None Supplied				
Order No: 9827		Depth (m)	0.30				
Reporting Date: 29/09/2021		DETS Sample No	565329				
Determinand	Unit	MDL			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
TOC ^{MU}	%	< 0.1	2.2		3%	5%	6%
Loss on Ignition	%	< 0.01	4.50		--	--	10%
BTEX ^{MU}	mg/kg	< 0.05	< 0.05		6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1		1	--	--
Mineral Oil ^{MU}	mg/kg	< 10	< 10		500	--	--
Total PAH ^{MU}	mg/kg	< 1.7	8.9		100	--	--
pH ^{MU}	pH Units	N/a	7.8		--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1		--	To be evaluated	To be evaluated
Eluate Analysis			10:1 mg/l		Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)	
Arsenic ^U		< 0.01			0.5	2	25
Barium ^U		< 0.02			20	100	300
Cadmium ^U		< 0.0005			0.04	1	5
Chromium ^U		< 0.005			0.5	10	70
Copper ^U		< 0.01			2	50	100
Mercury ^U		< 0.0005			0.01	0.2	2
Molybdenum ^U		0.004			0.5	10	30
Nickel ^U		< 0.007			0.4	10	40
Lead ^U		< 0.005			0.5	10	50
Antimony ^U		< 0.005			0.06	0.7	5
Selenium ^U		< 0.005			0.1	0.5	7
Zinc ^U		0.009			4	50	200
Chloride ^U		9.6			800	15000	25000
Fluoride ^U		1.4			14	150	500
Sulphate ^U		4.3			43	20000	50000
TDS		92			920	60000	100000
Phenol Index		< 0.01			1	-	-
DOC		13.5			135	500	1000
Leach Test Information							
Sample Mass (kg)		0.10					
Dry Matter (%)		93.2					
Moisture (%)		7.4					
Stage 1							
Volume Eluate L10 (litres)		0.89					

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
 Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepancies with current legislation
 M Denotes MCERTS accredited test
 U Denotes ISO17025 accredited test



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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2

DETS Report No: 21-11499		Date Sampled	20/09/21		Landfill Waste Acceptance Criteria Limits		
Ashdown Site Investigations Ltd		Time Sampled	None Supplied				
Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex		TP / BH No	WS03				
Project / Job Ref: P15360		Additional Refs	None Supplied				
Order No: 9827		Depth (m)	0.20				
Reporting Date: 29/09/2021		DETS Sample No	565334				
Determinand	Unit	MDL			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
TOC ^{MU}	%	< 0.1	2		3%	5%	6%
Loss on Ignition	%	< 0.01	4.10		--	--	10%
BTEX ^{MU}	mg/kg	< 0.05	< 0.05		6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1		1	--	--
Mineral Oil ^{MU}	mg/kg	< 10	< 10		500	--	--
Total PAH ^{MU}	mg/kg	< 1.7	140		£££	--	--
pH ^{MU}	pH Units	N/a	9.5		--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	1.1		--	To be evaluated	To be evaluated
Eluate Analysis			10:1 mg/l		Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)	
Arsenic ^U		< 0.01			0.5	2	25
Barium ^U		< 0.02			20	100	300
Cadmium ^U		< 0.0005			0.04	1	5
Chromium ^U		0.065			£.£	10	70
Copper ^U		0.05			0.5	2	100
Mercury ^U		< 0.0005			0.01	0.2	2
Molybdenum ^U		0.003			0.5	10	30
Nickel ^U		< 0.007			0.4	10	40
Lead ^U		< 0.005			0.5	10	50
Antimony ^U		0.006			0.06	£.££	5
Selenium ^U		< 0.005			0.1	0.5	7
Zinc ^U		0.006			0.06	4	200
Chloride ^U		6.8			68	800	25000
Fluoride ^U		0.5			5.1	10	500
Sulphate ^U		15.7			157	1000	50000
TDS		109			1090	4000	100000
Phenol Index		< 0.01			< 0.1	1	-
DOC		15.4			154	500	1000
Leach Test Information							
Sample Mass (kg)		0.10					
Dry Matter (%)		90					
Moisture (%)		11.2					
Stage 1							
Volume Eluate L10 (litres)		0.89					

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 21-11499

Ashdown Site Investigations Ltd

Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex

Project / Job Ref: P15360

Order No: 9827

Reporting Date: 29/09/2021

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
565329	TP01	None Supplied	0.30	6.9	Brown sandy clay with stones and vegetation
565330	WS01	None Supplied	0.30	7	Light brown sandy clay with stones and concrete
565331	WS02	None Supplied	0.20	13.5	Brown sandy clay with stones and concrete
565332	WS02	None Supplied	0.40	13	Light brown sandy clay
565333	WS02	None Supplied	0.80	10.8	Light brown sandy clay
565334	WS03	None Supplied	0.20	10	Brown sandy gravel with stones and concrete
565335	WS03	None Supplied	1.10	13	Light brown sandy clay
565336	WS04	None Supplied	0.40	9.3	Brown sandy clay
565337	WS05	None Supplied	0.30	14.5	Brown gravelly sand with stones and concrete
565338	WS05	None Supplied	0.70	12.8	Light brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/s}

Unsuitable Sample ^{1/s}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 21-11499

Ashdown Site Investigations Ltd

Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex

Project / Job Ref: P15360

Order No: 9827

Reporting Date: 29/09/2021

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

D Dried
AR As Received



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4480

Water Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 21-11499	
Ashdown Site Investigations Ltd	
Site Reference: Land at Fort East, Wick, Littlehampton, West Sussex	
Project / Job Ref: P15360	
Order No: 9827	
Reporting Date: 29/09/2021	

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

Key

F Filtered
UF Unfiltered

Parameter	Matrix Type	Suite Reference	Expanded Uncertainty Measurement	Unit
TOC	Soil	BS EN 12457	20.0	%
Loss on Ignition	Soil	BS EN 12457	35.0	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	23.0	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	11.6	%
pH	Soil	BS EN 12457	0.28	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	18.7	%
Barium	Leachate	BS EN 12457	11.6	%
Cadmium	Leachate	BS EN 12457	20.3	%
Chromium	Leachate	BS EN 12457	18.3	%
Copper	Leachate	BS EN 12457	24.3	%
Mercury	Leachate	BS EN 12457	23.7	%
Molybdenum	Leachate	BS EN 12457	14.7	%
Nickel	Leachate	BS EN 12457	16.1	%
Lead	Leachate	BS EN 12457	15.7	%
Antimony	Leachate	BS EN 12457	17.9	%
Selenium	Leachate	BS EN 12457	22.0	%
Zinc	Leachate	BS EN 12457	17.4	%
Chloride	Leachate	BS EN 12457	15.3	%
Fluoride	Leachate	BS EN 12457	16.4	%
Sulphate	Leachate	BS EN 12457	20.6	%
TDS	Leachate	BS EN 12457	12.0	%
Phenol Index	Leachate	BS EN 12457	14.0	%
DOC	Leachate	BS EN 12457	10.0	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	35.0	%
pH	Soil	BS 3882: 2015	0.14	Units
Carbonate	Soil	BS 3882: 2015	16.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	14.9	%
Copper	Soil	BS 3882: 2015	16.0	%
Nickel	Soil	BS 3882: 2015	17.7	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%

APPENDIX D

Classification of Probability, Consequence and Risk

Probability of risk being realised	
Classification	Definition
High	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution.
Moderate	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the shorter term.
Very Low	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Consequence of risk being realised		
Classification	Category	Definition
Severe	Human Health	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA.
	Controlled Waters	Short term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource.
	Property	Catastrophic damage to buildings/property.
	Ecological Systems	A short term risk to a particular ecosystem or organisation forming part of such ecosystem.
Moderate	Human Health	Chronic damage to Human Health.
	Controlled Waters	Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution).
	Ecological System	A significant change in a particular ecosystem or organism forming part of such ecosystem.
Minor	Controlled Waters	Pollution of non-sensitive water resources.
	Property	Significant damage to crops, buildings, structures and services.
	Ecological Systems	Damage to sensitive buildings/structures/services or the environment.
Very Minor	Human Health	Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc).
	Property	Easily repairable effects of damage to buildings, structures and services.
	Project	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve.

Risk classification definitions	
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the long term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but there is a low likelihood of this hazard occurring and if realised, harm would at worst normally be mild.
Very Low	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

APPENDIX E

Preliminary Conceptual Model

Land at Fort Road East, Wick, Littlehampton, West Sussex				Preliminary Conceptual Model		P15267	
Potential Source	Potential Receptor	Potential Contaminants	Potential Pathway	Complete Linkage Present?	Probability	Consequence	Risk
• Historic use of the site as a depot, destructor and works.	End Users	Petroleum Hydrocarbons	Dermal contact with soil and dust (indoor & outdoor)	Yes	P2: Low	C2: Minor	Low
			Ingestion of soil and indoor dust	Yes	P2: Low	C2: Minor	Low
			Consumption of home-grown produce and attached soil	No private gardens proposed			N/A
			Inhalation of soil dust (indoor and outdoor)	Yes	P2: Low	C2: Minor	Low
			Inhalation of soil vapours	Yes	P2: Low	C2: Minor	Low
			Inhalation of soil gases/ Risk of explosion	No potential gas source identified			N/A
	End Users (via Water Supply Pipework)	Petroleum Hydrocarbons	Contamination of incoming services	Yes	P1: Very Low	C2: Minor	Very Low
	Groundwater	Petroleum Hydrocarbons	Migration to groundwater	Yes	P1: Very Low	C2: Minor	Very Low
• Made ground associated with demolition and development works.	End Users	Asbestos, Heavy Metals, PAH Compounds and Petroleum Hydrocarbons	Dermal contact with soil and dust (indoor & outdoor)	Yes	P2: Low	C2: Minor	Low
			Ingestion of soil and indoor dust	Yes	P2: Low	C2: Minor	Low
			Consumption of home-grown produce and attached soil	No private gardens proposed			N/A
			Inhalation of soil dust (indoor and outdoor)	Yes	P2: Low	C2: Minor	Low
			Inhalation of soil vapours	Yes	P2: Low	C2: Minor	Low
			Inhalation of soil gases/ Risk of explosion	No potential gas source identified			N/A
	End Users (via Water Supply Pipework)	Petroleum Hydrocarbons	Contamination of incoming services	Yes	P1: Very Low	C2: Minor	Very Low
	Groundwater	Heavy Metals, PAH Compounds and Petroleum Hydrocarbons	Migration to groundwater	Yes	P1: Very Low	C2: Minor	Very Low

APPENDIX F

Quantitative Conceptual Model

Land at Fort Road East, Wick, Littlehampton, West Sussex				Quantitative Conceptual Model		P15267	
Source	Receptor	Contaminants	Pathway	Complete Linkage Present?	Probability	Consequence	Risk
Made ground containing asbestos fibres and concentrations of petroleum hydrocarbons above the threshold value for the use of PE water supply pipework	End Users	Asbestos	Dermal contact with soil and dust (indoor & outdoor)	No contaminants present above SSVs			N/A
			Ingestion of soil and indoor dust	No contaminants present above SSVs			N/A
			Consumption of home-grown produce and attached soil	No private gardens proposed			N/A
			Inhalation of soil dust (indoor and outdoor)	Yes	P2: Low	C3: Moderate	Low/Moderate
			Inhalation of soil vapours	No contaminants present above SSVs			N/A
			Inhalation of soil gases/ Risk of explosion	No potential gas source identified			N/A
	End Users (via Water Supply Pipework)	Petroleum Hydrocarbons	Contamination of incoming services	Yes	P2: Low	C2: Minor	Low
	Groundwater		Migration to groundwater	No contaminants present at concentrations posing risk to groundwater			N/A

APPENDIX G

HazWaste Online Output Sheets

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)



7C9FR-2S2F3-AYZMJ

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

Job name

P15360 - Land at Fort Road East, Wick, Littlehampton, West Sussex[2]

Description/Comments

Project

Site

Classified by

Name: **Stuart Card**
Date: **13 Oct 2021 13:14 GMT**
Telephone: **01273 483119**
Company: **Ashdown Site Investigation Ltd Manchester**

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
3 year Refresher overdue

Date

09 Jun 2015

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	WAC Results			Page
					Inert	SNRHW	Hazardous	
1	TP01-0.30-20/09/2021	0.30	Non Hazardous		Fail	Pass	N/A	2
2	WS02-0.20-20/09/2021	0.20	Non Hazardous		-	-	-	5
3	WS03-0.20-20/09/2021	0.20	Hazardous	HP 7	N/A	Pass	Pass	7
4	WS04-0.40-20/09/2021	0.40	Non Hazardous		-	-	-	11
5	WS05-0.30-20/09/2021	0.30	Non Hazardous		-	-	-	13

Related documents

#	Name	Description
1	21-11499.1.hwl	.hwl file used to create the Job
2	ASI QTS	waste stream template used to create this Job

WAC results

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate the samples in this Job: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

Report

Created by: Stuart Card

Created date: 13 Oct 2021 13:14 GMT

Appendices

	Page
Appendix A: Classifier defined and non CLP determinands	15
Appendix B: Rationale for selection of metal species	16
Appendix C: Version	16

Classification of sample: TP01-0.30-20/09/2021

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

Sample details

Sample name:	LoW Code:
TP01-0.30-20/09/2021	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.30 m	
Moisture content:	
6.9%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 6.9% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP Index number	EC Number	CAS Number									
1	* pH				7.8	pH		7.8	pH	7.8 pH		
2	arsenic { arsenic trioxide }				7	mg/kg	1.32	9.242	mg/kg	0.000924 %		
	033-003-00-0	215-431-4	1327-53-3									
3	boron { * boron tribromide/trichloride/trifluoride (combined) }				<1	mg/kg	13.43	<13.43	mg/kg	<0.00134 %		<LOD
			10294-33-4, 10294-34-5, 7637-07-2									
4	cadmium { cadmium sulfide }			1	0.3	mg/kg	1.285	0.386	mg/kg	0.00003 %		
	048-010-00-4	215-147-8	1308-23-6									
5	chromium in chromium(III) compounds { * chromium(III) oxide (worst case) }				18	mg/kg	1.462	26.308	mg/kg	0.00263 %		
		215-180-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2	mg/kg	1.923	<3.646	mg/kg	<0.000365 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { copper sulphate pentahydrate }				15	mg/kg	3.929	58.936	mg/kg	0.00589 %		
	029-023-00-4	231-847-6	7758-99-8									
8	lead { lead chromate }			1	51	mg/kg	1.56	79.551	mg/kg	0.0051 %		
	062-004-00-2	231-646-0	7758-97-6									
9	mercury { mercury dichloride }				<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
	030-010-00-X	231-299-8	7487-94-7									
10	nickel { nickel chromate }				9	mg/kg	2.976	26.786	mg/kg	0.00268 %		
	028-035-00-7	236-768-5	14721-18-7									
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<2	mg/kg	1.405	<2.81	mg/kg	<0.000281 %		<LOD
	034-002-00-8											
12	zinc { zinc chromate }				66	mg/kg	2.774	183.094	mg/kg	0.0183 %		
	024-007-00-3	236-978-9	13530-65-9									
13	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	001-052-00-2	202-048-5	91-20-3									
14	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	203-96-8									

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
15	* acenaphthene	201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
16	* fluorene	201-665-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
17	* phenanthrene	201-581-5	85-01-8		0.58	mg/kg		0.58	mg/kg	0.000058 %		
18	* anthracene	204-371-1	120-12-7		0.15	mg/kg		0.15	mg/kg	0.000015 %		
19	* fluoranthene	205-912-4	206-44-0		1.39	mg/kg		1.39	mg/kg	0.000139 %		
20	* pyrene	204-927-3	129-00-0		1.33	mg/kg		1.33	mg/kg	0.000133 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.71	mg/kg		0.71	mg/kg	0.000071 %		
22	chrysene	601-048-00-0	205-923-4		0.78	mg/kg		0.78	mg/kg	0.000078 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.15	mg/kg		1.15	mg/kg	0.000115 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.31	mg/kg		0.31	mg/kg	0.000031 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.87	mg/kg		0.87	mg/kg	0.000087 %		
26	* indeno[123-cd]pyrene	205-953-2	183-39-5		0.64	mg/kg		0.64	mg/kg	0.000064 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-6		0.14	mg/kg		0.14	mg/kg	0.000014 %		
28	* benzo[ghi]perylene	205-863-8	191-24-2		0.66	mg/kg		0.66	mg/kg	0.000066 %		
29	* TPH (C6 to C40) petroleum group		TPH		50	mg/kg		50	mg/kg	0.005 %		
30	* polychlorobiphenyls; PCB	602-039-00-4	215-648-1		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
Total:										0.0436 %		

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 free product identified. TPH in soil unlikely to be flammable at concentrations <500mg/kg.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.005%)

WAC results for sample: TP01-0.30-20/09/2021

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample FAILS the Inert (Inert waste landfill) criteria.

The sample PASSES the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	2.2	3	5	6
2	LOI (loss on ignition)	%	4.5	-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.05	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.1	1	-	-
5	Mineral oil (C10 to C40)	mg/kg	<10	500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	8.9	100	-	-
7	pH	pH	7.8	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg	<1	-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg	<0.1	0.5	2	25
10	barium	mg/kg	<0.2	20	100	300
11	cadmium	mg/kg	<0.005	0.04	1	5
12	chromium	mg/kg	<0.05	0.5	10	70
13	copper	mg/kg	<0.1	2	50	100
14	mercury	mg/kg	<0.005	0.01	0.2	2
15	molybdenum	mg/kg	0.04	0.5	10	30
16	nickel	mg/kg	<0.07	0.4	10	40
17	lead	mg/kg	<0.05	0.5	10	50
18	antimony	mg/kg	<0.05	0.06	0.7	5
19	selenium	mg/kg	<0.05	0.1	0.5	7
20	zinc	mg/kg	0.09	4	50	200
21	chloride	mg/kg	96	800	15,000	25,000
22	fluoride	mg/kg	14	10	150	500
23	sulphate	mg/kg	43	1,000	20,000	50,000
24	phenol index	mg/kg	<0.1	1	-	-
25	DOC (dissolved organic carbon)	mg/kg	135	500	800	1,000
26	TDS (total dissolved solids)	mg/kg	920	4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Inert WAC criteria fail

Classification of sample: WS02-0.20-20/09/2021

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

Sample details

Sample name:	WS02-0.20-20/09/2021	LoW Code:	
Sample Depth:	0.20 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	13.5%	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
	(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 13.5% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	* pH				8.7	pH		8.7	pH	8.7 pH		
2	☉ arsenic { arsenic trioxide }				15	mg/kg	1.32	19.805	mg/kg	0.00198 %		
	033-003-00-0	215-461-4	1327-58-3									
3	☉ boron { * boron tribromide/trichloride/trifluoride (combined) }				1.7	mg/kg	13.43	22.831	mg/kg	0.00228 %		
			10294-33-4, 10294-34-5, 7637-07-2									
4	☉ cadmium { cadmium sulfide }			1	0.2	mg/kg	1.285	0.257	mg/kg	0.00002 %		
	048-010-00-4	215-147-8	1306-23-6									
5	☉ chromium in chromium(III) compounds { * chromium(III) oxide (worst case) }				14	mg/kg	1.462	20.462	mg/kg	0.00205 %		
		215-160-9	1308-36-9									
6	☉ chromium in chromium(VI) compounds { chromium(VI) oxide }				<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	☉ copper { copper sulphate pentahydrate }				38	mg/kg	3.929	149.304	mg/kg	0.0149 %		
	029-023-00-4	231-847-6	7758-99-8									
8	☉ lead { lead chromate }			1	212	mg/kg	1.56	330.681	mg/kg	0.0212 %		
	062-004-00-2	231-846-0	7758-97-6									
9	☉ mercury { mercury dichloride }				<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
	060-010-00-X	231-289-8	7487-94-7									
10	☉ nickel { nickel chromate }				9	mg/kg	2.976	26.786	mg/kg	0.00268 %		
	028-035-00-7	238-766-5	14721-18-7									
11	☉ selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				<2	mg/kg	1.405	<2.81	mg/kg	<0.000281 %		<LOD
	034-002-00-8											
12	☉ zinc { zinc chromate }				164	mg/kg	2.774	454.96	mg/kg	0.0455 %		
	024-007-00-3	236-878-9	13530-65-9									
13	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	001-052-00-2	202-049-5	91-20-3									
14	* acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	M/C Applied	Conc. Not Used
	CLP Index number	EC Number	CAS Number									
15	✧ acenaphthene	201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
16	✧ fluorene	201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
17	✧ phenanthrene	201-581-5	85-01-8		0.94	mg/kg		0.94	mg/kg	0.000094 %		
18	✧ anthracene	204-871-1	120-12-7		0.31	mg/kg		0.31	mg/kg	0.000031 %		
19	✧ fluoranthene	205-912-4	206-44-0		2.9	mg/kg		2.9	mg/kg	0.00029 %		
20	✧ pyrene	204-927-3	129-00-0		2.42	mg/kg		2.42	mg/kg	0.000242 %		
21	benzo[a]anthracene	601-033-00-9	200-286-6	56-55-3	1.54	mg/kg		1.54	mg/kg	0.000154 %		
22	chrysene	601-045-00-0	205-923-4	218-01-9	1.55	mg/kg		1.55	mg/kg	0.000155 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	1.99	mg/kg		1.99	mg/kg	0.000199 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.59	mg/kg		0.59	mg/kg	0.000059 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-3	1.48	mg/kg		1.48	mg/kg	0.000148 %		
26	✧ indeno[123-cd]pyrene	205-893-2	193-59-5		0.96	mg/kg		0.96	mg/kg	0.000096 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.21	mg/kg		0.21	mg/kg	0.000021 %		
28	✧ benzo[ghi]perylene	205-333-8	191-24-2		0.89	mg/kg		0.89	mg/kg	0.000089 %		
29	✧ TPH (C6 to C40) petroleum group		TPH		76	mg/kg		76	mg/kg	0.0076 %		
Total:										0.101 %		

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 free product identified. TPH in soil unlikely to be flammable at concentrations <500mg/kg.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0076%)

Classification of sample: WS03-0.20-20/09/2021

 **Hazardous Waste**
Classified as 17 05 03 *
in the List of Waste

Sample details

Sample name:	LoW Code:
WS03-0.20-20/09/2021	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 03 * (Soil and stones containing hazardous substances)
0.20 m	
Moisture content:	
10%	
(no correction)	

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

zinc chromate: (compound conc.: 0.195%)

Determinands

Moisture content: 10% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	* pH				9.5	pH		9.5	pH	9.5 pH		
2	arsenic { arsenic trioxide }				12	mg/kg	1.32	15.844	mg/kg	0.00158 %		
	033-009-00-0	215-481-4	1327-53-3									
3	boron { * boron tribromide/trichloride/trifluoride (combined) }				<1	mg/kg	13.43	<13.43	mg/kg	<0.00134 %		<LOD
			10294-33-4, 10294-34-5, 7637-07-2									
4	cadmium { cadmium sulfide }			1	1.6	mg/kg	1.285	2.056	mg/kg	0.00016 %		
	048-010-00-4	215-147-8	1306-23-6									
5	chromium in chromium(III) compounds { * chromium(III) oxide (worst case) }				28	mg/kg	1.462	40.924	mg/kg	0.00409 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-6	1333-82-0									
7	copper { copper sulphate pentahydrate }				49	mg/kg	3.929	192.524	mg/kg	0.0193 %		
	029-023-00-4	231-847-6	7758-99-8									
8	lead { lead chromate }			1	877	mg/kg	1.56	1367.958	mg/kg	0.0877 %		
	062-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-6	7487-94-7									
10	nickel { nickel chromate }				13	mg/kg	2.976	38.691	mg/kg	0.00387 %		
	028-035-00-7	238-766-5	14721-18-7									
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<2	mg/kg	1.405	<2.81	mg/kg	<0.000281 %		<LOD
	034-002-00-8											

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	M/C Applied	Conc. Not Used
	CLP Index number	EC Number	CAS Number									
12	zinc { zinc chromate }				703	mg/kg	2.774	1950.225	mg/kg	0.185 %		
	024-007-00-3	236-878-9	13530-65-9									
13	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		205-917-1	208-96-8									
15	acenaphthene				0.59	mg/kg		0.59	mg/kg	0.000059 %		
		201-469-6	83-32-9									
16	fluorene				0.69	mg/kg		0.69	mg/kg	0.000069 %		
		201-635-5	86-73-7									
17	phenanthrene				19.1	mg/kg		19.1	mg/kg	0.00191 %		
		201-581-5	85-01-8									
18	anthracene				3.69	mg/kg		3.69	mg/kg	0.000369 %		
		204-971-1	120-12-7									
19	fluoranthene				36.8	mg/kg		36.8	mg/kg	0.00368 %		
		205-912-4	206-44-0									
20	pyrene				35.4	mg/kg		35.4	mg/kg	0.00354 %		
		204-927-3	129-00-0									
21	benzo[a]anthracene				9.26	mg/kg		9.26	mg/kg	0.000926 %		
	601-033-00-9	200-280-6	56-55-3									
22	chrysene				7.68	mg/kg		7.68	mg/kg	0.000768 %		
	601-048-00-0	205-923-4	218-01-9									
23	benzo[b]fluoranthene				7.58	mg/kg		7.58	mg/kg	0.000758 %		
	601-034-00-4	205-911-9	205-99-2									
24	benzo[k]fluoranthene				2.74	mg/kg		2.74	mg/kg	0.000274 %		
	601-036-00-5	205-916-6	207-08-9									
25	benzo[a]pyrene; benzo[def]chrysene				6.67	mg/kg		6.67	mg/kg	0.000667 %		
	601-032-00-3	200-028-5	50-32-3									
26	indeno[123-cd]pyrene				3.86	mg/kg		3.86	mg/kg	0.000386 %		
		205-893-2	193-59-5									
27	dibenz[a,h]anthracene				1.02	mg/kg		1.02	mg/kg	0.000102 %		
	601-041-00-2	200-181-6	53-70-3									
28	benzo[ghi]perylene				3.69	mg/kg		3.69	mg/kg	0.000369 %		
		205-383-8	191-24-2									
29	TPH (C6 to C40) petroleum group				318	mg/kg		318	mg/kg	0.0318 %		
			TPH									
30	polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3									
Total:										0.36 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
*	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 free product identified. TPH in soil unlikely to be flammable at concentrations <500mg/kg.

Hazard Statements hit:

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



Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0318%)

WAC results for sample: WS03-0.20-20/09/2021

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria.

The sample PASSES the Hazardous (Hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	2	3	5	6
2	LOI (loss on ignition)	%	4.1	-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.05	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.1	1	-	-
5	Mineral oil (C10 to C40)	mg/kg	<10	500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	140	100	-	-
7	pH	pH	9.5	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg	1.1	-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg	<0.1	0.5	2	25
10	barium	mg/kg	<0.2	20	100	300
11	cadmium	mg/kg	<0.005	0.04	1	5
12	chromium	mg/kg	0.65	0.5	10	70
13	copper	mg/kg	0.5	2	50	100
14	mercury	mg/kg	<0.005	0.01	0.2	2
15	molybdenum	mg/kg	0.03	0.5	10	30
16	nickel	mg/kg	<0.07	0.4	10	40
17	lead	mg/kg	<0.05	0.5	10	50
18	antimony	mg/kg	0.06	0.06	0.7	5
19	selenium	mg/kg	<0.05	0.1	0.5	7
20	zinc	mg/kg	0.06	4	50	200
21	chloride	mg/kg	68	600	15,000	25,000
22	fluoride	mg/kg	5.1	10	150	500
23	sulphate	mg/kg	157	1,000	20,000	50,000
24	phenol index	mg/kg	<0.1	1	-	-
25	DOC (dissolved organic carbon)	mg/kg	154	500	800	1,000
26	TDS (total dissolved solids)	mg/kg	1090	4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Inert WAC criteria fail

Classification of sample: WS04-0.40-20/09/2021

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

Sample details

Sample name:	LoW Code:
WS04-0.40-20/09/2021	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.40 m	
Moisture content:	
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
	CLP index number	EC Number	CAS Number									
1	* pH				7.8	pH		7.8	pH	7.8 pH		
2	☒ arsenic { arsenic trioxide }				9	mg/kg	1.32	11.883	mg/kg	0.00119 %		
	033-003-00-0	215-461-4	1327-58-3									
3	☒ boron { * boron tribromide/trichloride/trifluoride (combined) }				2	mg/kg	13.43	26.86	mg/kg	0.00269 %		
			10294-33-4, 10294-34-5, 7637-07-2									
4	☒ cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6									
5	☒ chromium in chromium(III) compounds { * chromium(III) oxide (worst case) }				11	mg/kg	1.462	16.077	mg/kg	0.00161 %		
		215-160-9	1308-36-9									
6	☒ chromium in chromium(VI) compounds { chromium(VI) oxide }				<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	☒ copper { copper sulphate pentahydrate }				8	mg/kg	3.929	31.432	mg/kg	0.00314 %		
	029-023-00-4	231-847-6	7758-99-8									
8	☒ lead { lead chromate }			1	36	mg/kg	1.56	56.153	mg/kg	0.0036 %		
	062-004-00-2	231-846-0	7758-97-6									
9	☒ mercury { mercury dichloride }				<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
	060-010-00-X	231-289-8	7487-94-7									
10	☒ nickel { nickel chromate }				6	mg/kg	2.976	17.858	mg/kg	0.00179 %		
	028-035-00-7	238-766-5	14721-18-7									
11	☒ selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				<2	mg/kg	1.405	<2.81	mg/kg	<0.000281 %		<LOD
	034-002-00-8											
12	☒ zinc { zinc chromate }				41	mg/kg	2.774	113.74	mg/kg	0.0114 %		
	024-007-00-3	236-878-9	13530-65-9									
13	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	001-052-00-2	202-049-5	91-20-3									
14	* acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	M/C Applied	Conc. Not Used
	CLP Index number	EC Number	CAS Number									
15	✧ acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
16	✧ fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
17	✧ phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8									
18	✧ anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7									
19	✧ fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0									
20	✧ pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0									
21	benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
22	chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-045-00-0	205-923-4	218-01-9									
23	benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
24	benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
25	benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
26	✧ indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-893-2	193-59-5									
27	dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-6	53-70-3									
28	✧ benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-333-8	191-24-2									
29	✧ TPH (C6 to C40) petroleum group				<6	mg/kg		<6	mg/kg	<0.0006 %		<LOD
			TPH									
Total:										0.027 %		

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: WS05-0.30-20/09/2021

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

Sample details

Sample name:	LoW Code:
WS05-0.30-20/09/2021	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.30 m	
Moisture content:	
14.5%	
(no correction)	

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	* pH				9.8	pH		9.8	pH	9.8 pH		
2	arsenic { arsenic trioxide }				13	mg/kg	1.32	17.164	mg/kg	0.00172 %		
	033-003-00-0	215-461-4	1327-58-3									
3	boron { * boron tribromide/trichloride/trifluoride (combined) }				<1	mg/kg	13.43	<13.43	mg/kg	<0.00134 %		<LOD
			10294-33-4, 10294-34-5, 7637-07-2									
4	cadmium { cadmium sulfide }			1	0.4	mg/kg	1.285	0.514	mg/kg	0.00004 %		
	048-010-00-4	215-147-8	1306-23-6									
5	chromium in chromium(III) compounds { * chromium(III) oxide (worst case) }				19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
		215-160-9	1308-36-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { copper sulphate pentahydrate }				25	mg/kg	3.929	98.226	mg/kg	0.00982 %		
	029-023-00-4	231-847-6	7758-99-8									
8	lead { lead chromate }			1	164	mg/kg	1.56	255.81	mg/kg	0.0164 %		
	062-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
	060-010-00-X	231-289-8	7487-94-7									
10	nickel { nickel chromate }				9	mg/kg	2.976	26.786	mg/kg	0.00268 %		
	028-035-00-7	238-766-5	14721-18-7									
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<2	mg/kg	1.405	<2.81	mg/kg	<0.000281 %		<LOD
	034-002-00-8											
12	zinc { zinc chromate }				194	mg/kg	2.774	538.184	mg/kg	0.0538 %		
	024-007-00-3	236-878-9	13530-65-9									
13	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	001-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	M/C Applied	Conc. Not Used
	CLP Index number	EC Number	CAS Number									
15	acenaphthene	201-469-6	83-32-9		0.25	mg/kg		0.25	mg/kg	0.000025 %		
16	fluorene	201-695-5	86-73-7		0.2	mg/kg		0.2	mg/kg	0.00002 %		
17	phenanthrene	201-581-5	85-01-8		1.81	mg/kg		1.81	mg/kg	0.000181 %		
18	anthracene	204-371-1	120-12-7		0.49	mg/kg		0.49	mg/kg	0.000049 %		
19	fluoranthene	205-912-4	206-44-0		4.31	mg/kg		4.31	mg/kg	0.000431 %		
20	pyrene	204-927-3	129-00-0		4.36	mg/kg		4.36	mg/kg	0.000436 %		
21	benzo[a]anthracene	601-033-00-9	200-286-6	56-55-3	1.74	mg/kg		1.74	mg/kg	0.000174 %		
22	chrysene	601-045-00-0	205-923-4	218-01-9	2.47	mg/kg		2.47	mg/kg	0.000247 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	3.36	mg/kg		3.36	mg/kg	0.000336 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.91	mg/kg		0.91	mg/kg	0.000091 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-3	2.21	mg/kg		2.21	mg/kg	0.000221 %		
26	indeno[123-cd]pyrene	205-893-2	193-59-5		1.52	mg/kg		1.52	mg/kg	0.000152 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.36	mg/kg		0.36	mg/kg	0.000036 %		
28	benzo[ghi]perylene	205-333-8	191-24-2		1.49	mg/kg		1.49	mg/kg	0.000149 %		
29	TPH (C6 to C40) petroleum group		TPH		188	mg/kg		188	mg/kg	0.0188 %		
Total:										0.111 %		

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 free product identified. TPH in soil unlikely to be flammable at concentrations <500mg/kg.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0188%)

Appendix A: Classifier defined and non 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.

* **boron tribromide/trichloride/trifluoride (combined)** (CAS Number: 10294-33-4, 10294-34-5, 7637-07-2)

Description/Comments: Combines the hazard statements and the average of the conversion factors for boron tribromide, boron trichloride and boron trifluoride
Data source: N/A
Data source date: 06 Aug 2015
Hazard Statements: EUH014 , Acute Tox. 2 H330 , Acute Tox. 2 H300 , Skin Corr. 1A H314 , Skin Corr. 1B H314

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

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

* **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

* **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

* **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): Carc. 1A H350
Reason for additional Hazards Statement(s):
29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species

boron {boron tribromide/trichloride/trifluoride (combined)}

Worst case species

cadmium {cadmium sulfide}

Worst case species

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

Worst case species

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

Worst case species

copper {copper sulphate pentahydrate}

Worst case species

lead {lead chromate}

Worst case species

mercury {mercury dichloride}

Worst case species

nickel {nickel chromate}

Worst case species

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

Worst case species

zinc {zinc chromate}

Worst case species

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2021.246.4869.9247 (05 Sep 2021)
HazWasteOnline Database: 2021.246.4869.9247 (05 Sep 2021)

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

POPs Regulation 2019 - Regulation (EU) 2019/1021 of 20 June 2019