



SITE AT HAMBLE AEROSTRUCTURES – DEVELOTEC DESIGN & BUILD LTD

Contaminated Land Desk Study & Intrusive Investigation Report

JUNE 2022

Site at Hamble Aerostructures – Develotec Design & Build Ltd Contaminated Land Desk Study & Intrusive Investigation Report

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CONTENTS

1 Introduction.....	1
1.1 Terms of Reference	1
1.2 Site Setting	1
1.3 Proposed Development	1
1.4 Objectives and Scope.....	1
1.5 Limitations	2
1.6 Applicable Legislation and Regulations	3
2 Site Description	5
2.1 Site Location	5
2.2 Current Site Condition	5
3 Environmental Setting	6
3.1 Introduction	6
3.2 Geology.....	6
3.3 Hydrogeology and Hydrology	7
4 Potential Sources of Contamination	8
4.1 History of the Site and Surrounding Area	8
4.2 Environmental Records.....	9
4.3 Correspondence.....	11
5 Conceptual Site Model and Risk Assessment	12
5.1 Introduction	12
5.2 Physical CSM	12
5.3 Potential Contaminant Linkages	12
6 Conclusions and Recommendations	17
6.1 Geo-environmental Considerations	17
7 Intrusive Investigation – Scope	18
7.1 Introduction	18
7.2 Trial Pits	18
7.3 Foundation Excavations	18
7.4 Laboratory Analysis	18
8 Ground Conditions.....	20
8.1 Geology.....	20
8.2 Groundwater	21

8.3 Comment on Existing Foundations	21
9 Human Health Risk Assessment	22
9.1 Soil Analysis Assessment.....	22
10 Controlled Waters Risk Assessment	27
10.1 Physical Conceptual Site Model	27
10.2 Risk Assessment	27
11 Ground Gas.....	28
12 Soil Disposal	29
13 Revised Conceptual Site Model and Risk Assessment	30
13.1 Potential Pollutant Linkages	30
14 Conclusions and Recommendations	32
14.1 Geo-environmental Considerations	32
14.2 Preliminary Geotechnical Considerations	33
14.3 Other Considerations	34
15 References	36

APPENDICES

Figure 1 – Site Location Plan (Drawing No. 22-83228/01)

Figure 2 – Current Site Layout (Drawing No. 22-83228/02)

Figure 3 – Proposed Site Layout (Drawing No. 22-83228/03)

Figure 4 – Exploratory Hole Location Plan – Current Site Layout (Drawing No. 22-83228/04)

Figure 5 – Exploratory Hole Location Plan – Proposed Site Layout (Drawing No. 22-83228/05)

Figure 6 – Foundation Excavation – TP12/FE12 (Drawing No. 22-83228/06)

Appendix A

Environmental Health Record

Appendix B

Photographic Record - Walkover

Appendix C

Public Register and Environmental Health Records – Groundsure Report

Appendix D

BGS Borehole Log

Appendix E

Historic Maps

Appendix F

Eastleigh Borough Council Contaminated Land Search

Appendix G

Zetica Map

Appendix H

Contaminated Land Risk Assessment

Appendix I

Photographic Record – Trial Pits

Appendix J

Trial Pit Logs

Appendix K

Chemical and Asbestos Laboratory Certificates

Appendix L

Geotechnical Laboratory Certificates

Appendix M

Chemical Analysis Results and Human Health Assessment Criteria

Appendix N

Asbestos Calculation Worksheets

EXECUTIVE SUMMARY

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

Instructions / Brief	ACS Testing Ltd (ACS) was instructed by Develotec Design & Build Ltd (the Client) in May 2022, to carry out a desk-based and intrusive investigation and assessment to identify possible contaminated land constraints to the development of a Site located within Hamble Aerostructures Ltd, Kings Avenue, Hamble-le-Rice, Southampton, SO31 4NF.
Proposed Development	Planning Application No F/22/92497 comprises: <i>'Conversion of existing storage building into a paint shop, with the installation of an extraction unit and chimney along north-west elevation.'</i> Planning has yet to be granted.
Current Site Conditions	The Site is located within the larger Hamble Aerostructures Ltd, situated at the western corner of the village of Hamble-le-Rice, Southampton. Hamble Aerostructures is a large industrial site that specialises in the manufacturing of civil and military aircraft parts and equipment. The Site is an existing storage facility located towards the western boundary of the industrial site.
Environmental Setting	The Site is underlain by River Terrace Deposits (sand and gravels) over Selsey Sand Formation (silty sand, silty clay and sandy clayey silt). The Selsey Sand Formation is part of the Bracklesham Group which is a formation known to contain pyrite which could impact the required buried concrete specification. The Site is in an area where less than 1% of properties are above the action level, and therefore no radon protective measures are necessary. The River Terrace Deposits and the Selsey Sand Formation are classified as Secondary (A) Aquifers. The Site is not within a groundwater protection zone. The nearest watercourse is an inland River 208-221m NW. Southampton Water is recorded 187m SW. Based on the topography of the surrounding area, it is anticipated that shallow groundwater (if present) flow beneath and in the vicinity of the Site towards the south-west.

Potential Sources of Contamination	On Site ▶ Manufacturing processes – Use and storage of fuels, solvents and chemicals within various industrial/manufactures processes – Metals, hydrocarbons, solvents. ▶ Made Ground - Associated with previous use and development of the Site – metals, hydrocarbons and asbestos fibres. Off-site ▶ Various Manufacturing processes/numerous unspecified tanks within 250m – Use and storage of fuels, solvents and chemicals for various industrial/manufactures processes. Metals, hydrocarbons, solvents. ▶ Electrical substation in close proximity to the site (within 50m). Contaminants associated include hydrocarbons, mainly PCBs.
Exploration & Laboratory Testing	Twelve trial pits (labelled TP01-12) excavated using a mechanical excavator to depths between 0.55mbgl and 1.80mbgl. Soil samples collected from the trial pit arisings and subjected to chemical analysis.
Findings (Ground Conditions)	Hardstanding comprising concrete over made ground OR indigenous soils. Made Ground underlying the Site was generally described as firm to stiff brown sandy gravelly clay up to 1.20mbgl. Indigenous soils generally described as firm to stiff varied colour sandy gravelly or sandy clay (Selsey Sand Formation). Groundwater was not encountered during the site works.
Findings (Contamination)	All inorganic and organic contaminant concentrations reported below their respective GAC for commercial land use and considered not to represent a risk to human health. However, laboratory testing recorded asbestos containing materials from four of the made ground samples (TP01, TP02, stockpile and skip), but no asbestos free fibres reported from these soil samples. No other contaminants were identified at the Site. No risks have been identified for controlled water receptors.

Conclusions and Recommendations	The Asbestos Risk Assessment classes site works at the Site as “Non-notifiable Non-Licensed Work (NNLW)”. Under this category the HSE does not need to be notified. It is however noted that although the work is “Not Licensed” and “Non-notifiable” remedial measures and working practices must be adopted during all ground construction works. The following is recommended during all ground works: • EN149 type FFP3 disposable is recommended for the Respiratory Protective Equipment (RPE). • Manual/localised dust suppression (Wetting of soils) • Localised and basic personal decontamination facilities. These measures should be followed at all times, where work is undertaken in made ground soils and disturbance will take place, for example through mechanical excavation. The working practices listed above are to be put in place to protect the current users of the industrial site and site workers who are undertaking groundwork within the identified asbestos contaminated area. After construction works, it is considered that concrete floors of the new building will break the direct contact pathway with potentially asbestos contaminated soils and will provide a suitable barrier between future users of the development and potentially contaminated soils beneath. It is therefore considered that subsequent to development, no further remediation measures will be required for the Site.
Other Considerations	Waste Disposal: The Haz Waste Assessment results indicate that all of the five soil samples (Made Ground) would be classified as non-hazardous; however, asbestos was recorded in four of the sampling locations (two from two trial pits, one sample from a stockpile and a skip) resulting in the samples being classified as mixed waste. If the Asbestos could be removed prior to disposal, then an EWC code of 17 05 04 could be used for the soil fractions. For soil disposal, Waste Acceptance Criteria (WAC) testing indicate that made ground soils would be suitable for a disposal at either an inert or non-hazardous waste facility that also accepts Made Ground. It is noted that if ACMs/visible asbestos materials are present within the made ground, e.g. soils within TP01 and TP02 locations, and or the skip, the soils will be classed as hazardous waste, and should be disposed of at a Hazardous Waste Landfill facility, unless the ACMs are effectively removed prior to their disposal off-site, Watching Brief: A watching brief should be maintained during all works at the site by an appropriately qualified and experienced person. Should unexpected ACM be encountered (e.g. visible quantities of friable ACM such as lagging or insulation, or other forms of bulk ACM which are significantly degraded), or other form of contamination identified, ACS should be consulted immediately.

1 INTRODUCTION

1.1 Terms of Reference

ACS Testing Ltd (ACS) was instructed by Develotec Design & Build Ltd (the Client) in May 2022, to carry out a desk-based and intrusive investigation and assessment to identify possible contaminated land constraints to the development of a Site located within Hamble Aerostructures Ltd, Kings Avenue, Hamble-le-Rice, Southampton, SO31 4NF.

The location of the Site is shown on Figure 1.

1.2 Site Setting

The term 'Site' within this report refers to the land outlined in red shown on the Site Location Plan included as Figure 1. The Site is located within the larger Hamble Aerostructures Ltd, situated at the western corner of the village of Hamble-le-Rice. The larger site is accessed via Kings Avenue to the east with access to the Site from an unnamed road.

Hamble Aerostructures is a large industrial site that specialises in the manufacturing of civil and military aircraft parts and equipment. The Site is an existing storage facility located towards the western boundary of the industrial site.

At the time of the walkover the Site was occupied by an empty commercial building and access road.

1.3 Proposed Development

The development proposal, as included in Planning Application No F/22/92497 comprises: '*Conversion of existing storage building into a paint shop, with the installation of an extraction unit and chimney along north-west elevation.*' Planning has yet to be granted.

Environmental Health provided a written response to the planning application stating that a contaminated land planning condition should be attached to any permissions granted.

The written consultation from Environmental Health is included as Appendix A.

Figure 2 shows the existing site layout. A drawing showing the proposed development is included as Figure 3.

This report and contaminated land investigation is required to assist with a contaminated land planning condition likely to be attached to a future grant of planning.

1.4 Objectives and Scope

The main objectives of this report are to:

- ▶ Enable assessment of the potential risks associated with contaminated land in relation to the proposed development of the Site, and to inform the design of remedial measures or further investigation, if necessary.
- ▶ To provide reassurance to regulators, a possible owner of the Site, or an insurance provider.
- ▶ To summarise and confirm the expected ground conditions underlying the Site and document the findings of an intrusive investigation.
- ▶ Provide information regarding the makeup of the existing foundations.

- ▶ Provide an assessment of the underlying soils in regard to classification of waste to assist with offsite disposal.

The scope of work has included:

- ▶ Collection of Desk Study data and reference to readily available existing information.
- ▶ Qualitative and semi-quantitative contaminated land risk assessment, and preparation of a Preliminary Conceptual Site Model (CSM) to assess contaminant linkages identified for the site.
- ▶ Intrusive investigation including trial pits and soil laboratory chemical testing to investigate and assess contaminant linkages.
- ▶ Based on the outcome of the Phase 1 and Phase 2 investigation, formulation of conclusions and recommendations for the development site.
- ▶ Provide existing foundation excavations drawings.
- ▶ Soils sampling and subsequent waste classification testing.

The following sources of information have been used in compiling the desk-based study part of this report:

- ▶ A visual walkover survey of the Site
- ▶ GroundSure Report and GroundSure historical maps.
- ▶ British Geological Survey (BGS) map records (Online Viewer)
- ▶ Environment Agency Hydrogeology and Hydrology Maps
- ▶ Consultation with Eastleigh Council - Environmental Health Officer

1.5 Limitations

This report has been prepared in accordance with the instructions received from the Client and includes the findings of a desk-based investigation, ground investigation and assessment carried out by ACS. The information contained in this report is intended for the use of the Client only, pursuant to the development described above. The recommendations contained herein may not be appropriate to other development proposals.

We confirm that in preparing this report we have exercised reasonable skill and care as would be expected of a suitably qualified and experienced geoscience consultant working within the limits of the Client's instructions.

The report is based upon the findings of a desk study, and an intrusive ground investigation which includes soil sampling and chemical laboratory testing and chemical parameters. It should be appreciated that there may be areas of the Site that have not been investigated where contaminant concentrations of ground conditions may vary from those encountered. It should also be appreciated that the contaminant concentrations of sub-surface features revealed may be more widespread than those identified.

The conclusions and recommendations made in this report are limited to those that can be made on the basis of the desk-based and intrusive investigation. The results of the work should be viewed in the context of the range of data sources consulted, the number of locations where the ground was sampled, and the number of samples tested. No liability can be accepted for information in other data sources or conditions not revealed by the sampling or testing. Any comments made on the basis of information obtained from the Client or other third parties are given in good faith on the assumption that the

information is accurate; no independent validation of such information has been made by ACS Testing Ltd.

The investigation, analysis assessment and recommendations in respect of contamination are made solely in respect of the prevention of harm to identified receptors using, where possible, best practice at the date of preparation of the report. Changes in codes of practice and / or legislation, made after preparation of this report could invalidate the conclusions presented within this report.

1.6 Applicable Legislation and Regulations

Part 2A of the Environmental Protection Act (1990) and the subsequent statutory guidance (Defra, 2012) forms the basis for the current statutory regime for the identification and remediation of contaminated land in England and Wales. The 2012 statutory guidance states that the aim of Part 2A is to:

- a) To identify and remove unacceptable risks to human health and the environment
- b) To seek to ensure that contaminated land is made suitable for its current use
- c) To ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable and compatible with the principles of sustainable development.

A legal definition of contaminated land is stated in the Environmental Protection Act 1990, Part 2A, Section 78A(2). Within this Act contaminated land is defined as:

“Any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, or under the land that:

- ▶ *Significant harm is being caused or there is significant possibility of such harm being caused;*
or
- ▶ *Pollution of controlled waters is being or is likely to be caused.”*

Contamination within the ground is often addressed via the planning regime. Guidance principles for sites dealt with via planning was outlined in Planning Policy Guidance 23 (PPG23). As part of the governments drive to reduce red tape, PPG23 was withdrawn in 2012 and replaced with more streamlined guidance in the form of the National Planning Policy Framework (NPPF) which has subsequently been revised in July 2021. The following references to contaminated land and site investigation are made within the NPPF:

Paragraph 183 – Planning policies and decisions should ensure that:

- a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);*
- b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and*
- c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.*

Paragraph 184 - Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

The NPPF defines a competent person as:

- *A person with a recognised relevant qualification, sufficient experience in dealing with the type(s) of pollution or land instability, and membership of a relevant professional organisation.*

The Environment Agency 'Land Contamination Risk Management (LCRM)', acknowledges the need for a tiered risk-based approach comprising of:

- Tier 1 Assessment: comparison of the site contaminant levels with generic standards and compliance criteria including an assessment of risk using a source-pathway-receptor model.
- Tier 2 Assessment: derivation of site-specific risk assessment criteria and calculation of site specific clean-up values.

This report has been completed in accordance with the Environment Agency 'Land Contamination Risk Management (LCRM)', the revised NPPF 2021 and the Statutory Guidance to Part 2A of the Environmental Protection Act 1990. British standards include BS5930, BS10175, BS8485 and BS8576.

2 SITE DESCRIPTION

2.1 Site Location

A Site walkover visual survey was carried out by an ACS Geo-Environmental Engineer on the 20th of May 2022. Photographs taken during the Site walkover survey are included as Appendix B.

The Site (National Grid Reference SU 46827 07256) is located in the north-western corner of Hamble-le-Rice a village within the county of Hampshire. The larger site is accessed from Kings Avenue to the east with the Site itself accessed via an unknown access road to the north. The post code for the Site is SO31 4NF. The entire Site could not be viewed as the building along the northwest boundary was locked (Photo 1).

The Site boundaries are generally marked by the following features:

- ▶ North-east – Wall of Commercial Building.
- ▶ North-west – Boundary located on existing access road.
- ▶ South-east – Wall of Commercial Building.
- ▶ South-west – Wall of Commercial Building.

2.2 Current Site Condition

The Site predominantly comprises an existing commercial building of a steel frame and brick structure with a pitched and flat roof (Photo 2). The north-west section of the Site comprises an existing access road (Photo 3).

The existing commercial building has a concrete slab (Photo 2) covering the surface of the building with a concrete slab also (Photo 3) covering the external northwest section of the Site. The commercial building was empty with only construction materials noted associated with the trial pit works (Photo 2).

The area surrounding the Site was associated with the commercial/industrial use of the entire larger site. The area to the northwest of the access road was occupied by various buildings and structures. Two buildings were denoted paint store (Photo 3) with buildings further to the northwest associated with the sprinkler system (Photo 4). A large tank was also present that contained the water for the sprinkler system (Photo 5). An electricity sub-station was located approximately 15m west of the site (Photo 6). A wash off area was also noted approximately 35m west of the Site (Photo 7). ACS was told that the wash off area had an interceptor.

A tank was located approximately 25m north of the Site. The content of the tank was unknown; however, there was a bund surrounding the tank (Photo 9). The area to the northeast was used to store equipment and occupied by commercial buildings (Photo 10). The remaining surrounding areas adjacent to the Site were used as workshops to make and store aeroplane parts (Photo 11-15).

No visual or olfactory evidence of contamination was observed during the walkover survey. It is noted that access to inside a small outdoor building was not gained at the time of the site inspection and site conditions inside this building could not be assessed.

3 ENVIRONMENTAL SETTING

3.1 Introduction

The following summarises the physical and environmental setting of the Site based on information obtained from Ordnance Survey maps, British Geological Survey information and from the Groundsure Report, which is reproduced in Appendix C. This information forms the basis of the physical and contaminated land Conceptual Site Model (CSM). Data shown below corresponds to records within 250m of the site.

3.2 Geology

The Groundsure Report, on-line geological maps and cross-sections from the British Geological Survey (BGS) Online Map Viewer and 1:50,000 scale Sheet 315 have been reviewed. Based on this information, the ground conditions expected beneath the Site are summarised below.

Table 1: Geology

Potentially Infilled Land/Artificial and Made Ground	On-site: No artificial ground indicated. Off-site: No artificial ground indicated within 250m of the Site.
Superficial Deposits	On-site: The Site is likely underlain by River Terrace Deposits (2) described by the BGS as comprising units of granular sands and gravel.
Solid Geology	On-site: The Site is likely underlain by the Selsey Sand Formation described by the BGS as comprising 'silty sand, silty clay and sandy clayey silt'. Off-site: Barton Clay Formation - Clay, Silt and Sand. 29m S
Bedrock Faults and other Linear Features	No records within 250m.
BGS Boreholes	The nearest borehole (ref-SU/40/NE/7) with adequate data and located within similar geology was drilled approximately 425m north-west of the Site. The borehole was drilled in 1887 to a depth of 53.64m is summarised below. ▶ Brickearth - 0.15mbgl ▶ Green Sand -1.68mbgl ▶ Various Clays – 8.50mbgl ▶ Greenish Sand – 35.6mbgl ▶ Various clays – 49mbgl ▶ Green Sand – 53.6mbgl Water level was recorded at approximately 4.90mbgl. The full BGS Log is included as Appendix D.
Risks from Geotechnical Hazards	Shrinking or Swelling Clay: Low on-site. Ground conditions predominantly medium plasticity. Moderate risk 26m S. Running Sands: Very Low. Running sand conditions are unlikely. Compressible Deposits: Negligible Collapsible Deposits: Very Low Landslides: Very Low Ground Dissolution of Soluble Rocks: Negligible The Selsey Sand Formation is part of the Bracklesham Group which is a formation known to contain pyrite which could impact the required buried concrete specification.

Surface Ground Workings Mining, Extraction & Natural Cavities	Surface Ground Workings; Pond 211m NW and an Unspecified Pit 215m E.
Radon	The Site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level. No radon protective measures are necessary.

3.3 Hydrogeology and Hydrology

The Environment Agency (EA) maps (included in the Groundsure report in Appendix C) have been reviewed and indicates the following hydrogeological features. Based on the topography of the surrounding area, it is anticipated that if shallow groundwater is present, it may flow beneath and in the vicinity of the Site towards the south-west.

Table 2: Hydrogeology, Hydrology and Environmentally Sensitive Areas

Superficial Geology	On-site: Secondary A Aquifer. Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
Solid Geology	On-site Secondary A Aquifer. Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers. Off-site: Unproductive. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow. Recorded 26m S of the site.
Groundwater Vulnerability	High vulnerability of the Secondary Superficial Aquifer. Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
Groundwater Source Protection Zones	None within 250m.
Groundwater, Surface Water Abstraction Licences, Potable Water Abstraction Licences	Active Groundwater abstraction 156m SE used for general use relating to secondary category. Location: Hamble Airfield.
Surface Water Features	Inland River 208-221m NW. On ground surface water feature. Southampton Water 187m SW.
River and Coastal Flooding	Flooding from Rivers or Sea: None Site is not situated within an EA designated Flood Zone Surface Water Flooding: High Risk on-site. 1 in 1000 year, 0.1m - 0.3m. Between 0.1m and 0.3m maximum flood modelled depth Groundwater Flooding: Moderate to High Risk if groundwater is present.
Environmentally Sensitive Sites	SSSI - Lee on the Solent to Itchen Estuary 169m SW. Ramsar & SPA – Solent and Southampton Water – 168m SW. Designated Ancient Woodland – West Wood 106m N

4 POTENTIAL SOURCES OF CONTAMINATION

The following section provides a summary of the potential sources of contamination identified in the various information references, both historical and recent. The tables include an indication of the likelihood that contamination of the Site has occurred due to the potential sources identified. Where the likelihood is assessed as 'unlikely' that potential source is not considered further in the risk assessment, though this is not a 'guarantee' that this has not occurred. The distances provided in the tables are approximate. Data assessed below corresponds to records within 250m of the site.

4.1 History of the Site and Surrounding Area

4.1.1 Ordnance Survey Maps

Historical Ordnance Survey maps have been obtained from Groundsure and are reproduced in Appendix E. and summarised in 3. The summary below focusses on features which are considered to be of relevance to this study including potential sources of contamination and geographical features which may be significant to the conceptual site model.

Table 3: Summary of Historical Activities

Date	On Site	Off Site	Likelihood of Impact
1859-1869	Open land. (Map not complete)	Generally surrounded by open land with some sporadic structures.	N/A
1882-1898	Open land.	No changes considered relevant.	N/A
1907-1910	No changes considered relevant.	No changes considered relevant.	N/A
1931-1933	No changes considered relevant.	No changes considered relevant.	N/A
1942-1964	Site has been developed and shown to be occupied by a large commercial building.	Works – Adjacent to Site Tank – 121m E Chimney – 140m E Tank – 175m SE	On Site Works –Medium likelihood – Further assessment required. Off Site Works – Medium likelihood – Further assessment required. Tank (121m E) – Low likelihood. Risk reduced due to distance from Site and likely H&S measures onsite. Tank (175m SE) – Low likelihood. Risk reduces due to distance from Site, across hydraulic gradient and likely H&S measures onsite.

Date	On Site	Off Site	Likelihood of Impact
1985-1986	Building denoted a Works	Tank 23m W Electricity Substation – 85m N Tank – 167m E Tank – 190m SW Tank – 220m NE Tank 230m S Electric Substation – 270m SE	Off Site Electricity Substation – Unlikely due to distance from Site and low mobility of potential contaminants. Tank - Medium Likelihood for closest unspecified tank – Low likelihood for other tank features. Risk reduced due to either distance from Site or down / across hydraulic gradient. Also, likely H&S measures on-site.
1989-1993	No changes considered relevant.	Electric Substation – 80m NW Electric Substation – 270m SE	Electricity Substation – Unlikely due to distance from Site and low mobility of potential contaminants.
2001-2003	No changes considered relevant.	No changes considered relevant.	N/A
2010	No changes considered relevant.	No changes considered relevant.	N/A.
2022	No changes considered relevant.	No changes considered relevant.	N/A

N-north, S-south, E-east, W-west

4.1.2 Other Sources of Information

Google Earth was reviewed in order to source information pertinent to the study Site. Google Earth and the GroundSure Report provides images from 1999 to 2021 which shows the Site does not change considerably during that time.

4.2 Environmental Records

Environmental records have been obtained from the Groundsure Report (Appendix C). Data shown below correspond to records within 250m of the site.

Table 4: Environmental Records

Historical / Current Activities	Details of Features of Interest	Location	Likelihood of Impact
Historical industrial land uses	Unspecified Works	On-site 1971	Works – Medium likelihood
	Battery	170mSW – 1896-1932	Battery – Unlikely due to time since activity and distance.
	Military hospital	215m NW 1957-1971 215m NW 1859	Military hospital - Unlikely due to time and distance. Unspecified Pit - Unlikely due to age of the pit and distance.

Historical / Current Activities	Details of Features of Interest	Location	Likelihood of Impact
	Unspecified Pit		
Historical tanks	Unspecified Tanks/ Tanks	14m, 128m, 166 NW, 107-112m, 130m E 136m-175m S, SE	Medium Likelihood for closest unspecified tanks. Low likelihood for other tank features. Risk reduced due to either distance from Site or down / across hydraulic gradient. Also, likely H&S measures on-site
Historical Energy Features	Electricity substations	Between 61m and 203m NW, N, E, S, SE	Electricity substations –Unlikely. Low mobility of potential contaminants. Risk reduced due to distance to the Site.
Landfill and Other Waste Sites	None within 250m	N/A	N/A
Waste exemptions	Ge Aviation Kings Avenue Southampton SO31 4NF - Use of waste in construction.	227m E	Unlikely. Due to distance and activity carried out off-site.
Current Industrial Land Uses	Works – Hamble aerostructure Ge Aviation Systems – Regulated explosive sites	On site	Aircraft Factory – Records of Part A(1) installations regulated by Environmental Permits
	Works and associated activities (tanks, gas governor, etc)	Onsite and offsite -Hamble aerostructure	Medium Likelihood - Further assessment recommended.
	Electricity Sub-stations	7m to 225m	Low to Unlikely – Low mobility of potential contaminants. Risk level reduced by distance.
Licensed pollutant release (Part A(2)/B)	Coating Processes Status: Historical Permit Type: Part B	Hamble Group, 228m E	Low likelihood due to distance.
Pollution Incidents to Controlled Waters	None within 250m	N/A	N/A
Pollution inventory substances	Surface treating metals and plastics; electrolytic/chemical >30 cu m carried out with activities under part a(2) or part b of section 2.2.	Hamble Aerostructures Limited 42m SE	Medium Likelihood - Further assessment required.
Pollution inventory waste transfers			

N-north, S-south, E-east, W-west

4.3 Correspondence

4.3.1 Local Authority Search

ACS have requested relevant information from the environmental health services at Eastleigh Borough Council.

There records indicate an underground fuel tank approximately 200m south of the Site.

Various site investigations in regard to contamination and geotechnical design were undertaken in areas approximately 100m and 150m southwest and south of the Site.

A Desk Study and Interpretive Site Investigation Report was produced for an area of the larger site approximately 100m southwest of the Site (ref 0 HAM850.S/SI/001). Elevated concentrations of cadmium and lead were revealed within made ground units. Although elevated with respect to the human health assessment criteria, the identified concentrations were not considered likely to represent a risk to the future end users of the site due to the entire proposed development being covered with hardstanding. Chrysotile fibres within a fragment of asbestos material were also identified. In regards, to the risk to controlled waters, it was stated the site posed a low risk based on the available data.

An intrusive site investigation is discussed within a report produced by T&P regeneration (ref-130221_HAM850_dg_jc). The report was produced to fully characterize the potential risks posed by the presence of potentially degradable materials within made ground in the investigated area. The conclusions of the report were that the need for gas protection measures was not required, and Characteristic Situation (CS)1 was deemed appropriate based on the available data.

Supplementary investigation was undertaken by T&P Regeneration (ref-2013Sept_HAM850 unit) in an area approximately 150m south of the Site. The findings in regard to human health were that the soil contaminants within the made ground and natural ground were below the relevant assessment criteria. However, asbestos fibres were recorded within the made ground at two locations as well as in other locations identified by a demolition contractor. For ground gas, it was considered that the risk from any potential significant quantities of ground gas generation was unlikely.

Their records indicate that the Site has not been identified as contaminated under Part 2A of the Environmental Protection Act 1990.

LA records indicate no landfills or wells are located within 250m of the Site.

The Eastleigh Borough Council Environmental search is included as Appendix F. The reports discussed above should be read in full to gain a better understanding of the Site.

4.3.2 Unexploded Ordnance Risk

ACS have reviewed the Zetica regional unexploded bomb risk map for this area, which indicates that the Site is in a low risk area. The Zetica records are included in Appendix G.

5 CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

5.1 Introduction

The following summarises the physical and contaminated land conceptual site model (CSM), and the preliminary contaminated land risk assessment. The term ‘contaminant linkage’ refers to the connection between a contaminant, an exposure pathway and a receptor. Each element may exist in isolation and pose no environmental risk. It is only when all three elements are present that a contaminant linkage is considered possible, as discussed below. The potential risk associated with each contaminant linkage will depend on whether the ground has been impacted by a contaminant from a potential source, and then the likelihood of a receptor being harmed, which is primarily dictated by the physical conditions.

5.2 Physical CSM

Features of the environmental setting which are particularly pertinent to the physical CSM include:

- ▶ There is a potential of contamination at the Site and its surroundings due to the numerous unknown manufacturing process/activities carried out at Hamble Aerostructures.
- ▶ There is a potential risk from potential fuel/and or chemical leakage from tanks present within surrounding areas, within Hamble Aerostructures, which could migrate and impact the Site.
- ▶ There is a potential for thin units of Made Ground to be present on-site, associated with previous development and use of the Site which underlies any hardstanding located on Site.
- ▶ BGS maps show the Site to be underlain by River Terrace Deposits comprising granular sands and gravel. The Bedrock deposits underlying the Site are units of the Selsey Sand Formation which comprises either silty sand, silty clay or sandy clayey silt.
- ▶ A borehole drilled approximately 425m of the Site was described as interbedded sands and clays.
- ▶ The River Terrace Deposits and Selsey Sand Formation are classified by the EA as Secondary (A) Aquifers. The Barton Clay Formation - Clay, Silt and Sand is recorded 29m S. This is recorded as an unproductive aquifer
- ▶ The nearest surface water features are an inland River located approximately 208m NW and Southampton Water located 187m SW.
- ▶ Based on the topography of the surrounding area, it is anticipated that shallow groundwater (if present) may flow beneath and in the vicinity of the Site towards the south-west.
- ▶ The Site is not within a groundwater source protection zone. There is one active groundwater abstraction 156m SE, at Hamble Aerostructures, used for general use relating to secondary category.

5.3 Potential Contaminant Linkages

5.3.1 Potential Sources

The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a contaminant as:

“A substance which is in, on or under the land which has the potential to cause harm or cause pollution of controlled waters”.

Based on the information obtained in this study, the following potential sources of contamination and associated most likely contaminants, have been identified:

On Site

- ▶ Manufacturing processes – Use and storage of fuels, solvents and chemicals within various industrial/manufactures processes – Metals, hydrocarbons, solvents.
- ▶ Made Ground - Associated with previous use and development of the Site – metals, hydrocarbons and asbestos fibres.

Off-site

- ▶ Various Manufacturing processes/numerous unspecified tanks within 250m – Use and storage of fuels, solvents and chemicals for various industrial/manufactures processes. Metals, hydrocarbons, solvents.
- ▶ Electrical substation in close proximity to the site (within 50m). Contaminants associated include hydrocarbons, mainly PCBs. It is noted that PCBs are characterised for having low mobility.

5.3.2 Potential Receptors

The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a receptor as:

“Something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property or controlled waters”

Following the proposed development of the Site, the following sensitive receptors could be impacted if exposed to contaminants:

- ▶ Future site users
- ▶ Construction workers
- ▶ Controlled waters – Secondary (A) Aquifer, Southampton Water
- ▶ Buildings and infrastructure

5.3.3 Potential Pathways

The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a Pathway as:

“A route by which a receptor might be affected by contamination”

Following development, the following exposure/migration pathways may be present, in relation to the receptors listed above:

Future Site Users

- ▶ Soil and dust ingestion (indoor and outdoor)
- ▶ Dermal contact with soil and dust (indoor and outdoor)
- ▶ Inhalation of dust (indoor and outdoor)
- ▶ Inhalation or ignition of hydrocarbon vapour / solvents
- ▶ Inhalation of free asbestos fibres.

Controlled Waters

- ▶ Vertical infiltration of contaminants through unsaturated ground into groundwater
- ▶ Horizontal and vertical migration in groundwater, and into surface water.

Buildings and Infrastructure

- ▶ Direct contact and absorption into building materials
- ▶ Corrosion of concrete
- ▶ Corrosion of plastic pipes
- ▶ Ignition of hydrocarbon vapour

5.3.4 Preliminary Contaminated Land Risk Assessment

Table 5 summarises the potential contaminant linkages which are considered to be credible for this site following the proposed development. The risk posed by a given contaminant linkage is classified based upon the likelihood of the linkage being realised, and the severity of the consequence should that linkage be realised. The definitions of likelihood and consequence used in this report are provided in Appendix H. These are based on those outlined in CIRIA guidance document C552.

Table 5: Summary of Contaminant Linkages and Risk Assessment

Source	Potential contaminants of concern	Potential exposure pathways	Receptors following redevelopment	Consequence of risk being realised	Probability of risk being realised	Comments	Risk classification
On Site							
Historical /current Manufacturing Process and Made Ground - associated with previous use and development of the site.	Metals, hydrocarbons (including polycyclic aromatic hydrocarbons and total petroleum hydrocarbons), asbestos fibres, hazardous ground gases, solvents and chemicals	Soil and dust ingestion (indoor and outdoor); Dermal contact with soil and dust (indoor and outdoor); Inhalation of dust (indoor and outdoor) Inhalation or ignition of hydrocarbon vapour	Future Site users Construction Workers	Medium	Likely	As the Site has historically and currently been used for industrial purposes there is the possibility for determinands to pose a potential risk. Due to the potential for Made Ground underlying the Site there is also the possibility for determinands to be present in the made ground soils which could represent a risk to human health. However, this is only feasible if there is gross contamination present. If there is made ground present, it is most likely to be localised and not in large quantities so that the potential to produce hazardous quantities of asphyxiating ground gases would be limited. There would also need to a significant amount of organic matter to produce hazardous ground gases. However, this would have to be proven with intrusive investigation. The internal part of the Site is covered in a concrete slab and the external part of the Site is also covered in a concrete slab which would have prevented any potential contaminants entering the soils. Therefore, a risk to present site users is not perceived at this stage of the site assessment. Much of the Site is indicated to be underlain by superficial and bedrock classified as a secondary (A) aquifer indicating permeable strata. Further investigation will be required to prove the presence or absence of potential contaminative sources and to investigate potential contaminant migration pathways.	Moderate
		Direct contact and absorption into building materials Corrosion of concrete Corrosion of plastic pipes Ignition of hydrocarbon vapour	Buildings and infrastructure	Medium	Likely		
		Vertical infiltration of rainwater through unsaturated ground into groundwater. Horizontal and vertical migration in groundwater, and into surface water.	Secondary (A) Aquifer Southampton Water	Medium	Low Likelihood		Moderate/Low
	Asbestos fibres Asbestos Containing Materials (ACMs)	Inhalation of free fibres	Future Site users Construction Workers	Severe	Likely	Asbestos may be present within any underlying Made Ground soils. Should asbestos materials be present within made ground, a potential High level of risk to human health should be considered.	High

Source	Potential contaminants of concern	Potential exposure pathways	Receptors following redevelopment	Consequence of risk being realised	Probability of risk being realised	Comments	Risk classification
Off-site							
Off-site Various manufacturing processes and numerous unspecified tanks within 250m.	Use and storage of fuels, solvents and chemicals, metals, hydrocarbons and asbestos.	Transport of contaminants through permeable soils and groundwater to beneath the site from off-site. Subsequent direct contact, ingestion of contaminated soils and inhalation of dust. Inhalation hydrocarbon vapour	Future Site users	Medium	Likely	There are potential sources immediately up hydraulic/topographical gradient of the Site. There is therefore a potential risk for contaminant migration from off-site areas to the area proposed for development. An intrusive site investigation is recommended to investigate and assess potential contaminant migration pathways.	Moderate
		Transport of contaminants through permeable soils and groundwater to beneath the site from off-site. Direct contact and absorption into building materials Corrosion of concrete/plastic pipes.	Buildings and infrastructure	Medium	Likely		
Off-site Electricity Sub-stations	Hydrocarbons, mainly PCB's	Transport of contaminants through permeable soils and groundwater to beneath the site from off-site. Subsequent direct contact, ingestion of contaminated soils and inhalation of dust. Inhalation hydrocarbon vapour	Future Site users Construction Workers	Medium	Unlikely	An electricity sub-station was recorded 7m east of the Site; however, any potential determinands would have a low mobility and unlikely to have a significant risk to the Site.	Low
		Transport of contaminants through permeable soils and groundwater to beneath the site from off-site. Direct contact and absorption into building materials Corrosion of concrete/plastic pipes.	Buildings and infrastructure	Medium			

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Geo-environmental Considerations

Based on the information gathered during this desk study the following conclusions have been made.

- ▶ The Desk Study part of the report has concluded that the Site may have been impacted by historical and current industrial use of the Site. The potential risk from this historical/current industrial land use is perceived as a **Moderate Risk, with a High Risk** perceived if Asbestos Containing Materials (ACMs) are present within made ground.
- ▶ This assessment has concluded that the proposed redevelopment of the Site poses a **Moderate to Low Risk** to controlled waters. The Site is underlain by a Secondary (A) Aquifer and is approx. 200m from the nearest sensitive surface water receptor.
- ▶ This assessment has concluded that the proposed redevelopment of the Site poses a potential **Moderate Risk** to buildings and infrastructure, due to historical/current industrial land use and the potential of Made ground to be present at the site.
- ▶ Contaminated Land Risks from off-site surrounding activities are also perceived as **Moderate** and further investigation is recommended to investigate potential contaminant migration pathways, and their potential impact on the Site.

It is therefore recommended that an intrusive investigation be carried out to confirm the actual ground conditions, investigate and assess contaminant linkages identified by the preliminary CSM, and clarify the potential constraints and liabilities associated with the proposed development of this Site, with respect to contaminated land.

The investigation should be used to inform human health and controlled waters risk assessment, as well as to inform health and safety risk assessment for the construction and ongoing maintenance of the proposed development. Should gross contamination be encountered, boreholes may be required to monitor and assess groundwater.

7 INTRUSIVE INVESTIGATION – SCOPE

7.1 Introduction

An intrusive investigation was undertaken by ACS on 20th May 2022. The following sections summarise the work completed and the findings of the investigation.

The investigation was limited to the areas where the Client had previously cut through the existing slab to investigate foundations and soils below concrete floors of the existing building. The investigation was also to enable a contaminated land risk assessment to be undertaken for the site.

The work was supervised by a suitably qualified and experienced ACS Site Engineer.

The Client cut through the concrete and excavated the trial pits prior to ACS attending Site. Where required, specific trial pits were extended to establish the base of the Made Ground. The Client excavated under the base of the concrete slab to expose current foundations and soils beneath.

Plans showing the exploratory hole locations, with the current and proposed layout, are included as Figures 4 and 5.

7.2 Trial Pits

Twelve trial pits (labelled TP01-12) were excavated using a mechanical excavator to depths between 0.55mbgl and 1.80mbgl, and the ground conditions logged. Soil samples were collected from the trial pit arisings and subjected to chemical analysis. It was initially proposed for ten trial pits to be excavated; however, more were logged to provide a greater detail on the underlying soils.

Photographs showing the trial pits are included as Appendix I.

The trial pit logs are included in Appendix J.

7.3 Foundation Excavations

The Client requested information regarding existing foundations and confirmation on the founding strata for the existing storage facility. ACS collected a photo record of the existing structure and foundations and undertook foundation excavation drawings where appropriate. Only one foundation excavation drawing was undertaken for the Site due to the structure of the existing building.

The foundation excavation drawing from TP12 is included as Figure 6.

7.4 Laboratory Analysis

7.4.1 Chemical Analysis

Eleven soil samples, five from the made ground and six from natural soil, were collected from the trial pits and submitted for chemical analysis. A total concentrations suite comprising the following determinands was carried out on each of the samples.

- ▶ Metals – Arsenic, Cadmium, Chromium (III & VI), Copper, Lead, Mercury, Nickel, Selenium, Zinc
- ▶ Speciated Polycyclic Aromatic Hydrocarbons – PAH

- ▶ Speciated Total Petroleum Hydrocarbons – TPH aliphatic / aromatic split including benzene, toluene, ethylbenzene, xylene (BTEX)
- ▶ Soil Organic Matter (SOM) & Fraction Organic Carbon (FOC)
- ▶ pH

In addition to the above testing a presence of asbestos screen was undertaken on eight soil samples scheduled for chemical analysis.

Some of the made ground soil samples were also tested for soluble sulphate and pH for concrete specifications. Chemical laboratory test result certificates are included as Appendix K.

7.4.2 Waste Classification

Soil samples were collected and scheduled for chemical analysis to assist with offsite disposal of soil. Three soil samples were collected from the trial pits within units suspected to be Made Ground. In addition, one soil sample from a skip known to contain cement cladding and one sample from a stockpile of excavated material were collected and scheduled for testing.

7.4.3 Geotechnical Analysis

The Client requested that soil samples were scheduled for moisture content and Atterberg limit testing to assist with determining the volume change potential. Two soil samples from the natural cohesive deposits were scheduled for analysis to provide preliminary information regarding volume change potential of the underlying soils.

All samples were dispatched to a UKAS accredited laboratory (ACS Environmental) under a chain of custody procedure, and in suitable conditions in accordance with best practice.

Physical laboratory test result certificates are included as Appendix L.

8 GROUND CONDITIONS

8.1 Geology

Table 6 summarises the strata encountered during the intrusive investigation. No visual evidence of heavy metals or hydrocarbon contamination was observed in any of the exploratory holes on the Site. However, evidence of cement cladding (potentially asbestos containing material) was noted within the soils in a skip located on Site and within shallow soils underlying the concrete slab in TP01 and TP02. Full details are provided in the exploratory hole logs included as Appendix J.

Table 6: Summary of Strata

Strata	Exploratory Holes	Depth to Base of Stratum (mbgl)
Concrete / Bound Macadam	All	0.15 to 0.55
Made Ground	TP01-TP02, TP05, TP07, TP09-TP11	0.50-1.20
Selsey Sand Formation	All	0.55-1.80^

^ Base of Selsey Sand Formation not proven.

8.1.1 Hardstanding

Hardstanding comprising concrete was encountered within all the trial pits proven from ground level to depths between 0.15mbgl and 0.55mbgl. One unit of Bound Macadam was noted in TP12/FE12 overlying the concrete.

8.1.2 Made Ground

Made Ground was encountered in six of the trial pits to depths between 0.23mbgl and 1.20mbgl. The Made Ground underlying the Site was generally shown firm to stiff brown sandy gravelly clay. One unit of light grey sandy gravel was noted within TP02 between 0.30mbgl and 0.50mbgl. The gravel constituents within the units were generally described as fine to coarse angular to sub-rounded flint, brick and concrete. Cement cladding possibly containing asbestos was encountered within TP01 between depths of 0.23mbgl and 0.55mbgl and within TP02 between depths of 0.30mbgl and 0.50mbgl.

As part of the chemical testing undertaken on Site, three soil samples from the Made Ground units were scheduled for Water Soluble Sulphate analysis and five soil samples scheduled for pH analysis. The laboratory testing provided a pH value for made ground samples between 7.1 and 8.4 and water-soluble sulphate levels of between 17.7mg/l and 140mg/l.

Based on the testing results and in accordance with BRE SD1 (2005), a preliminary Design Sulphate Class of DS-1, and an Aggressive Chemical Environment for Concrete Class (ACEC) of AC1s is determined for the Made Ground. For ACEC class DS-1 AC1s and in accordance with Table D2 of the BRE SD1 2005, DC1 class is recommended for the general in-situ use of concrete.

Note that the above results are for made ground soils sampled up to 1.20mbgl. Foundations for the paint shop are most likely to extend below made ground to encounter natural soils. pH levels from indigenous soils differ from those reported from made ground, with pH values between 5.6 and 6.1. Soluble Sulphate values are most likely to also vary. The Selsey Sand Formation of the Bracklesham

Group is a pyrite bearing unit which could also impact buried concrete specifications. It is therefore recommended that further testing for concrete specifications is undertaken.

8.1.3 Selsey Sand Formation

Units interpreted as the Selsey Sand Formation were encountered in all trial pits proven to depths between 0.55mbgl and 1.80mbgl.

The Selsey Sand Formation encountered were generally shown to be fairly consistent across the site comprising a firm to stiff varied colour sandy gravelly or sandy clay. A unit of gravelly silty sand and firm to stiff sandy gravelly clay was recorded within TP03. A unit of firm to stiff grey clay was recorded within TP12 between 0.15mbgl and 0.55mbgl. One unit of soft to firm clay was noted within TP09; however, this is likely due to the presence of surface water and the excavating of soils softening the soils. The gravel constituents were described as a fine to coarse angular to sub-rounded flint.

Two soil samples underwent Atterberg limit and moisture content testing from the cohesive Selsey Sand Formation. The testing recorded a moisture content of between 15% and 25% and a modified plasticity index between 7.92% and 22.33%.

The Atterberg and moisture content analysis indicates that the soils underlying the Site are classified in accordance with NHBC Chapter 4.2 as being non-shrinkable or to have a medium shrinkable volume change potential. At this stage it is recommended that the soils are preliminarily classified as having a medium shrinkage potential.

However, foundations for the paint shop are most likely to extend below 1.4mbgl and therefore, further investigation and testing of deeper soils is recommended for foundation design.

8.2 Groundwater

Groundwater was not recorded within any of the trial pits. Some water was encountered within TP09-TP12; however, this was associated with surface water collecting in the pits.

8.3 Comment on Existing Foundations

Concrete piles were recorded within TP01, TP02 and TP03 below the steel uprights. The base of the piles was not established as they exceeded the maximum depth of the trial pits. The pile within TP01 was 0.70m wide and the piles within TP02 and TP03 were 0.20m wide. TP04 and TP06 -TP08 were excavated adjacent to existing steel uprights within the building. The trial pitting indicated that in these locations the steel uprights were not cast within a concrete pile with evidence indicating the steels were cast within the concrete slab. Within TP04 and TP07 the steel was clearly visible penetrating through the base of the existing slab.

TP12 was excavated by the Client in the northwest corner of the building which appeared to be constructed on a concrete foundation. It is unknown whether the foundation is a concrete slab or a shallow trench foundation. The metal structure was constructed on bricks which lay on a concrete slab below. The concrete slab was approximately 250mm in thickness.

Photographs of the trial pits showing the existing piles, steel beams and foundations are included as Appendix I. The foundation excavation drawing from TP12 is included as Figure 6.

9 HUMAN HEALTH RISK ASSESSMENT

9.1 Soil Analysis Assessment

9.1.1 Basis of Assessment

The following provides a review of the soil chemical analysis results and an assessment of their significance with respect to the potential harm to people through exposure to the soils, or vapour deriving from hydrocarbon contamination in the soil, underlying the Site. In order to assist in the risk assessment, the results of chemical analysis have been compared to published generic assessment criteria as described below.

S4ULs were published (S4UL3023) by Land Quality Management Ltd (LQM) and the Chartered Institute of Environmental Health (CIEH) in 2015. The S4ULs have been derived in accordance with UK Legislation, Environment Agency (EA) Policy and a modified version of the EA's CLEA Model (v1.06). The S4ULs have been designed to replace the 2009 LQM/CIEH Generic Assessment Criteria (GACs). The approach to collection and use of toxicology data used to produce the S4ULs is in accordance with current EA guidance (SR2 – Human Health Toxicology Assessment of Contaminants in Soil) which are based on the principles of 'minimal' or 'tolerable' risk.

Lead

There is not an S4UL for lead and therefore we have used Category 4 Screening Levels (C4SLs), published by Defra in 2013. The purpose of the C4SLs is to provide a "relevant technical tool" as outlined in paragraph 4.21(c) below, at which if soils show concentrations below, the land is within Category 4 as defined by the 2012 revised Statutory Guidance for Part 2A of the Environmental Protection Act (1990). Category 4 is defined as:

"4.21 The local authority should consider that the following types of land should be placed into Category 4: Human Health:

- (a) Land where no relevant contaminant linkage has been established.
- (b) Land where there are only normal levels of contaminants in soil, as explained in Section 3 of this Guidance.
- (c) Land that has been excluded from the need for further inspection and assessment because contaminant levels do not exceed relevant generic assessment criteria in accordance with Section 3 of this Guidance, or relevant technical tools or advice that may be developed in accordance with paragraph 3.30 of this Guidance.
- (d) Land where estimated levels of exposure to contaminants in soil are likely to form only a small proportion of what a receptor might be exposed to anyway through other sources of environmental exposure (e.g. in relation to average estimated national levels of exposure to substances commonly found in the environment, to which receptors are likely to be exposed in the normal course of their lives).

The local authority may consider that land other than the types described in paragraph 4.21 should be placed into Category 4: Human Health if following a detailed quantitative risk assessment it is satisfied that the level of risk posed is sufficiently low." (Defra, 2012)

C4SLs model a 'low' level of risk; a higher level than the 'minimal' risk approach adopted when deriving the S4ULs. In the absence of an alternative criteria for lead, the use of low risk screening criteria within the planning regime are considered acceptable in this instance.

The assessment criteria for inorganic mercury is used for total mercury results as the equilibrium concentrations of elemental and methyl mercury compounds are likely to be very low

Assumptions

The Site will be redeveloped with a commercial paint shop, and associated structures and therefore the generic assessment criteria (GAC) which relate to 'Commercial' land use scenario has been adopted.

Where contaminants are sensitive to soil organic matter (SOM), LQM / CIEH S4UL provide three GAC values for 6%, 2.5% and 1% SOM. The SOM content measured in the samples was between <0.87% and 1.04%, therefore a generic SOM of 1% has been adopted.

The assessment criteria are summarised in Appendix M.

9.1.2 Summary of Results

Of the soil samples analysed, none revealed inorganic or organic contaminant concentrations above the assessment criteria. No further action is therefore considered necessary with respect to organic/inorganic contaminants reported from the soil samples. The contamination testing results are included in Appendix K.

However, Asbestos Containing Materials (ACMs) were recorded in the Made Ground in two locations. Chrysotile asbestos (Gasket) were recorded in TP01 in the unit between 0.23-0.55mbgl. Chrysotile asbestos cement fragments were reported from TP02 between 0.30-0.50mbgl. No asbestos free fibres were reported from these soil samples, with the total asbestos content reported as 0.014% and 0.993% for TP01 and TP02 respectively.

No ACMs/asbestos fibres were recorded in natural soils below the made ground.

Asbestos Cement (Chrysotile) was also reported from the stockpile of made ground denoted STK01 and from the skip, where cement cladding was identified during the site works. No asbestos free fibres were reported from the made ground soils, with the total asbestos content reported as 0.003% and 0.851% for the soil stockpile and soils in the skip respectively.

ACMs were not recorded any other trial pit location.

There is no safe level to utilise as an assessment criterion for asbestos. Further risk assessment has therefore been undertaken for this contaminant and mitigation to prevent human contact and release of asbestos containing material to the environment is required during construction works as described below.

9.1.3 Further Risk Assessment for Asbestos

9.1.3.1 Asbestos Regulations

The CAR-SOIL (Asbestos in Soil and Construction & Demolition Materials) presents guidance on the definition of 'trace asbestos' as applied to soil and C&D materials. Where only trace asbestos is present within bulk ACM, the Asbestos Regulations CAR 2012 do not apply. Therefore, it is important to understand when concentrations of asbestos within soils could be described as representing 'trace asbestos'.

CAR-SOIL states: “Analysis of soil and/or C&D materials in accordance with the “Blue Book” method requires prior identification analysis by the asbestos identification method described in HSG248. The Limit of Quantification of the ‘Blue Book’ method is given as 0.001% w/w, based on a practical Limit of Detection of 0.0001%.

For samples of soil and C&D materials where no fragments of ACMs are isolated and fewer than three asbestos fibres are identified during detailed and extended identification and gravimetric analysis procedures combined, the mass concentration of asbestos fibre is likely to be many orders of magnitude below the 0.0001% w/w Limit of Detection. This generally will be taken to mean ‘trace’ asbestos fibre contamination.

In such circumstances, on the basis that the potential risk from exposure to such trivial concentrations of asbestos in the external environment is likely to be very low to negligible, it is practical to conclude that such material, whilst containing very few isolated asbestos fibres, is not strictly an ACM that falls under the definition of asbestos in the CAR 2012 Regulations.

For soil samples at the site, the concentration of Asbestos fibres (%) identified during quantification analysis was very and below the typical laboratory Limit of Detection (LOD) of 0.001%. Therefore, it would appear that asbestos fibre concentrations are negligible, and some may constitute trace asbestos (i.e. below which the CAR 2012 Regulations would not apply).

However, it is not possible to state this with certainty and a conservative approach to the work would be to assume that the earthworks will constitute ‘work with asbestos’ as defined the CAR 2012 Regulations.

9.1.3.2 Asbestos Contamination Status

In accordance with the generally accepted approach to environmental risk assessment, the risks from asbestos encountered within the site soils would only be considered significant where a source-pathway-receptor pollutant linkage exists.

The primary risks posed by asbestos in soils at this site is the potential for the asbestos fibres currently contained in the cement cladding, becoming airborne, should made ground soils be disturbed during construction works. This may pose an inhalation risk for current users of Hamble Aerostructures and construction workers.

It is recognised that asbestos is not inherently hazardous in soils, unless it is able to become airborne, as when buried it cannot be inhaled and does not represent a significant risk of harm.

Considering the type and very low/negligible percentage of fibres reported from the samples (<0.001), and location of the reported asbestos fibres in the soils (under existing concrete floor) a Significant Risk of Significant Harm (SPOSH) is not perceived for the current users of the industrial building. This as workers are unlikely to come into direct contact with the potential asbestos occurrence, beneath the existing concrete floors.

However, measures must be in place to prevent any potential risk to the users Hamble Aerostructures and construction workers during construction works. Prior to any intrusive site works, the status of the works in relation to the asbestos contamination should be determined for the site in accordance with the current asbestos regulations CAR 2012. This is included in Section 9.1.3.3 below.

9.1.3.3 Asbestos Licensing and Notification Status

The Health & Safety Executive (HSE) describes asbestos-related work in three categories:

- ▶ Non-licensed work
- ▶ Notifiable non-licensed work (NNLW); and,
- ▶ Licensable work.

The first matter to consider during the handling and disturbance of made ground soils at the site is whether the asbestos-related work may be licensable work. The position regarding ACMs in soils is that work will be licensed if it involves material described as ‘clearly identifiable’, ‘original form’ asbestos coatings (excluding textured decorative coatings) and almost certainly licensed if it involves clearly identifiable asbestos insulation or AIB.

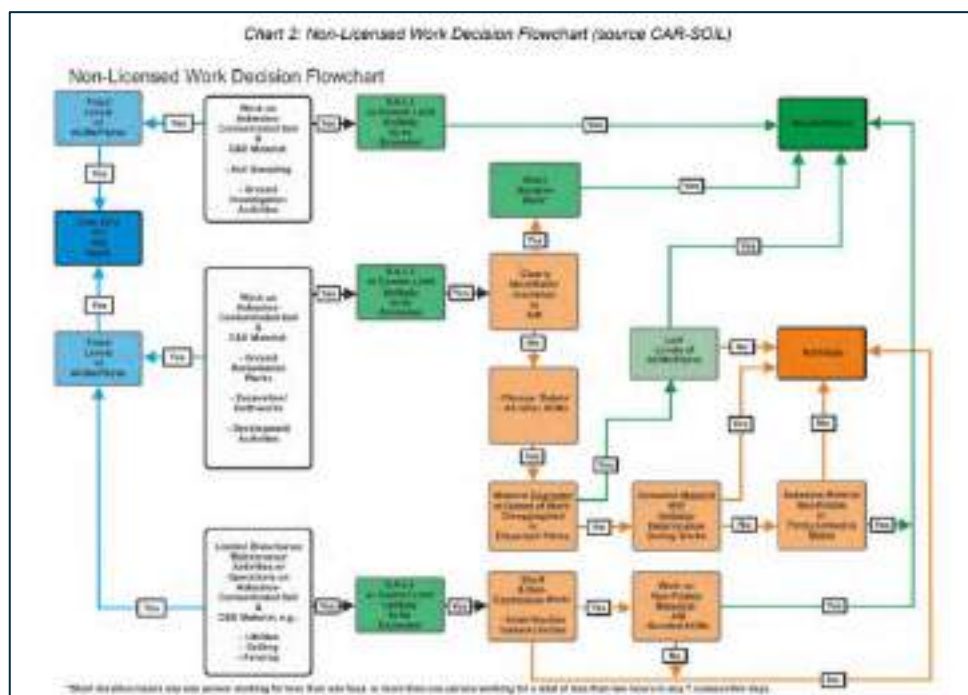
None of the above have been identified at the site. However, to further investigate the licensable status of the construction works, the JIWG ‘Decision Support Tool for Asbestos in Soils and C&D Materials’ (Version 2.1, March 2017) has been used. The Decision Support Tool is an Excel-based spreadsheet published alongside the CAR-SOIL guidance, designed to assist in determining the risks from asbestos at any given site using specific information on the form and volume of asbestos present.

Factual information from the ground investigations has been used to generate a “worst case” decision support tool spreadsheet. The calculation worksheets are included as Appendix N of this report.

The output from the decision support tool suggests that the licensing status for the set of calculations will be “Non-Licensed Work” as shown below.

Probable Licensing Status	Non-Licensed Work
RPE*	EN149 type FFP3 disposable
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities
*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.	
**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)	
***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis	

A flowchart included within CAR-SOIL, indicates whether the works should be identified as Notifiable or Non-notifiable, (second flow chart included within CAR-SOIL) and shown below as Chart 2.



Using Chart 2, it is further considered the groundworks to be undertaken on site are “Non-Notifiable Work”. Under the “Non-notifiable Non-Licensed Work (NNLW)” the HSE does not need to be notified. It is however noted that although the work is “Not Licensed” and “Non-notifiable” remedial measures and working practices must be adopted during all site works.

The JIWG DST spreadsheet calculations for asbestos fibres percentages of between <0.001% determines that the “Combined Hazard and Exposure Risk is Low”. Recommendations for Low Risk, for asbestos non-licensed works are shown below:

- ▶ EN149 type FFP3 disposable is recommended for the Respiratory Protective Equipment (RPE).
- ▶ Manual/localised dust suppression (Wetting of soils)
- ▶ Localised and basic personal decontamination facilities.

These measures should be followed at all times, within the areas identified as impacted with asbestos, where work is undertaken in made ground soils, and where disturbance will take place, for example through mechanical excavation. The working practices listed above are to be put in place to protect the current users of the site and site workers who are undertaking groundworks.

It is further recommended that a supervisory and watching brief is carried out during all works at the site by an appropriately qualified and experienced person. Should unexpected ACM be encountered (e.g. visible quantities of friable ACM such as lagging or insulation, or other forms of bulk ACM which are significantly degraded), ACS should be consulted and the licensing status and required control measures reviewed, in accordance with the Control of Asbestos Regulations 2012.

For the Non-notifiable Non-Licensed Work (NNLW), and due to the ACM type found at the Site, with very low fibres percentages ($<0.001\%$), air monitoring is not mandatory during the construction works. However, air monitoring may be considered by the contractor during the construction works to confirm that the asbestos control limits are not exceeded.

10 CONTROLLED WATERS RISK ASSESSMENT

10.1 Physical Conceptual Site Model

Features of the environmental setting which are pertinent to the physical conceptual site model (CSM) for controlled waters are detailed below:

- ▶ Made Ground has been recorded up to a maximum depth of 1.20mbgl across the Site and generally comprises firm to stiff brown sandy gravelly clay with one unit of light grey sandy gravel noted within TP02. The Made Ground is underlain by units interpreted to be the Selsey Sand Formation proven to a depth of 1.80mbgl generally comprising a firm to stiff varied colour sandy gravelly of sandy clay.
- ▶ Groundwater was not recorded within any of the trial pits; however, some surface water was noted collecting within the external trial pits.
- ▶ The underlying River Terrace Deposits and Selsey Sand Formation are classed as Secondary (A) Aquifers.
- ▶ The nearest surface water features are an inland River located approximately 208m northwest and Southampton water located approximately 187m south-west. Based on the topography of the surrounding area groundwater flow beneath the Site is likely to be towards the southwest.

10.2 Risk Assessment

Chemical analysis of soil samples taken from the underlying soils did not record significant concentrations of organic and inorganic determinands. All contaminant concentrations were low and below their respective GAC for commercial land use. Soil contaminant concentrations were also below GACs for residential land use with homegrown produce, which is the most conservative of the human health generic assessment criteria. No visual or olfactory evidence was noted during the site investigation works.

For asbestos, ACMs were only identified at two locations (TP01 and TP02) within made ground with no asbestos recorded from natural soils beneath the made ground up to 0.55mbgl. Considering that the natural soils are described as firm to stiff sandy gravelly clay and that groundwater was not encountered during the site works, it is considered that the cement cladding is most likely to be retained within the made ground. ACMs encountered at the site are therefore considered unlikely to represent a significant risk to controlled water receptors.

Based on the intrusive investigation and assessment carried out (as above) it is considered that the proposed development does not pose a significant risk to controlled waters and no further action is required in this regard.

11 GROUND GAS

A Negligible risk from ground gas (mainly methane and carbon dioxide) was identified at the site by the Preliminary Conceptual Site Model and Preliminary Risk Assessment included in Section 5.0 of this report. The assessment considered on-site and/or off-site historical and current land uses which could have a significant impact on the site.

Ground conditions revealed by this site investigation confirmed the predicted ground conditions. Made ground was revealed up to 1.20m, underlying by indigenous soils, comprising sandy silty clay.

Soil organic content (SOM) for made ground ranged between <0.87% and 1.4%. SOM for indigenous soils ranged between <0.87% and 1.04%. It is therefore considered that depths and organic matter content reported from made ground and indigenous soils samples indicate a negligible risk from significant ground gas generation at the site.

For volatile hydrocarbons, all hydrocarbon concentrations reported from the soil samples were below the GAC for commercial land use with all volatile concentrations below their respective detection limit. Based on laboratory testing results and the encountered ground conditions, it is considered that there is no risk or a plausible pathway between potential contaminative sources of hydrocarbon vapours and the development site. No further action is considered necessary in this regard.

12 SOIL DISPOSAL

Soil that is to be removed from the Site should be disposed of in accordance with the Landfill Regulations 2005 and WM3 - Guidance on the Classification and Assessment of Waste V1.1 2021.

To determine what type of landfill the soil can be disposed of there are two laboratory testing steps involved:

1. Testing of the solid fraction to determine if the sample has hazardous properties, enabling a waste code to be associated with the soil to be established.
2. Preparation and testing of a leachate (+ solid component) for comparison against published WAC criteria to determine where the material can be disposed of.

Waste Acceptance Criteria (WAC) and other chemical analysis results should be provided to the proposed haulier and landfill operators, to ensure that the materials are managed and disposed of correctly.

At the Clients request five soil samples were taken from the Made Ground. Samples were taken in situ from TP01, TP02 and TP09 and from a stockpile and within a skip.

The chemical analysis data for total concentrations was evaluated using Haz Waste Online software to provide an indication of whether the soils have hazardous properties, and therefore whether the soil would be classified as 'hazardous' or 'non-hazardous'. The soil samples were then scheduled for WAC analysis to assist with determining a suitable for disposal of the soils off Site. The Haz Waste Assessment and WAC testing results are included in Appendix K. Table 7 summarises the results from the waste classification testing and assessment.

Table 7: Waste Classification Summary based on Haz Waste Assessment and WAC Testing

Client Reference	Depth (mbgl)	EWC Code	Landfill Disposal Facility
TP01	0.23-0.55	17 05 04 & 17 06 05	Mixed Waste Inert and Asbestos
TP02	0.30-0.50	17 05 04 & 17 06 05	Mixed Waste Non-Hazardous* and Asbestos
TP09	0.60-0.80	17 05 04	Inert Waste
STK 01	n/a	17 05 04 & 17 06 05	Mixed Waste Inert and Asbestos
Skip 01	n/a	17 05 04 & 17 06 05	Mixed Waste Non-Hazardous* and Asbestos

17 05 04 – Soil and stones other than those mentioned in 17 05 03 (soil and stones containing hazardous properties)

17 06 05 – Construction material containing asbestos, * Because of WAC testing results.

The Haz Waste Assessment indicates the soil tested from the Made Ground would be classified as non-hazardous and have a European Waste Catalogue (EWC) code of 17 05 04 (Soil and stones other than those mentioned in 17 05 03). However, the Made Ground from all the above, except TP09, contained visible chrysotile asbestos (gasket and cement cladding) and therefore, these would be classified as a mixed waste of 17 05 04 and 17 06 05. If the Asbestos could be removed prior to disposal, then an EWC code of 17 05 04 could be used for the soil fractions.

WAC testing results further indicate that the Made Ground may be suitable for disposal in a landfill that accepts inert waste (TP01 and TP09) and/or non-hazardous waste (TP02, STK and skip) if as asbestos materials are removed prior to soil disposal.

13 REVISED CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

13.1 Potential Pollutant Linkages

13.1.1 Potential Sources

Based on the information obtained in this study, and the proposed layout of the Site which will include a commercial/industrial building of concrete floors, and no areas of soft landscaping, the following potential sources of contamination and associated most likely contaminants, have been identified:

- ▶ Made ground – asbestos

13.1.2 Potential Receptors

Based on the proposed development of the Site, the following sensitive have been identified:

- ▶ Site Users
- ▶ Construction workers

13.1.3 Potential Pathways

The following exposure/migration pathways may be present, in relation to the receptors listed above:

- ▶ Inhalation of free asbestos fibres

13.1.4 Contaminated Land Risk Assessment

Table 8 summarises the potential pollutant linkages which are considered to be credible for this site following the proposed development.

Table 8: Summary of Pollutant Linkages and Risk Assessment

Source	Potential contaminants of concern	Potential exposure pathways	Receptors following redevelopment	Consequence of risk being realised	Probability of risk being realised	Comments	Risk classification
Asbestos fibres in made ground soils below existing concrete floors	Asbestos fibres	Potential for asbestos fibres release during construction works. Inhalation of airborne asbestos fibres . Direct contact with skin and clothing	Users of the site and construction workers	Significant if ACMs and ACMS fibres are exposed during construction works.	Likely without mitigation measures adopted during construction works.	Chrysotile asbestos cement fragments have been recorded in the underlying made ground soil beneath current concrete floors. Asbestos risks Likely without mitigation measures adopted during construction works. Risks from post construction works are unlikely if made ground is covered by the footprint of the building	High if not managed during development. Low if managed

14 CONCLUSIONS AND RECOMMENDATIONS

14.1 Geo-environmental Considerations

Based on the information gathered by the desk study and ground investigation, the following conclusions have been made. The recommendations contained below are solely in relation to potential contaminant linkages identified during the investigations undertaken by ACS.

Human Health Risk Assessment: Risk from contamination has been identified on-site, which could represent a potential risk to human health (current/future land users and construction workers) when pathways are created during any development with invasive aspects including the disturbance of existing made ground soils.

Although all inorganic and organic contaminant concentrations reported from all soil samples are below their respective GAC for commercial land use and considered not to represent a risk to human health, asbestos cement cladding has been found in made ground up to 0.55m at TP01 and TP02 locations. A **Risk from Asbestos** is therefore perceived to users of the site and construction workers during construction works within the identified asbestos contaminated areas.

For the above and based on the outcome of the Asbestos Risk Assessment included in this report, works at the site are classed as “Non-notifiable Non-Licensed Work (NNLW)”. Under this category the HSE does not need to be notified. It is however noted that although the work is “Not Licensed” and “Non-notifiable” remedial measures and working practices must be adopted during all ground construction works.

In accordance with the JIWG DST spreadsheet calculations for asbestos fibres percentages below 0.001% (Asbestos Low Risk), the following is recommended during all ground works:

- EN149 type FFP3 disposable is recommended for the Respiratory Protective Equipment (RPE).
- Manual/localised dust suppression (Wetting of soils)
- Localised and basic personal decontamination facilities.

These measures should be followed at all times, where work is undertaken in made ground soils and disturbance will take place, for example through mechanical excavation. The working practices listed above are to be put in place to protect the current users of the industrial site and site workers who are undertaking groundwork within the identified asbestos contaminated area.

It is further recommended that disturbance of soils below concrete floors of the existing building is minimised as practically as possible during site preparation and construction works. Driven piles for example, also known as displacement piles, is a piling methodology which could be suitable for foundations of the new building. Driven piles form the pile by displacing soil horizontally from the space to be occupied by the pile, without the removal of soil to the ground surface. This mitigates potential risks from soils to come into direct contact with construction workers and/or users of the industrial site, since soils (potentially contaminated with asbestos) will not be brought to surface.

After construction works, it is considered that concrete floors of the new building will break the direct contact pathway with potentially asbestos contaminated soils and will provide a suitable barrier between future users of the development and potentially contaminated soils beneath. It is therefore considered that subsequent to development, no further remediation measures will be required for the Site.

Controlled Waters: Inorganic and organic contaminant concentrations are low and below GACs for commercial and residential land use and considered not to represent a risk to controlled water receptors. ACMs are further considered likely to be retained within the clay soils and unlikely to migrate and significantly impact controlled waters receptors. No further action is therefore considered necessary with relation to contaminant concentrations reported from the soil samples.

For driven piling, if adopted for foundations of the new building, piling is unlikely to introduce any new migration pathway to controlled water and risks to controlled water receptors are unlikely to be increased by driven piles. However, an assessment of the groundwater regime is recommended prior to selecting the piling technique and a Piling Risk Assessment may be required by the Local Planning Authority (LPA) to assess the risk to controlled water receptors.

Watching Brief: It is further recommended that a supervisory and watching brief is carried out during all works at the site by an appropriately qualified and experienced person. Should unexpected ACM be encountered (e.g. visible quantities of friable ACM such as lagging or insulation, or other forms of bulk ACM which are significantly degraded), ACS should be consulted and the licensing status and required control measures reviewed, in accordance with the Control of Asbestos Regulations 2012.

14.2 Preliminary Geotechnical Considerations

The following summarises the preliminary geotechnical considerations for the proposed development on this Site based on the site investigation undertaken.

It should be noted that only limited site investigation and laboratory testing was undertaken regarding existing foundations. The comments below are only to provide basic details on the existing structure and provide preliminary recommendations regarding the design of concrete in aggressive ground and volume change potential of underlying soils. Further intrusive works and laboratory testing is required to provide detailed recommendations regarding foundation design.

Made Ground has been recorded up to a maximum depth of 1.20mbgl across the Site and generally comprises firm to stiff brown sandy gravelly clay with one unit of light grey sandy gravel noted within TP02. The Made Ground is underlain by units interpreted to be the Selsey Sand Formation proven to a depth of 1.80mbgl generally comprising a firm to stiff varied colour sandy gravelly of sandy clay.

Based on the information obtained during the ACS intrusive investigation it is considered that the existing foundations are unlikely to be suitable for re-use. It is recommended that a structural engineer is provided the information within this report and further relevant geotechnical information is obtained to assist with geotechnical design.

14.2.1 Volume Change Potential:

Shrinkable soils are subject to changes in volume as their moisture content is altered. Soil moisture contents vary seasonally and are influenced by many factors including the action of tree roots. The resulting shrinkage or swelling of the soil can cause subsidence or heave damage to foundations, the structures they support and services.

The Atterberg and moisture content analysis indicates that the soils underlying the Site are classified in accordance with NHBC Chapter 4.2 as being non-shrinkable or to have a medium shrinkable volume change potential. At this stage it is recommended that the soils are preliminarily classified as having a medium shrinkage potential.

It is expressed that foundations for the paint shop are most likely to extend below 1.4mbgl and therefore, further investigation and testing of deeper soils is recommended for foundation design.

14.2.2 Concrete Classification

Naturally occurring and anthropogenic sulphur compounds and acids in the soil and groundwater are chemical agents that can attack concrete. The effects can result in expansion and softening of the concrete. Therefore, it is best practice for the design of concrete that is to be installed in the ground, to consider resistance to corrosive conditions.

Laboratory testing has revealed that in accordance with BRE SD1 (2005), a preliminary Design Sulphate Class of DS-1 and an Aggressive Chemical Environment for Concrete Class (ACEC) as AC1s, for the Made Ground. For ACEC class DS-1 AC1s and in accordance with Table D2 of the BRE SD1 2005, DC1 class is recommended for the general in-situ use of concrete. This indicates that made ground is not aggressive to concrete, and specific cement combinations for concrete are not required in terms of contaminated land. For further information refer to the BRE SD1 2005, third edition, Concrete in Aggressive Ground, Table D2.

However, foundations for the paint shop are most likely to extend below made ground to encounter natural soils. pH levels from indigenous soils differ from those reported from made ground soil samples. Soluble Sulphate values are most likely to also vary. The Selsey Sand Formation of the Bracklesham Group is a pyrite bearing unit which could also impact buried concrete specifications. It is therefore recommended that further testing for concrete specifications is undertaken at depths required for foundation/pile design.

14.3 Other Considerations

14.3.1 Site Won Material

Where it is possible to reuse soil as part of the proposed development this should be done in accordance with relevant guidance (e.g. CL:AIRE Definition of Waste: Code of Practice). This will include assessment, using existing and further soil testing, to demonstrate that the soil is physically and chemically suitable for the intended use.

It is stressed that made ground soils contaminated with asbestos/ACMs will not be suitable for re-used.

14.3.2 Soil Disposal

Soil that is to be removed from the Site should be disposed of in accordance with the Landfill Regulations 2005 and WM3 - Guidance on the Classification and Assessment of Waste V1.1 2021. Waste Acceptance Criteria (WAC) and other chemical analysis results should be provided to the haulier and landfill operators, to ensure that the materials are managed and disposed of correctly.

The Haz Waste Assessment results indicate that all of the five soil samples (Made Ground) would be classified as non-hazardous; however, asbestos was recorded in four of the sampling locations (two from two trial pits, one sample from a stockpile and a skip) resulting in the samples being classified as mixed waste. However, if the Asbestos could be removed prior to disposal, then an EWC code of 17 05 04 could be used for the soil fractions.

For soil disposal, Waste Acceptance Criteria (WAC) testing to assist with offsite disposal of soil indicate that made ground soils would be suitable for a disposal at either an inert or non-hazardous waste facility that also accepts Made Ground. It is noted that if ACMs/visible asbestos materials are present within

the made ground, e.g. soils within TP01 and TP02 locations, and or the skip, the soils will be classed as hazardous waste, and should be disposed of at a Hazardous Waste Landfill facility, unless the ACMs are effectively removed prior to soil disposal.

14.3.3 Utilities

Laboratory test results should be forwarded to utility service providers and discussions held over pipe routes so that services can be correctly specified.

14.3.4 Discovery Strategy

Site investigation is, by its very nature, limited and previously undiscovered contamination may be present. Should ground conditions different to those revealed by the investigations carried out to date be encountered during the site works, or should contaminated soils be suspected, work in that part of the Site should stop immediately.

Site staff should inform the Construction Site Manager, who will document any discovery and request assistance from a suitably qualified contaminated land specialist. Further sampling and risk assessment should then be carried out as necessary. The Local Planning Authority should also be contacted to confirm agreement of any amendments to the contaminated land site assessment, if required.

14.3.5 Health and Safety Issues

Contractors working on the Site should be warned that there is potential for contaminants to be present in the soils, so that appropriate protection measures can be adopted to protect their health and safety.

Site specific construction worker risk assessment and appropriate health and safety practises to adequately mitigate the potential risk must be put in place before construction or maintenance work.

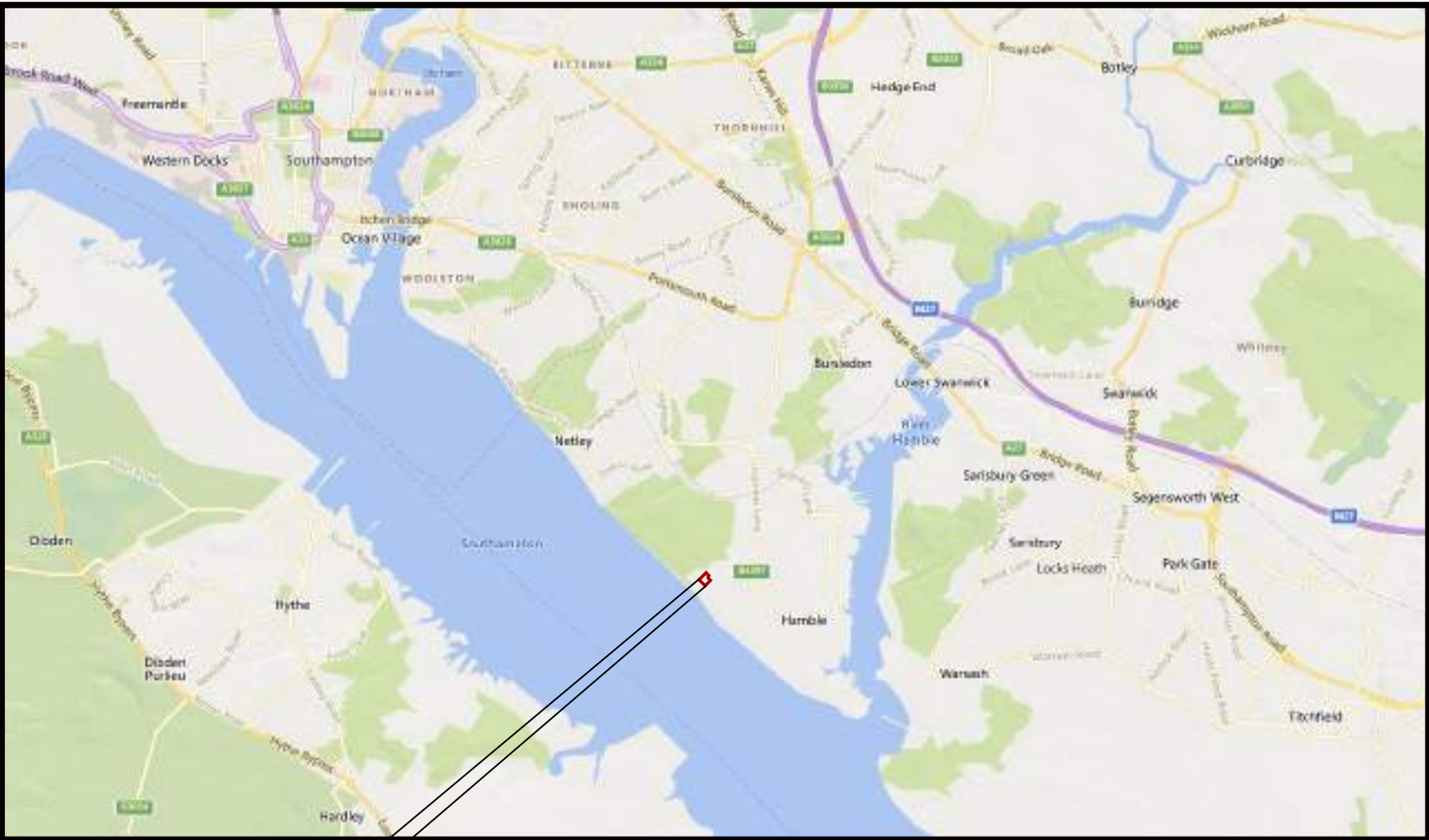
Works should be conducted in accordance with the Health Safety Executive publication entitled “Protection of Workers and the General Public during the Development of Contaminated Land”, 1991, the CDM Regulations (2015) and any other relevant guidance. Guidelines detailed in the HSE publication “HSG66 Protection of workers and the general public during the development of contaminated land” should be followed, including:

- ▶ Avoid direct contact with the skin and personal clothing by use of protective gloves eye protection, etc.
- ▶ Washing facilities should be provided and properly used, particularly before eating; and
- ▶ Dust control measures may be required under some circumstances, particularly to minimize risk of accidental ingestion and spread of contamination.
- ▶ Asbestos management and personal protection measures required.

15 REFERENCES

- BS ISO 18400-104:2018. Soil Quality – Sampling. BSI 2018
- BS 5930:2015+2020. Code of Practice for Site Investigations. BSI 2015.
- BS:10175 2011+A2:2017. Investigation of Potential Contaminated Sites. Code of Practice. BSI 2011.
- BS 8576:2013 Guidance on investigations for ground gas - Permanent gases and volatile organic compounds (VOCs).
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- Environment Agency (2000). Technical Aspects of Site Investigation in relation to Contaminated Land, Volume 1. R&D Report P5-065/TR.
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- NHBC (2021). *NHBC Standards*. NHBC 2021

Figure 1 – Site Location Plan (Drawing No. 22-83228/01)

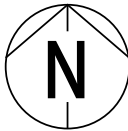


Notes:
Contains BING Data

Key:

 Site Boundary



 N

DO NOT SCALE

Drawing:
Site Location Plan

Client:
Develotec Design & Build Ltd

Project:	Project No:
Site at Hamble	22-83228
Aerostructures	Drawing No:
Kings Avenue	22-83228/01
Hamble-le-Rice	Revision:
Southampton	
SO31 4NF	

Drawn By:	Date:
LF	24/05/2022

Checked By:	Date:
CN	24/05/2022



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Figure 2 – Current Site Layout (Drawing No. 22-83228/02)

Notes:
Baseplan provided by Client.
Hop architects (Drg.No:HOPA-002-P)

Key:



Drawing: Current Site Layout	
Client: Develotec Design & Build Ltd	
Project: Site at Hamble Aerostructures Kings Avenue Hamble-le-Rice Southampton SO31 4NF	Project No: 22-83228 Drawing No: 22-83228/02 Revision:
Drawn By: LF	Date: 24/05/2022
Checked By: CN	Date: 24/05/2022



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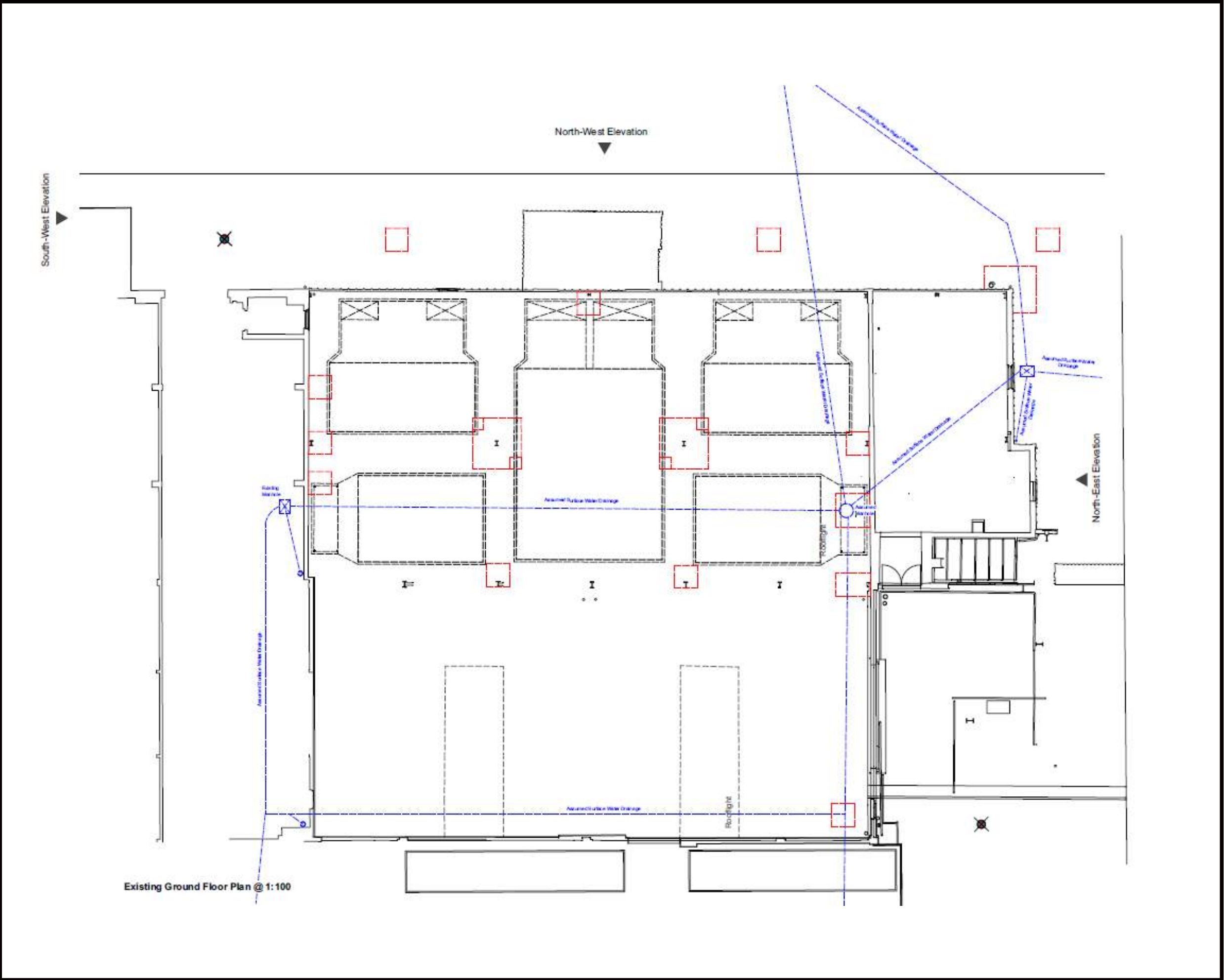


Figure 3 – Proposed Site Layout (Drawing No. 22-83228/03)

Notes:
Baseplan provided by Client.
Hop architects (Drg.No:HOPA-002-P)

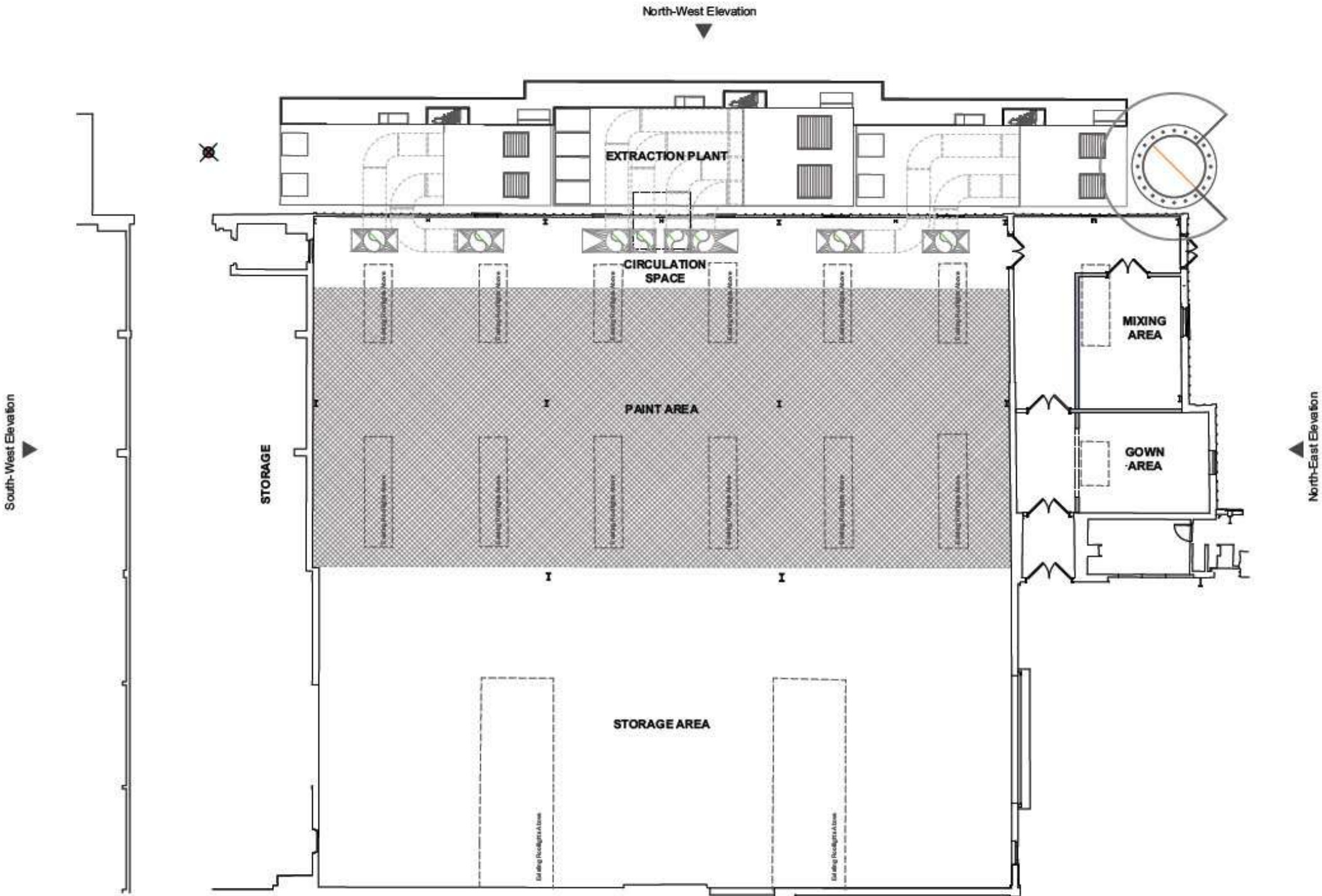
Key:



Drawing: Proposed Site Layout	
Client: Develotec Design & Build Ltd	
Project: Site at Hamble Aerostructures Kings Avenue Hamble-le-Rice Southampton SO31 4NF	Project No: 22-83228 Drawing No: 22-83228/03 Revision:
Drawn By: LF	Date: 24/05/2022
Checked By: CN	Date: 24/05/2022

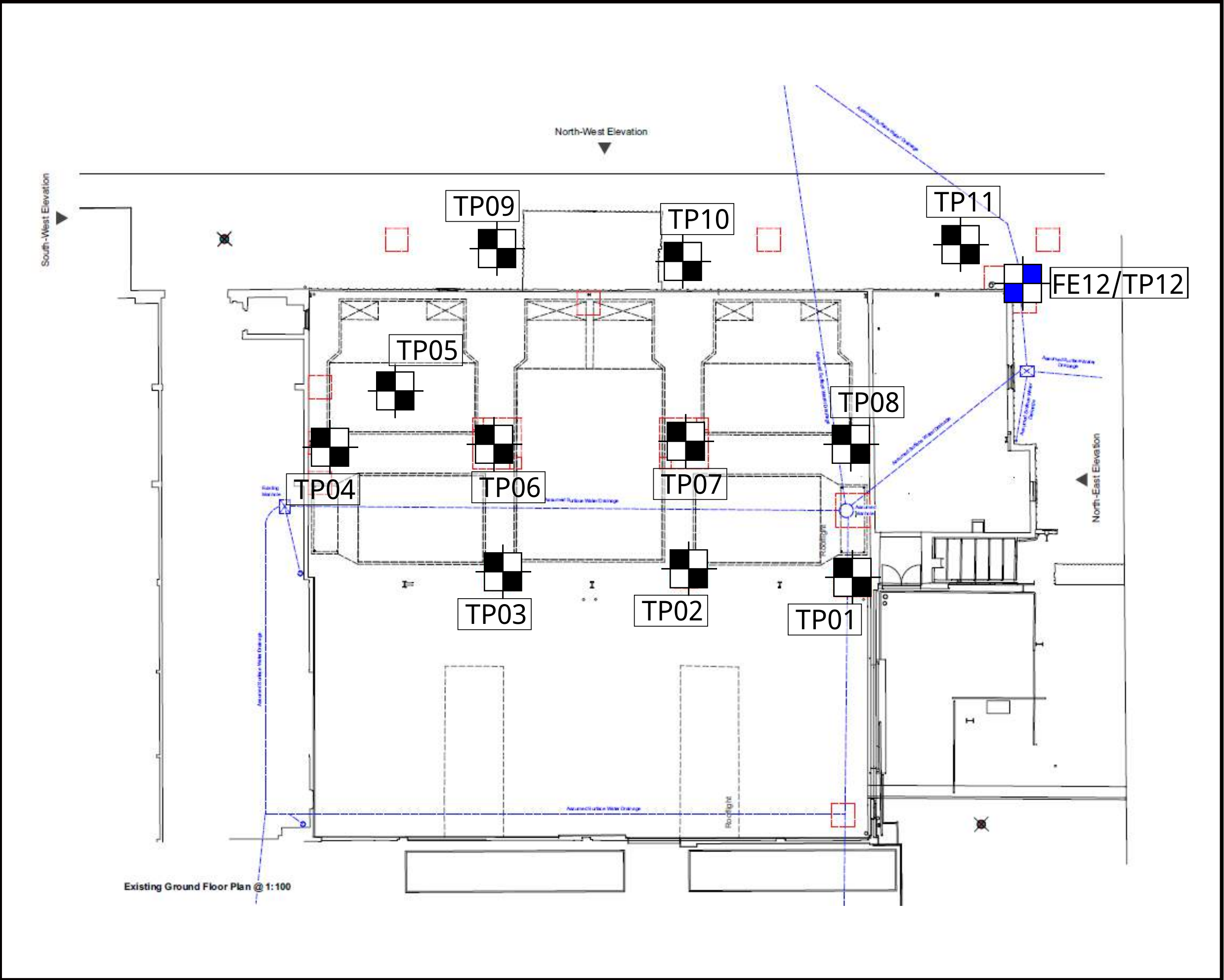


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**Figure 4 – Exploratory Hole Location Plan – Current Site Layout
(Drawing No. 22-83228/04)**

Notes:
Baseplan provided by Client.
Hop architects (Drg.No:HOPA-002-P)



Key:

 Trial Pit

 Trial Pit / Foundation Excavation



DO NOT SCALE

Drawing:
Exploratory Hole Location Plan - Current

Client:
Develotec Design & Build Ltd

Project:	Project No:
Site at Hamble	22-83228
Aerostructures	Drawing No:
Kings Avenue	22-83228/04
Hamble-le-Rice	Revision:
Southampton	
SO31 4NF	

Drawn By:	Date:
LF	24/05/2022

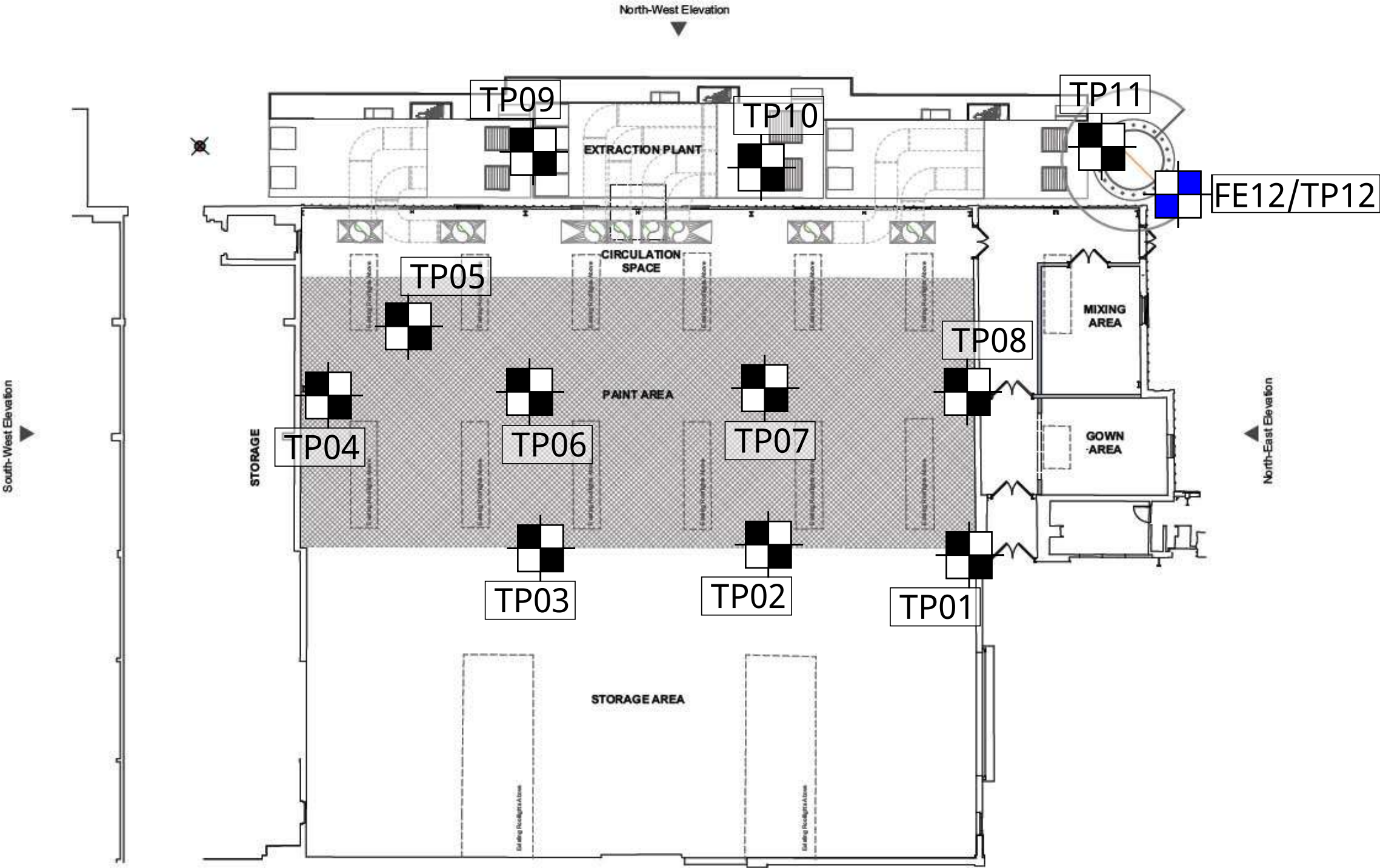
Checked By:	Date:
CN	24/05/2022



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**Figure 5 – Exploratory Hole Location Plan – Proposed Site Layout
(Drawing No. 22-83228/05)**

Notes:
Baseplan provided by Client.
Hop architects (Drg.No:HOPA-002-P)



Key:

 Trial Pit

 Trial Pit / Foundation Excavation



DO NOT SCALE

Drawing: Exploratory Hole Location Plan - Proposed	
Client: Develotec Design & Build Ltd	
Project: Site atHamble Aerostructures Kings Avenue Hamble-le-Rice Southampton SO31 4NF	Project No: 22-83228 Drawing No: 22-83228/05 Revision:
Drawn By: LF	Date: 24/05/2022
Checked By: CN	Date: 24/05/2022

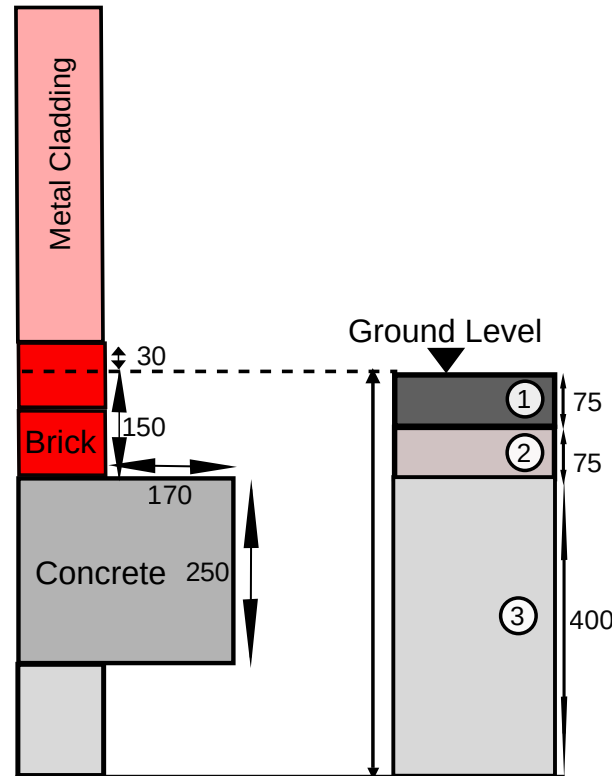


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Figure 6 – Foundation Excavation – TP12/FE12 (Drawing No. 22-83228/04)



Photo 1: Image of TP12/FE12.



Notes:

1. All measurements are in millimetres.

Soil Descriptions and Depths:

- ① 0.0-0.075mbgl - Bound Macadam
- ② 0.075-0.15mbgl - Concrete
- ③ 0.15-0.55mbgl - Firm to stiff grey CLAY

DO NOT SCALE

Drawing:

Foundation Excavation - TP12/FE12

Client:

Develotec Design & Build Ltd

Project:

Site at Hamble
Aerostructures
Kings Avenue
Hamble-le-Rice
Southampton
SO31 4NF

Project No:

22-83228

Drawing No:

22-83228/06

Revision:

Drawn By:

LF

Date:

13/06/2022

Checked By:

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Date:

13/06/2022



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APPENDIX A

Environmental Health Record

Environmental Health – Land Contamination

As breaking ground is part of the development proposals, we require the following information to be submitted in support of the proposed application:

- Undertake a Phase I Desk Study including preliminary risk assessment and conceptual site model
- Undertake a Phase II intrusive site investigation based on the desk study and preliminary risk assessment
- If deemed necessary by the Phase II site investigation, development of a site specific remediation strategy following the completion of the investigation works.

Therefore I recommend that the following conditions are attached to any permissions granted:

Land Contamination

No work shall start on site until the following has been submitted to, and approved in writing by the Local Planning Authority:

- a) Desk Study documenting all the previous and existing land uses of the site and adjacent land in accordance with national guidance as set out in Contaminated Land Reports Nos.1 and 2, and BS10175:2011+A2:2017 Investigation of potentially contaminated sites Code of Practice, and, unless otherwise agreed with the Local Planning Authority;*
- b) A site investigation report documenting the ground conditions of the site and incorporating chemical and gas analysis identified as appropriate by the desk study in accordance with BS10175:2001+A2:2017, and, unless otherwise agreed with the Local Planning Authority;*
- c) A detailed scheme for remedial works and measures to be undertaken to avoid the risk from contaminants and/or gases when the site is developed and proposals for future maintenance and monitoring. Such a scheme shall include nomination of a competent person to oversee the implementation of the works.*

Site investigations are to be undertaken by a competent person and in accordance with best practice as outlined in BS10175:2011+A2:2017 and LCRM. Any gas monitoring deemed appropriate is to be in accordance with best practice as outlined in such documents as BS8576:2013, BS 8485:2015+A1:2019, Claire RB17 and CIRIA C665.

Reason - To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other off site receptors

Verification

***Before any part of the development is occupied or used,** unless otherwise first agreed in writing by the Local Planning Authority (LPA), a verification report demonstrating the effectiveness of the remediation works carried out and a remediation completion certificate confirming that the approved remediation scheme has been implemented in full shall both have been submitted to and approved in writing by the LPA.*

The verification report and remediation completion certificate shall be submitted in accordance with the approved scheme and undertaken by a competent person in accordance with Defra and the Environment Agency's 'LCRM'.

Reason - To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other off site receptors

Many Thanks,

Fiona Goode

Pollution Control Officer

Service Delivery - Specialist Services - Environment

APPENDIX B

Photographic Record - Walkover



Photo 1: Image of locked storage building at north west end of commercial building.



Photo 2: Image of internal commercial building.



Photo 3: Image access road marking north west boundary of Site. Note the paint stores in the left of image.



Photo 4: Image of building associated with sprinkler system located north of Site.



Photo 5: Image of tank containing water for sprinkler tank and associated buildings located north of Site.



Photo 6: Image of electricity sub-station 15m west of the Site.



Photo 7: Image of wash off area.



Photo 8: Image of stored equipment.



Photo 9: Image of tank surrounded by bund 25m north of the Site.



Photo 10: Image of stored materials and commercial buildings to the north east.



Photo 11: Image of workshops adjacent to the north east boundary.



Photo 12: Image of cloak room adjacent to the north east boundary.



Photo 13: Image of workshops adjacent to the south west boundary.



Photo 14: Image of workshops south east of the Site.

APPENDIX C

Public Register and Environmental Health Records – Groundsure Report

APPENDIX D

BGS Borehole Log

POSTLUDE

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5. *Redstart* *Wing* (W28 Palm Forest, East shore)

Black 37 feet. She was injured. "Water level is 500 ft low."

[illegible]

for analysis of the water to glass, see p. 156.

THOMAS VERNON is Assistant, from the day unit in the south wing (see p. 107). Knight drove very much after the testing was completed. November, 1907.

Revised and accepted by Stephen J. M. Davies

Physical descriptors

Very slightly yellowish. Nearly white after 14 hours.
Very slightly curled. Very clear after 14 hours.
Night unknown. Larvae good. No taste or smell.
Hatchling: 10. First 6. Generals: 4.

Quantitative information: Ex parte pay 150,000.

[illegible]

The weekend consists of hard and busy-filled days, with a very few moments of leisure.

The installer will probably disagree when the soil is in good working order. There is a large amount of fine sand, but this is often found in deep well soils. This water is of excellent quality.

Visited. Drained a small one. L.D. 39 ft.
 Lb on field-slip is correct. 6- to 73 N.E. 1/4
 L.S. 1/4 - D.W. 41

APPENDIX E

Historic Maps

APPENDIX F

Eastleigh Borough Council Contaminated Land Search



Dear Lee,

Please do not reply to this email chain as it will reopen a closed case and we will not be notified.

If you have difficulty opening the files within the Sharefile link supplied in this response, please contact us at dp@eastleigh.gov.uk

Thank you for your request for information made under the Freedom of Information Act 2000. I can confirm that Eastleigh Borough Council ("Council") does hold the information requested.

Request

From: Lee Foskett <LeeFoskett@acstesting.co.uk>

Sent: 17 May 2022 09:11

To: Environmental Health Direct @ Eastleigh Borough Council

<Environmental.HealthDirect@eastleigh.gov.uk>

Subject: Hamble Aerostructures Ltd, Kings Ave, Hamble-le-Rice, Southampton SO31 4NF - DR to FOI Inbox - 20220517

Hi

We are carrying out a desk study for the above site. Could you please provide us with an environmental search of your records for this area (include 250m from Site boundary). Could you also provide a total cost for you to undertake the search.

We require information on the following:

> Contamination incidents

See attached spreadsheet

> The sites status RE Part 2A inspection

The site has not been inspected under Pt2A, the Council does not have any current plans to investigate the site under Part2A.

> Potential sources of contaminants on or near the site

- **On Site - The records we hold (attached) relate to information provided by GE Aviation / Hamble Aerostructures as part of planning applications historically. Further reports may be held on the Councils planning portal.<https://planning.eastleigh.gov.uk/s/public-register>**

- **Within 250m of the enquiry site – we hold only historical OS maps in relation the adjacent former Royal Victoria Military Hospital**

> Fuel Tanks

See attached

> Wells

No records held

> Potential constraints to redevelopment of the site

- **Please see other responses attached in respect of known issues**

> Landfill sites

No records held

> Any reports of site investigations that have been carried out that may be pertinent to the study site.

- **See attached information, the records we hold relate to information provided by GE Aviation / Hamble Aerostructures as part of planning applications historically. Further reports may be held on the Councils planning portal. See link supplied above**

I have attached a site location plan

Please let me know if you need any further information

[signature_602448769]<<https://acsgroupofcompanies.co.uk/>>Kind Regards

Lee Foskett

Geo Environmental Consultant

ACS Group of Companies

Please see response from the pollution team within the template above and link below to the relevant documents within Sharefile. Please download the documents from the link which will expire in 3 months.

<https://eastleigh.sharefile.com/d-sfb622c0772df4a48bacab8374661f214>

If you would like further details on information requests please visit the Council's website at: <https://www.eastleigh.gov.uk/council/general-public-information>

Right to Review

If you are unhappy with the way in which your request has been handled you may request an internal review to be conducted. This internal review should be made within 40 working days from the date of this email.

If you wish to raise an internal review please send a new email to dp@eastleigh.gov.uk and reference case number 00461923.

If you are not content with the outcome of the internal review, you have the right to apply directly to the Information Commissioner for a decision. The Information Commissioner can be contacted at: Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF.

Yours sincerely,

Freedom of Information Officer

Details

Case Number: 00461923

Subject FW: Hamble Aerostructures Ltd, Kings Ave, Hamble-le-Rice, Southampton
SO31 4NF

APPENDIX G

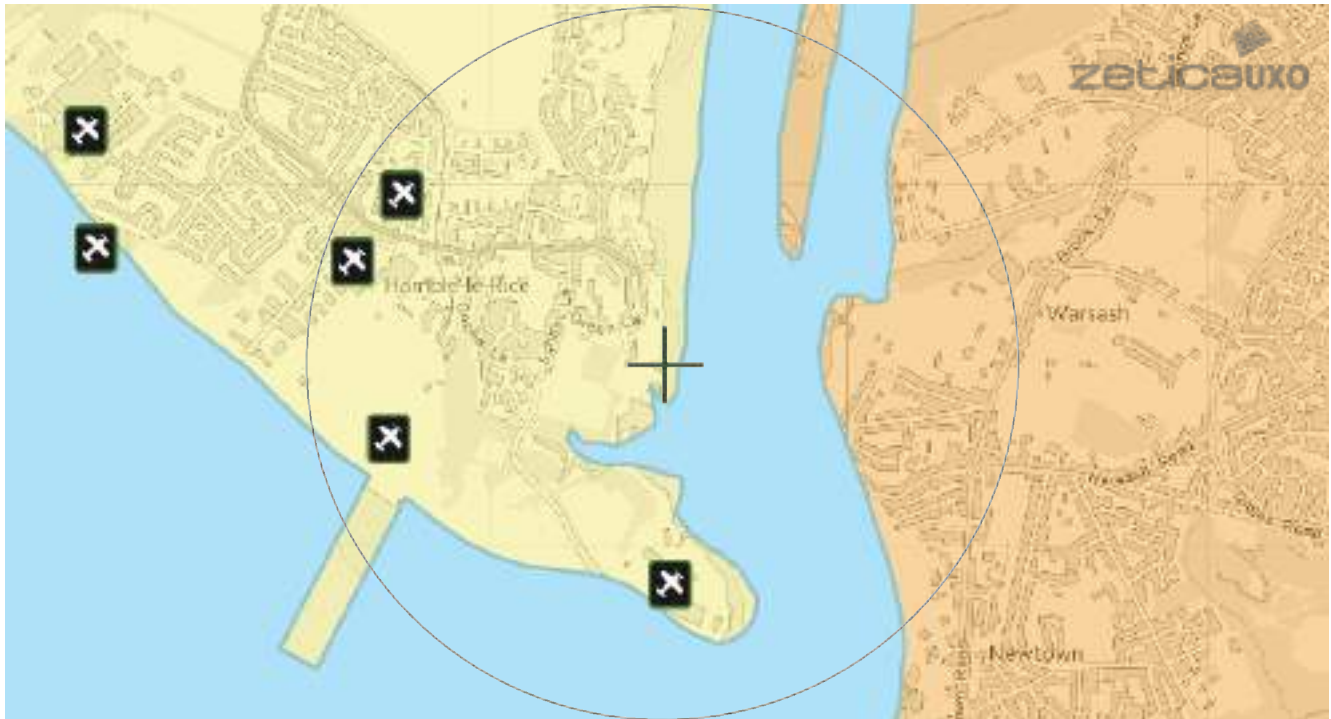
Zetica Map

UNEXPLODED BOMB RISK MAP



SITE LOCATION

Location: Hamble Common, Hampshire
Map Centre: 448500,106500



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military
- industry
- UXO find
- transport
- dock
- Luftwaffe targets
- utilities
- Bombing decoy
- other

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682

email: uxo@zetica.com

web: www.zeticauxo.com

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: (<https://zeticauxo.com/downloads-and-resources/risk-maps/>)

Zetica cannot guarantee the accuracy or completeness of the information or data used and cannot accept any liability for any use of the maps. These maps can be used as part of a technical report or similar publication, subject to acknowledgment. The copyright remains with Zetica Ltd.

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

APPENDIX H

Contaminated Land Risk Assessment

Contaminated Land Risk Assessment

The risk posed by a given pollutant linkage is classified based upon the likelihood of the linkage being realised, and the severity of the consequence should that linkage be realised. These definitions of likelihood and consequence used in this report are provided below. These are based on those outlined in CIRIA guidance document C552.

Definition of Likelihood

The definition of terms used regarding the likelihood of a linkage being realised is summarised in Table 1.

Table 1: Definitions Relating to Likelihood of Pollutant Linkage

Classification	Definition
High Likelihood	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.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means 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 Likelihood	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 an event would take place, and is less likely in the short term.
Unlikely	There is a pollution linkage but circumstances are such an that it is improbable that an event would occur even in the very long term.

Definition of Consequence

The definition of terms used for the classification of consequence should a receptor be impacted are provided in Table 2 below:

Table 2: Definitions Relating to Consequence of Pollutant Linkage

Classification	Definition
Severe	Short-term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Agency Act 1990, Part IIA.
	Short-term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property.
	A short-term risk to a particular ecosystem, or organism forming part of such ecosystem.
Medium	Chronic damage to human health.
	Pollution of sensitive water resource.
	A significant change in a particular ecosystem, or organism forming ecological system.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services.
	Damage to sensitive buildings/property/services or the environment.
Minor	Non-permanent health effects to human health (easily prevent by means such as personal protective clothing).
Classification	Definition
	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve.

Definition of Risk Terms

Once the risk consequence and likelihood have been assessed, it is possible to allocate a risk rating to each pollutant linkage. Table 3 below provides a matrix and Table 4 provides an indication of the meaning of each of the risk ratings.

Table 3: Matrix for Risk Allocation

		<i>Risk Classification Matrix</i>			
<i>Probability</i>		<i>Severe</i>	<i>Medium</i>	<i>Mild</i>	<i>Minor</i>
	<i>High Likelihood</i>	Very High	High	Moderate	Moderate/low
	<i>Likely</i>	High	Moderate	Moderate/low	Low
	<i>Low Likelihood</i>	Moderate	Moderate/low	Low	Very Low
	<i>Unlikely</i>	Moderate/low	Low	Very Low	Very Low

Table 4: Definitions of Risk Terms

<i>Classification</i>	<i>Definition</i>
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 already undertaken) and remediation is 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 already undertaken) 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 either 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 it is likely that this harm, if realised, 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 I

Photographic Record – Trial Pits



Photo 1: Image of TP01. Note the pile underlying the steel 0.70m wide. Base of pile unknown.



Photo 2: Image of TP02. Note the pile underlying the steel beam 0.20m wide. Base of pile unknown.



Photo 3: Image of TP03. Note the pile underlying the steel beam 0.20m wide. Base of pile unknown.



Photo 4: Image of TP04.



Photo 5: Image of TP04. Note the steel penetrating through the concrete and protruding out of the base of the concrete.



Photo 6: Image of TP06.



Photo 7: Image of TP06.



Photo 8: Image of TP07.



Photo 9: Image of TP07 under steel.



Photo 10: Image of TP08



Photo 11: Image of TP09



Photo 12: Image of TP10



Photo 13: Image of TP11.



Photo 14: Image of TP12.



Photo 15: Image of stockpile of material.



Photo 16: Image of soils within skip containing cement board.

APPENDIX J

Trial Pit Logs

TRIAL PIT LOG

Trial Pit No.

TP01

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	Dimensions (m):	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures	1.25	1.30	Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures	0.90		Date(s)	20/05/2022	Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed				

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.								
	MADE GROUND. Firm to stiff light brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, brick and concrete. Occasional cement cladding throughout.	0.23	(0.32)						
	Firm to stiff brown slightly sandy CLAY. (Selsey Sand Formation)	0.55	(0.70)						
1									
	End of Trial Pit at 1.250m	1.25							
2									
3									
4									

Remarks:

Pit Stability: Stable

Technical Notes (where applicable):

Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574.

Groundwater: Not Encountered.

TRIAL PIT LOG

Trial Pit No.

TP02

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	Dimensions (m):	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures	1.25	2.60	Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures					Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed	Date(s)	20/05/2022		

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.								
	MADE GROUND. Light grey sandy sub-angular to sub-rounded GRAVEL of fine to coarse flint and concrete. Occasional cement cladding throughout.	0.30							
	Firm to stiff brown sandy gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint. (Selsey Sand Formation)	0.50							
1			(0.75)						
	End of Trial Pit at 1.250m	1.25							
2									
3									
4									

Remarks:

Pit Stability: Stable

Technical Notes (where applicable):

Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574.

Groundwater: Not Encountered.

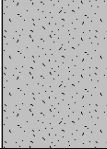
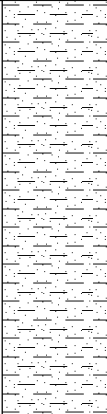
TRIAL PIT LOG

Trial Pit No.

TP03

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	Dimensions (m):	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures	1.50	2.40 1.20	Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures					Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed	Date(s)	20/05/2022		

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.		(0.40)						
	Orangish brown gravelly silty SAND and firm to stiff greenish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint. (Selsey Sand Formation)	0.40	(1.10)						
1									
	End of Trial Pit at 1.500m	1.50							
2									
3									
4									

Remarks: **Pit Stability:** Stable

Technical Notes (where applicable): **Groundwater:** Not Encountered.
Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574.

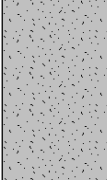
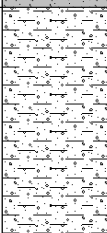
TRIAL PIT LOG

Trial Pit No.

TP04

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	Dimensions (m):	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures	1.10	2.90	Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures					Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed	Date(s)	20/05/2022		

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.		(0.50)						
	Firm to stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint. (Selsey Sand Formation)	0.50	(0.60)						
1	End of Trial Pit at 1.100m	1.10							
2									
3									
4									

Remarks:

Pit Stability: Stable

Technical Notes (where applicable):

Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574.

Groundwater: Not Encountered.

TRIAL PIT LOG

Trial Pit No.

TP05

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	Dimensions (m):	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures	1.50	1.20	Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures			Date(s)	20/05/2022	Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed				

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.								
		0.40	(0.40)						
	MADE GROUND. Firm to stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded flint and brick.	0.60							
	Firm to stiff multicoloured slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint. (Selsey Sand Formation)		(0.90)						
1		1.50							
	End of Trial Pit at 1.500m								
2									
3									
4									

Remarks:

Pit Stability: Stable

Technical Notes (where applicable):

Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574.

Groundwater: Not Encountered.

TRIAL PIT LOG

Trial Pit No.

TP06

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	Dimensions (m):	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures	1.00	1.50	Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures					Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed	Date(s)	20/05/2022		

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.		(0.55)						
	Dark brown and light brown mottled green slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint. (Selsey Sand Formation)	0.55	(0.45)						
1	End of Trial Pit at 1.000m	1.00							
2									
3									
4									

Remarks:	Pit Stability: Stable
Technical Notes (where applicable): Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574.	Groundwater: Not Encountered.

TRIAL PIT LOG

Trial Pit No.

TP07

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	Dimensions (m):	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures	1.40	2.70	Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures					Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed	Date(s)	20/05/2022		

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.		(0.40)						
	MADE GROUND. Firm to stiff brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is fine to coarse angular to sub-rounded flint, brick and concrete.	0.40	(0.60)						
1	Firm to stiff dark brown and light brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to rounded flint. (Selsey Sand Formation)	1.00	(0.40)						
	End of Trial Pit at 1.400m	1.40							
2									
3									
4									

Remarks:

Pit Stability: Stable

Technical Notes (where applicable):

Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574.

Groundwater: Not Encountered.

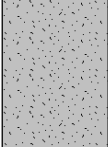
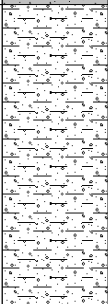
TRIAL PIT LOG

Trial Pit No.

TP08

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	Dimensions (m):	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures	1.20		Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures			Date(s)	20/05/2022	Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed				

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.		(0.40)						
	Firm to stiff light brown and dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint. (Selsey Sand Formation)	0.40	(0.80)						
1									
	End of Trial Pit at 1.200m	1.20							
2									
3									
4									

Remarks:	Pit Stability: Stable
Technical Notes (where applicable): Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574.	Groundwater: Not Encountered.

TRIAL PIT LOG

Trial Pit No.

TP09

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	Dimensions (m):	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures	1.60	1.20 1.20	Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures			Date(s)	20/05/2022	Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed				

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.								
	MADE GROUND. Firm orangish brown and dark brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is fine to coarse angular to sub-rounded flint and brick.	0.15	(1.05)						
1	Soft to firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint. (Selsey Sand Formation)	1.20	(0.40)						
	End of Trial Pit at 1.600m	1.60							
2									
3									
4									

Remarks: Water was encountered in the base of the trial pit; however, was associated with surface water collecting in the trial pit.

Pit Stability: Stable

Technical Notes (where applicable):

Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574.

Groundwater: Not Encountered.

TRIAL PIT LOG

Trial Pit No.

TP10

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	1.50	Dimensions (m):	1.20 1.20	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures					Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures							Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed			Date(s)	20/05/2022		

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.								
	MADE GROUND. Firm orangish brown and dark brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is fine to coarse angular to sub-rounded flint and brick.	0.15	(0.55)						
	Firm to stiff light brown and dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint. (Selsey Sand Formation)	0.70	(0.80)						
1									
	End of Trial Pit at 1.500m	1.50							
2									
3									
4									

Remarks: Water was encountered in the base of the trial pit; however, was associated with surface water collecting in the trial pit. **Pit Stability:** Stable

Technical Notes (where applicable): Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574. **Groundwater:** Not Encountered.

TRIAL PIT LOG

Trial Pit No.

TP11

Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	1.80	Dimensions (m):	1.20 1.20	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures					Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures							Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed			Date(s)	20/05/2022		

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	CONCRETE.								
	MADE GROUND. Grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded flint and brick.	0.20							
	Firm to stiff light brown and dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint.(Selsey Sand Formation)	0.50							
1			(1.30)						
	End of Trial Pit at 1.800m	1.80							
2									
3									
4									

Remarks: Water was encountered in the base of the trial pit; however, was associated with surface water collecting in the trial pit.

Pit Stability: Stable

Technical Notes (where applicable):

Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574.

Groundwater: Not Encountered.

TRIAL PIT LOG

Trial Pit No.
TP12/ FE12
Sheet 1 of 1

Client	Develotec Design & Build Ltd	Depth (m):	Dimensions (m):	Lab Ref.	22-83227	Hole Type	TP
Site	Hamble Aerostructures	0.55	0.60	Plant Used:	1.9 Ton Electric JCB	Scale	1:20
Location	Site at Hamble Aerostructures					Logged By	LF
Ground Level (mAOD):	Not Surveyed	Co-ords:	Not Surveyed	Date(s)	20/05/2022		

All units = (m)	Stratum Description	Depth (Level)	Thickness	Legend	Water Strikes	Sample (Type) Depth	Testing		
							Depth	Type	Results
	BOUND MACADAM.	0.08							
	CONCRETE.	0.15							
	Firm to stiff grey CLAY. (Selsey Sand Formation)		(0.40)						
	End of Trial Pit at 0.550m	0.55							
1									
2									
3									
4									

Remarks: Water was encountered in the base of the trial pit; however, was associated with surface water collecting in the trial pit. **Pit Stability:** Stable

Technical Notes (where applicable):
Consistency of fine grained soil assessed by hand worked tests in accordance with BS5930. Chalk descriptions in accordance with CIRIA C574. **Groundwater:** Not Encountered.

APPENDIX K

Chemical and Asbestos Laboratory Certificates

Certificate of Analysis

Certificate Number : 22-00900-Issue 1-Page: 1

Report Fao: GEO RESULTS
Site Address^: Hamble Aerostructures
Client Order No: 22-83227
Date of Sampling^: 20/05/2022
Date Received: 24/05/2022
Date of Analysis: 24/05/2022 - 16/06/2022
Report Date: 17/06/2022

Please find your certificates of test attached for your samples received in the laboratory on 24/05/2022 under our laboratory reference 22-00900.

Remarks:

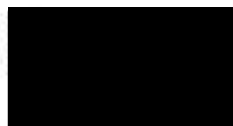
None

Results reviewed by:



Craig Williams Senior Analyst

Test Certificates approved by:



Eoin Byrne Laboratory Manager

*Any opinions or interpretations indicated are outside the scope of our UKAS accreditation.
This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.
Excel copies of reports are valid only when accompanied by this PDF certificate.
Client's Sample Description / ACS Material Description are noted for reference only.*

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ACSE Sample Number Sample ID	63805 652651 - 22-83227	63806 652652 - 22-83227	63807 652653 - 22-83227
Clients Sample Ref.^	TP01	TP01	TP02
Location / Sample Depth (m)^	0.23-0.55mbgl	0.55-1.25mbgl	0.30-0.50mbgl
Date Sampled^ Time Sampled^	20/05/2022	20/05/2022	20/05/2022
Sample deviating codes	f	f	f
Client's Sample Description^			
ACS Testing Material Description^	Brown sandy gravelly CLAY	Brown sandy CLAY	Grey GRAVEL
ACSE Material Description (Principal Matrix - As Received)	CLAY	CLAY	GRAVEL

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Anions										
Water Soluble Sulphate		mg/l	MT/ACSE/204	AD	140	*	-----		97.8	*
BTEX										
Benzene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.10	*f	-----		< 0.10	*f
Ethylbenzene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.10	*f	-----		< 0.10	*f
m+p-xylene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.19	*f	-----		< 0.19	*f
o-xylene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.10	*f	-----		< 0.10	*f
Toluene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.10	*f	-----		< 0.10	*f
Total BTEX	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.60	*f	-----		< 0.60	*f
Carbon										
Soil Organic Matter		%	MT/ACSE/102	AR	< 0.87		< 0.87		1.04	
FOC		%	MT/ACSE/102	AR	< 0.0100		< 0.0100		< 0.0100	
Cyanide										
Total Cyanide		mg/kg	IHP	AR	< 1.00		< 1.00		< 1.00	
Hazwaste Soil Report										
Hazwaste Report		n/a	IHP	IHP	Attached		-----		Attached	
Loss on Ignition										
Loss on Ignition (440 °C)		%	MT/ACSE/302	AD	1.0	*	-----		1.7	*
Metals (Soil)										
Arsenic		mg/kg	MT/ACSE/201	AD	4.65	*	7.67	*	4.99	*
Beryllium		mg/kg	MT/ACSE/201	AD	0.46		-----		0.32	
Cadmium		mg/kg	MT/ACSE/201	AD	< 1.00	*	< 1.00	*	< 1.00	*
Chromium		mg/kg	MT/ACSE/201	AD	23.4	*	17.9	*	23.0	*
Copper		mg/kg	MT/ACSE/201	AD	9.67	*	11.0	*	10.5	*
Mercury		mg/kg	MT/ACSE/202	AD	0.029	*	0.058	*	0.043	*
Manganese		mg/kg	MT/ACSE/201	AD	393		-----		337	
Molybdenum		mg/kg	MT/ACSE/201	AD	< 0.050		-----		0.271	
Nickel		mg/kg	MT/ACSE/201	AD	11.6	*	9.51	*	10.2	*
Lead		mg/kg	MT/ACSE/201	AD	15.5	*	33.8	*	47.2	*
Antimony		mg/kg	MT/ACSE/201	AD	0.26		-----		27.5	
Selenium		mg/kg	MT/ACSE/201	AD	< 6.00	*	< 6.00	*	< 6.00	*
Zinc		mg/kg	MT/ACSE/201	AD	46.5	*	36.5	*	56.8	*
Chromium III		mg/kg	NAM/ACSE/X11	AD	23.4		17.9		23.0	
Chromium Hexavalent		mg/kg	NAM/ACSE/X11	AD	< 0.20		< 0.20		< 0.20	
Boron (Hot Water Soluble)		mg/kg	NAM/ACSE/X08	AD	0.533		-----		0.586	
pH and Conductivity										
pH (@ 20°C)		units	MT/ACSE/301	AD	7.1	*f	6.0	*f	8.2	*f
Phenols										
Phenol Index		mg/kg	IHP	AR	< 1.00		-----		< 1.00	
Poly Aromatic Hydrocarbons										
Naphthalene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Acenaphthylene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Acenaphthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Fluorene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*

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ACSE Sample Number Sample ID	63805 652651 - 22-83227	63806 652652 - 22-83227	63807 652653 - 22-83227
Clients Sample Ref.^	TP01	TP01	TP02
Location / Sample Depth (m)^	0.23-0.55mbgl	0.55-1.25mbgl	0.30-0.50mbgl
Date Sampled^ Time Sampled^	20/05/2022	20/05/2022	20/05/2022
Sample deviating codes Client's Sample Description^	f	f	f
ACS Testing Material Description^	Brown sandy gravelly CLAY CLAY	Brown sandy CLAY CLAY	Grey GRAVEL GRAVEL
ACSE Material Description (Principal Matrix - As Received)			

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Phenanthrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (a) anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Chrysene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (b) fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (k) fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (a) pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Indeno (1 2 3-CD) pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Dibenzo(a h)anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo(g h i)perylene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Total PAH		mg/kg	MT/ACSE/108	AR	< 2.00	*	< 2.00	*	< 2.00	*

Polychlorinated Biphenyls (PCBs)

PCB (7 Congeners)	mg/kg	MT/ACSE/110	AR	< 1.00	----	< 1.00
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Speciated BTEX

MTBE	HS_1D_TOTAL	mg/kg	NAM/ACSE/X12	AR	< 0.0100	< 0.0100	< 0.0100
Hexane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Heptane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Octane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Benzene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Toluene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Ethylbenzene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
m+p-xylene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
o-xylene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Total BTEX	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.05	< 0.05	< 0.05

Speciated Petroleum Hydrocarbons

C5-C6 Aliphatic	HS_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
>C6-C8 Aliphatic	HS_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
>C8-C10 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C10-C12 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C12-C16 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C16-C21 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C21-C35 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	17.6	< 10.0	< 10.0
C6-C7 Aromatic	HS_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
C7-C8 Aromatic	HS_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
>C8-C10 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C10-C12 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C12-C16 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C16-C21 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C21-C35 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	21.7	< 10.0	11.9
Total Speciated TPH (C6-C35)	EH_CU+HS_1D_TOTAL	mg/kg	NAM/ACSE/X07	AR	39.3	< 10.0	11.9

Subcontracted Analysis

Asbestos Fibre ID	SC	SC	SC	Attached	Attached	Attached
Asbestos %	SC	SC	SC	Attached	----	Attached
TOC (Total Organic Carbon)	SC	SC	SC	0.20	0.40	----

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ACSE Sample Number	63805	63806	63807
Sample ID	652651 - 22-83227	652652 - 22-83227	652653 - 22-83227
Clients Sample Ref.^	TP01	TP01	TP02
Location / Sample Depth (m)^	0.23-0.55mbgl	0.55-1.25mbgl	0.30-0.50mbgl
Date Sampled^	20/05/2022	20/05/2022	20/05/2022
Time Sampled^			
Sample deviating codes	f	f	f
Client's Sample Description^			
ACS Testing Material Description^	Brown sandy gravelly CLAY	Brown sandy CLAY	Grey GRAVEL
ACSE Material Description (Principal Matrix - As Received)	CLAY	CLAY	GRAVEL

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Sulphates										
Acid Soluble Sulphate		%SO4	NAM/ACSE/X34	AD	< 0.01		-----		< 0.01	
Total TPH (C10-C40) with cleanup										
Mineral Oil (C10-C40)	EH_CU_1D_TOTAL	mg/kg	MT/ACSE/105	AR	76		-----		139	
Total TPH (C6-C40) with cleanup										
Mineral Oil (C6-C40)	EH_CU+HS_1D_TOTAL	mg/kg	MT/ACSE/105	AR	76		-----		139	

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ACSE Sample Number	63808	63809	63810
Sample ID	652654 - 22-83227	652655 - 22-83227	652656 - 22-83227
Clients Sample Ref.^	TP02	TP03	TP05
Location / Sample Depth (m)^	0.50-1.25mbgl	0.40-1.50mbgl	0.40-0.60mbgl
Date Sampled^	20/05/2022	20/05/2022	20/05/2022
Time Sampled^			
Sample deviating codes	f	f	f
Client's Sample Description^			
ACS Testing Material Description^	Brown sandy gravelly CLAY	Brown SAND and CLAY	Brown sandy gravelly CLAY
ACSE Material Description (Principal Matrix - As Received)	CLAY	SAND	CLAY

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Anions										
Water Soluble Sulphate		mg/l	MT/ACSE/204	AD	----		----		----	
BTEX										
Benzene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		----	
Ethylbenzene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		----	
m+p-xylene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		----	
o-xylene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		----	
Toluene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		----	
Total BTEX	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		----	
Carbon										
Soil Organic Matter		%	MT/ACSE/102	AR	< 0.87		< 0.87		< 0.87	
FOC		%	MT/ACSE/102	AR	< 0.0100		< 0.0100		< 0.0100	
Cyanide										
Total Cyanide		mg/kg	IHP	AR	< 1.00		< 1.00		< 1.00	
Hazwaste Soil Report										
Hazwaste Report		n/a	IHP	IHP	----		----		----	
Loss on Ignition										
Loss on Ignition (440 °C)		%	MT/ACSE/302	AD	----		----		----	
Metals (Soil)										
Arsenic		mg/kg	MT/ACSE/201	AD	5.71	*	4.08	*	4.47	*
Beryllium		mg/kg	MT/ACSE/201	AD	----		----		----	
Cadmium		mg/kg	MT/ACSE/201	AD	< 1.00	*	< 1.00	*	< 1.00	*
Chromium		mg/kg	MT/ACSE/201	AD	22.3	*	26.4	*	96.7	*
Copper		mg/kg	MT/ACSE/201	AD	8.44	*	6.94	*	5.10	*
Mercury		mg/kg	MT/ACSE/202	AD	0.029	*	0.020	*	0.044	*
Manganese		mg/kg	MT/ACSE/201	AD	----		----		----	
Molybdenum		mg/kg	MT/ACSE/201	AD	----		----		----	
Nickel		mg/kg	MT/ACSE/201	AD	13.1	*	9.94	*	7.11	*
Lead		mg/kg	MT/ACSE/201	AD	18.8	*	12.6	*	17.1	*
Antimony		mg/kg	MT/ACSE/201	AD	----		----		----	
Selenium		mg/kg	MT/ACSE/201	AD	< 6.00	*	< 6.00	*	< 6.00	*
Zinc		mg/kg	MT/ACSE/201	AD	37.9	*	28.0	*	63.9	*
Chromium III		mg/kg	NAM/ACSE/X11	AD	22.3		26.4		96.7	
Chromium Hexavalent		mg/kg	NAM/ACSE/X11	AD	< 0.20		< 0.20		< 0.20	
Boron (Hot Water Soluble)		mg/kg	NAM/ACSE/X08	AD	----		----		----	
pH and Conductivity										
pH (@ 20°C)		units	MT/ACSE/301	AD	5.6	*f	6.2	*f	8.4	*f
Phenols										
Phenol Index		mg/kg	IHP	AR	----		----		----	
Poly Aromatic Hydrocarbons										
Naphthalene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Acenaphthylene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*

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ACSE Sample Number Sample ID	63808 652654 - 22-83227	63809 652655 - 22-83227	63810 652656 - 22-83227
Clients Sample Ref.^	TP02	TP03	TP05
Location / Sample Depth (m)^	0.50-1.25mbgl	0.40-1.50mbgl	0.40-0.60mbgl
Date Sampled^ Time Sampled^	20/05/2022	20/05/2022	20/05/2022
Sample deviating codes	f	f	f
Client's Sample Description^			
ACS Testing Material Description^	Brown sandy gravelly CLAY CLAY	Brown SAND and CLAY SAND	Brown sandy gravelly CLAY CLAY
ACSE Material Description (Principal Matrix - As Received)			

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Acenaphthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Fluorene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Phenanthrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (a) anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Chrysene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (b) fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (k) fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (a) pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Indeno (1 2 3-CD) pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Dibenzo(a h)anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo(g h i)perylene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Total PAH		mg/kg	MT/ACSE/108	AR	< 2.00	*	< 2.00	*	< 2.00	*

Polychlorinated Biphenyls (PCBs)

PCB (7 Congeners)	mg/kg	MT/ACSE/110	AR	----	----	----
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Speciated BTEX

MTBE	HS_1D_TOTAL	mg/kg	NAM/ACSE/X12	AR	< 0.0100	< 0.0100	< 0.0100
Hexane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Heptane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Octane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Benzene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Toluene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Ethylbenzene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
m+p-xylene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
o-xylene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Total BTEX	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.05	< 0.05	< 0.05

Speciated Petroleum Hydrocarbons

C5-C6 Aliphatic	HS_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
>C6-C8 Aliphatic	HS_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
>C8-C10 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C10-C12 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C12-C16 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C16-C21 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C21-C35 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	14.3	16.5
C6-C7 Aromatic	HS_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
C7-C8 Aromatic	HS_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
>C8-C10 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C10-C12 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C12-C16 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C16-C21 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C21-C35 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	20.5	10.8	20.5
Total Speciated TPH (C6-C35)	EH_CU+HS_1D_TOTAL	mg/kg	NAM/ACSE/X07	AR	20.5	25.1	37.0

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ACSE Sample Number	63808	63809	63810
Sample ID	652654 - 22-83227	652655 - 22-83227	652656 - 22-83227
Clients Sample Ref.^	TP02	TP03	TP05
Location / Sample Depth (m)^	0.50-1.25mbgl	0.40-1.50mbgl	0.40-0.60mbgl
Date Sampled^	20/05/2022	20/05/2022	20/05/2022
Time Sampled^			
Sample deviating codes	f	f	f
Client's Sample Description^			
ACS Testing Material Description^	Brown sandy gravelly CLAY	Brown SAND and CLAY SAND	Brown sandy gravelly CLAY
ACSE Material Description (Principal Matrix - As Received)	CLAY		CLAY

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Asbestos Fibre ID		SC	SC	SC	Attached		Attached		Attached	
Asbestos %		SC	SC	SC	----		----		----	
TOC (Total Organic Carbon)		SC	SC	SC	0.20		< 0.10		0.10	
Sulphates										
Acid Soluble Sulphate		%SO4	NAM/ACSE/X34	AD	----		----		----	
Total TPH (C10-C40) with cleanup										
Mineral Oil (C10-C40)	EH_CU_1D_TOTAL	mg/kg	MT/ACSE/105	AR	----		----		----	
Total TPH (C6-C40) with cleanup										
Mineral Oil (C6-C40)	EH_CU+HS_1D_TOTAL	mg/kg	MT/ACSE/105	AR	----		----		----	

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ACSE Sample Number	63811	63812	63813
Sample ID	652657 - 22-83227	652658 - 22-83227	652659 - 22-83227
Clients Sample Ref.^	TP05	TP09	TP09
Location / Sample Depth (m)^	0.70-1.50mbgl	0.60-0.80mbgl	1.30-1.50mbgl
Date Sampled^	20/05/2022	20/05/2022	20/05/2022
Time Sampled^			
Sample deviating codes	f	f	f
Client's Sample Description^			
ACS Testing Material Description^	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY
ACSE Material Description (Principal Matrix - As Received)			

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Anions										
Water Soluble Sulphate		mg/l	MT/ACSE/204	AD	----		17.7	*	----	
BTEX										
Benzene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		< 0.10	*f	----	
Ethylbenzene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		< 0.10	*f	----	
m+p-xylene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		< 0.19	*f	----	
o-xylene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		< 0.10	*f	----	
Toluene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		< 0.10	*f	----	
Total BTEX	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		< 0.60	*f	----	
Carbon										
Soil Organic Matter		%	MT/ACSE/102	AR	< 0.87		< 0.87		1.04	
FOC		%	MT/ACSE/102	AR	< 0.0100		< 0.0100		< 0.0100	
Cyanide										
Total Cyanide		mg/kg	IHP	AR	< 1.00		< 1.00		< 1.00	
Hazwaste Soil Report										
Hazwaste Report		n/a	IHP	IHP	----		Attached		----	
Loss on Ignition										
Loss on Ignition (440 °C)		%	MT/ACSE/302	AD	----		1.4	*	----	
Metals (Soil)										
Arsenic		mg/kg	MT/ACSE/201	AD	9.89	*	9.80	*	3.78	*
Beryllium		mg/kg	MT/ACSE/201	AD	----		0.41		----	
Cadmium		mg/kg	MT/ACSE/201	AD	< 1.00	*	< 1.00	*	< 1.00	*
Chromium		mg/kg	MT/ACSE/201	AD	23.9	*	28.3	*	21.5	*
Copper		mg/kg	MT/ACSE/201	AD	10.3	*	7.44	*	6.45	*
Mercury		mg/kg	MT/ACSE/202	AD	0.069	*	0.064	*	0.047	*
Manganese		mg/kg	MT/ACSE/201	AD	----		144		----	
Molybdenum		mg/kg	MT/ACSE/201	AD	----		0.104		----	
Nickel		mg/kg	MT/ACSE/201	AD	10.4	*	11.0	*	7.58	*
Lead		mg/kg	MT/ACSE/201	AD	29.2	*	22.8	*	32.4	*
Antimony		mg/kg	MT/ACSE/201	AD	----		< 0.10		----	
Selenium		mg/kg	MT/ACSE/201	AD	< 6.00	*	< 6.00	*	< 6.00	*
Zinc		mg/kg	MT/ACSE/201	AD	28.0	*	28.4	*	25.3	*
Chromium III		mg/kg	NAM/ACSE/X11	AD	23.9		28.3		21.5	
Chromium Hexavalent		mg/kg	NAM/ACSE/X11	AD	< 0.20		< 0.20		< 0.20	
Boron (Hot Water Soluble)		mg/kg	NAM/ACSE/X08	AD	----		0.382		----	
pH and Conductivity										
pH (@ 20°C)		units	MT/ACSE/301	AD	7.0	*f	7.3	*f	6.0	*f
Phenols										
Phenol Index		mg/kg	IHP	AR	----		< 1.00		----	
Poly Aromatic Hydrocarbons										
Naphthalene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Acenaphthylene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*

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ACSE Sample Number Sample ID	63811 652657 - 22-83227	63812 652658 - 22-83227	63813 652659 - 22-83227
Clients Sample Ref.^	TP05	TP09	TP09
Location / Sample Depth (m)^	0.70-1.50mbgl	0.60-0.80mbgl	1.30-1.50mbgl
Date Sampled^ Time Sampled^	20/05/2022	20/05/2022	20/05/2022
Sample deviating codes Client's Sample Description^	f	f	f
ACS Testing Material Description^	Brown sandy gravelly CLAY CLAY	Brown sandy gravelly CLAY CLAY	Brown sandy gravelly CLAY CLAY
ACSE Material Description (Principal Matrix - As Received)			

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Acenaphthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Fluorene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Phenanthrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (a) anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Chrysene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (b) fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (k) fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo (a) pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Indeno (1 2 3-CD) pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Dibenzo(a h)anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Benzo(g h i)perylene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*	< 0.10	*
Total PAH		mg/kg	MT/ACSE/108	AR	< 2.00	*	< 2.00	*	< 2.00	*

Polychlorinated Biphenyls (PCBs)

PCB (7 Congeners)	mg/kg	MT/ACSE/110	AR	----	< 1.00	----
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Speciated BTEX

MTBE	HS_1D_TOTAL	mg/kg	NAM/ACSE/X12	AR	< 0.0100	< 0.0100	< 0.0100
Hexane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Heptane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Octane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Benzene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Toluene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Ethylbenzene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
m+p-xylene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
o-xylene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100
Total BTEX	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.05	< 0.05	< 0.05

Speciated Petroleum Hydrocarbons

C5-C6 Aliphatic	HS_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
>C6-C8 Aliphatic	HS_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
>C8-C10 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C10-C12 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C12-C16 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C16-C21 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C21-C35 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	10.4	10.1	28.7
C6-C7 Aromatic	HS_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
C7-C8 Aromatic	HS_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	< 0.10
>C8-C10 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C10-C12 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C12-C16 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C16-C21 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	< 10.0
>C21-C35 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	28.7	23.8	24.7
Total Speciated TPH (C6-C35)	EH_CU+HS_1D_TOTAL	mg/kg	NAM/ACSE/X07	AR	39.2	33.9	53.4

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ACSE Sample Number	63811	63812	63813
Sample ID	652657 - 22-83227	652658 - 22-83227	652659 - 22-83227
Clients Sample Ref.^	TP05	TP09	TP09
Location / Sample Depth (m)^	0.70-1.50mbgl	0.60-0.80mbgl	1.30-1.50mbgl
Date Sampled^	20/05/2022	20/05/2022	20/05/2022
Time Sampled^			
Sample deviating codes	f	f	f
Client's Sample Description^			
ACS Testing Material Description^	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY
ACSE Material Description (Principal Matrix - As Received)	CLAY	CLAY	CLAY

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Asbestos Fibre ID		SC	SC	SC	----		Attached		----	
Asbestos %		SC	SC	SC	----		----		----	
TOC (Total Organic Carbon)		SC	SC	SC	0.20		0.40		0.60	
Sulphates										
Acid Soluble Sulphate		%SO4	NAM/ACSE/X34	AD	----		< 0.01		----	
Total TPH (C10-C40) with cleanup										
Mineral Oil (C10-C40)	EH_CU_1D_TOTAL	mg/kg	MT/ACSE/105	AR	----		51		----	
Total TPH (C6-C40) with cleanup										
Mineral Oil (C6-C40)	EH_CU+HS_1D_TOTAL	mg/kg	MT/ACSE/105	AR	----		51		----	

ACSE Sample Number Sample ID	63814 652660 - 22-83227	63815 652661 - 22-83227	63816 652670 - 22-83227
Clients Sample Ref.^	TP11	TP11	STK 01
Location / Sample Depth (m)^	0.20-0.50mbgl	1.50-1.80mbgl	n/a
Date Sampled^ Time Sampled^	20/05/2022	20/05/2022	20/03/2022
Sample deviating codes Client's Sample Description^	f	bf	ef
ACS Testing Material Description^	Grey sandy gravelly CLAY	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY GRAVEL
ACSE Material Description (Principal Matrix - As Received)	CLAY	CLAY	CLAY

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Anions										
Water Soluble Sulphate		mg/l	MT/ACSE/204	AD	----		----		98.2	*ef
BTEX										
Benzene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		< 0.10	*ef
Ethylbenzene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		< 0.10	*ef
m+p-xylene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		< 0.19	*ef
o-xylene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		< 0.10	*ef
Toluene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		< 0.10	*ef
Total BTEX	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	----		----		< 0.60	*ef
Carbon										
Soil Organic Matter		%	MT/ACSE/102	AR	< 0.87		< 0.87		----	
FOC		%	MT/ACSE/102	AR	< 0.0100		< 0.0100		----	
Cyanide										
Total Cyanide		mg/kg	IHP	AR	< 1.00		< 1.00		< 1.00	
Hazwaste Soil Report										
Hazwaste Report		n/a	IHP	IHP	----		----		Attached	ef
Loss on Ignition										
Loss on Ignition (440 °C)		%	MT/ACSE/302	AD	----		----		1.0	*ef
Metals (Soil)										
Arsenic		mg/kg	MT/ACSE/201	AD	1.66	*	4.46	*	5.68	*ef
Beryllium		mg/kg	MT/ACSE/201	AD	----		----		0.06	ef
Cadmium		mg/kg	MT/ACSE/201	AD	< 1.00	*	< 1.00	*	< 1.00	*ef
Chromium		mg/kg	MT/ACSE/201	AD	19.6	*	29.1	*	27.1	*ef
Copper		mg/kg	MT/ACSE/201	AD	5.84	*	9.69	*	7.09	*ef
Mercury		mg/kg	MT/ACSE/202	AD	0.026	*	0.027	*	0.046	*ef
Manganese		mg/kg	MT/ACSE/201	AD	----		----		253	ef
Molybdenum		mg/kg	MT/ACSE/201	AD	----		----		< 0.050	ef
Nickel		mg/kg	MT/ACSE/201	AD	7.72	*	16.5	*	9.22	*ef
Lead		mg/kg	MT/ACSE/201	AD	17.3	*	12.1	*	35.7	*ef
Antimony		mg/kg	MT/ACSE/201	AD	----		----		< 0.10	ef
Selenium		mg/kg	MT/ACSE/201	AD	< 6.00	*	< 6.00	*	< 6.00	*ef
Zinc		mg/kg	MT/ACSE/201	AD	23.2	*	39.9	*	28.0	*ef
Chromium III		mg/kg	NAM/ACSE/X11	AD	19.6		29.1		----	
Chromium Hexavalent		mg/kg	NAM/ACSE/X11	AD	< 0.20		< 0.20		< 0.20	ef
Boron (Hot Water Soluble)		mg/kg	NAM/ACSE/X08	AD	----		----		< 0.030	ef
pH and Conductivity										
pH (@ 20°C)		units	MT/ACSE/301	AD	7.2	*f	7.4	*f	6.9	*ef
Phenols										
Phenol Index		mg/kg	IHP	AR	----		----		< 1.00	ef
Poly Aromatic Hydrocarbons										
Naphthalene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Acenaphthylene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef

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ACSE Sample Number Sample ID	63814 652660 - 22-83227	63815 652661 - 22-83227	63816 652670 - 22-83227
Clients Sample Ref.^	TP11	TP11	STK 01
Location / Sample Depth (m)^	0.20-0.50mbgl	1.50-1.80mbgl	n/a
Date Sampled^ Time Sampled^	20/05/2022	20/05/2022	20/03/2022
Sample deviating codes Client's Sample Description^	f	bf	ef
ACS Testing Material Description^	Grey sandy gravelly CLAY	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY GRAVEL
ACSE Material Description (Principal Matrix - As Received)	CLAY	CLAY	CLAY

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Acenaphthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Fluorene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Phenanthrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Benzo (a) anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Chrysene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Benzo (b) fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Benzo (k) fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Benzo (a) pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Indeno (1 2 3-CD) pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Dibenzo(a h)anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Benzo(g h i)perylene		mg/kg	MT/ACSE/108	AR	< 0.10	*	< 0.10	*b	< 0.10	*ef
Total PAH		mg/kg	MT/ACSE/108	AR	< 2.00	*	< 2.00	*b	< 2.00	*ef

Polychlorinated Biphenyls (PCBs)

PCB (7 Congeners)	mg/kg	MT/ACSE/110	AR	----	----	< 1.00	ef
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Speciated BTEX

MTBE	HS_1D_TOTAL	mg/kg	NAM/ACSE/X12	AR	< 0.0100	< 0.0100	< 0.0100	ef
Hexane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100	ef
Heptane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100	ef
Octane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100	ef
Benzene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100	ef
Toluene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100	ef
Ethylbenzene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100	ef
m+p-xylene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100	ef
o-xylene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	< 0.0100	< 0.0100	ef
Total BTEX	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.05	< 0.05	< 0.05	ef

Speciated Petroleum Hydrocarbons

C5-C6 Aliphatic	HS_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	----
>C6-C8 Aliphatic	HS_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	----
>C8-C10 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	----
>C10-C12 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	----
>C12-C16 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	----
>C16-C21 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	11.5	< 10.0	----
>C21-C35 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	63.5	27.4	----
C6-C7 Aromatic	HS_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	----
C7-C8 Aromatic	HS_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 0.10	< 0.10	----
>C8-C10 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	----
>C10-C12 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	----
>C12-C16 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	----
>C16-C21 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	< 10.0	< 10.0	----
>C21-C35 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	40.0	31.5	----
Total Speciated TPH (C6-C35)	EH_CU+HS_1D_TOTAL	mg/kg	NAM/ACSE/X07	AR	115	58.9	----

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ACSE Sample Number	63814	63815	63816
Sample ID	652660 - 22-83227	652661 - 22-83227	652670 - 22-83227
Clients Sample Ref.^	TP11	TP11	STK 01
Location / Sample Depth (m)^	0.20-0.50mbgl	1.50-1.80mbgl	n/a
Date Sampled^	20/05/2022	20/05/2022	20/03/2022
Time Sampled^			
Sample deviating codes	f	bf	ef
Client's Sample Description^			
ACS Testing Material Description^	Grey sandy gravelly CLAY	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY
ACSE Material Description (Principal Matrix - As Received)	CLAY	CLAY	GRAVEL

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS	Result	AS	Result	AS
Asbestos Fibre ID		SC	SC	SC	Attached		-----		Attached	ef
Asbestos %		SC	SC	SC	-----		-----		Attached	ef
TOC (Total Organic Carbon)		SC	SC	SC	0.40		< 0.10		0.20	ef
Sulphates										
Acid Soluble Sulphate		%SO4	NAM/ACSE/X34	AD	-----		-----		< 0.01	ef
Total TPH (C10-C40) with cleanup										
Mineral Oil (C10-C40)	EH_CU_1D_TOTAL	mg/kg	MT/ACSE/105	AR	-----		-----		< 50	ef
Total TPH (C6-C40) with cleanup										
Mineral Oil (C6-C40)	EH_CU+HS_1D_TOTAL	mg/kg	MT/ACSE/105	AR	-----		-----		< 50	ef

ACSE Sample Number 63817
 Sample ID 652671 - 22-83227
 Clients Sample Ref.^ Skip 01
 Location / Sample Depth (m)^ n/a
 Date Sampled^ 20/03/2022
 Time Sampled^
 Sample deviating codes ef
 Client's Sample Description^
 ACS Testing Material Description^ Brown sandy gravelly
 CLAY
 ACSE Material Description (Principal Matrix - As Received) GRAVEL

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS
Anions						
Water Soluble Sulphate		mg/l	MT/ACSE/204	AD	113	*ef
BTEX						
Benzene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.10	*ef
Ethylbenzene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.10	*ef
m+p-xylene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.19	*ef
o-xylene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.10	*ef
Toluene	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.10	*ef
Total BTEX	HS_1D_TOTAL	mg/kg	MT/ACSE/101	AR	< 0.60	*ef
Carbon						
Soil Organic Matter		%	MT/ACSE/102	AR	-----	
FOC		%	MT/ACSE/102	AR	-----	
Cyanide						
Total Cyanide		mg/kg	IHP	AR	< 1.00	
Hazwaste Soil Report						
Hazwaste Report		n/a	IHP	IHP	Attached	ef
Loss on Ignition						
Loss on Ignition (440 °C)		%	MT/ACSE/302	AD	1.1	*ef
Metals (Soil)						
Arsenic		mg/kg	MT/ACSE/201	AD	7.68	*ef
Beryllium		mg/kg	MT/ACSE/201	AD	0.03	ef
Cadmium		mg/kg	MT/ACSE/201	AD	< 1.00	*ef
Chromium		mg/kg	MT/ACSE/201	AD	52.9	*ef
Copper		mg/kg	MT/ACSE/201	AD	9.54	*ef
Mercury		mg/kg	MT/ACSE/202	AD	0.061	*ef
Manganese		mg/kg	MT/ACSE/201	AD	313	ef
Molybdenum		mg/kg	MT/ACSE/201	AD	0.071	ef
Nickel		mg/kg	MT/ACSE/201	AD	13.1	*ef
Lead		mg/kg	MT/ACSE/201	AD	29.9	*ef
Antimony		mg/kg	MT/ACSE/201	AD	0.40	ef
Selenium		mg/kg	MT/ACSE/201	AD	< 6.00	*ef
Zinc		mg/kg	MT/ACSE/201	AD	49.7	*ef
Chromium III		mg/kg	NAM/ACSE/X11	AD	-----	
Chromium Hexavalent		mg/kg	NAM/ACSE/X11	AD	< 0.20	ef
Boron (Hot Water Soluble)		mg/kg	NAM/ACSE/X08	AD	0.471	ef
pH and Conductivity						
pH (@ 20°C)		units	MT/ACSE/301	AD	7.8	*ef
Phenols						
Phenol Index		mg/kg	IHP	AR	< 1.00	ef
Poly Aromatic Hydrocarbons						
Naphthalene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Acenaphthylene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef

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ACSE Sample Number 63817
 Sample ID 652671 - 22-83227
 Clients Sample Ref.^ Skip 01
 Location / Sample Depth (m)^ n/a
 Date Sampled^ 20/03/2022
 Time Sampled^
 Sample deviating codes ef
 Client's Sample Description^

ACS Testing Material Description^ Brown sandy gravelly

ACSE Material Description (Principal Matrix - As Received) CLAY GRAVEL

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS
Acenaphthene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Fluorene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Phenanthrene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Benzo (a) anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Chrysene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Benzo (b) fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Benzo (k) fluoranthene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Benzo (a) pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Indeno (1 2 3-CD) pyrene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Dibenzo(a h)anthracene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Benzo(g h i)perylene		mg/kg	MT/ACSE/108	AR	< 0.10	*ef
Total PAH		mg/kg	MT/ACSE/108	AR	< 2.00	*ef

Polychlorinated Biphenyls (PCBs)

PCB (7 Congeners)	mg/kg	MT/ACSE/110	AR	< 1.00	ef
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Speciated BTEX

MTBE	HS_1D_TOTAL	mg/kg	NAM/ACSE/X12	AR	< 0.0100	ef
Hexane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	ef
Heptane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	ef
Octane	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	ef
Benzene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	ef
Toluene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	ef
Ethylbenzene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	ef
m+p-xylene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	ef
o-xylene	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.0100	ef
Total BTEX	HS_1D_TOTAL	mg/kg	NAM/ACSE/X06	AR	< 0.05	ef

Speciated Petroleum Hydrocarbons

C5-C6 Aliphatic	HS_1D_AL	mg/kg	NAM/ACSE/X07	AR	----
>C6-C8 Aliphatic	HS_1D_AL	mg/kg	NAM/ACSE/X07	AR	----
>C8-C10 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	----
>C10-C12 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	----
>C12-C16 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	----
>C16-C21 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	----
>C21-C35 Aliphatic	EH_CU_1D_AL	mg/kg	NAM/ACSE/X07	AR	----
C6-C7 Aromatic	HS_1D_AR	mg/kg	NAM/ACSE/X07	AR	----
C7-C8 Aromatic	HS_1D_AR	mg/kg	NAM/ACSE/X07	AR	----
>C8-C10 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	----
>C10-C12 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	----
>C12-C16 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	----
>C16-C21 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	----
>C21-C35 Aromatic	EH_CU_1D_AR	mg/kg	NAM/ACSE/X07	AR	----
Total Speciated TPH (C6-C35)	EH_CU+HS_1D_TOTAL	mg/kg	NAM/ACSE/X07	AR	----

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ACSE Sample Number	63817
Sample ID	652671 - 22-83227
Clients Sample Ref.^	Skip 01
Location / Sample Depth (m)^	n/a
Date Sampled^	20/03/2022
Time Sampled^	
Sample deviating codes	ef
Client's Sample Description^	
ACS Testing Material Description^	Brown sandy gravelly CLAY GRAVEL
ACSE Material Description (Principal Matrix - As Received)	

Determination	HWOL Acroynm	Units	Method	Prepared As	Result	AS
Asbestos Fibre ID		SC	SC	SC	Attached	ef
Asbestos %		SC	SC	SC	Attached	ef
TOC (Total Organic Carbon)		SC	SC	SC	0.20	ef
Sulphates						
Acid Soluble Sulphate		%SO4	NAM/ACSE/X34	AD	< 0.01	ef
Total TPH (C10-C40) with cleanup						
Mineral Oil (C10-C40)	EH_CU_1D_TOTAL	mg/kg	MT/ACSE/105	AR	< 50	ef
Total TPH (C6-C40) with cleanup						
Mineral Oil (C6-C40)	EH_CU+HS_1D_TOTAL	mg/kg	MT/ACSE/105	AR	< 50	ef

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Technical Information for Analytical Results

Analysis

* - denotes analysis covered by our UKAS accreditation.
- denoted analysis covered by our MCERTS certification & UKAS accreditation.
AD = Sample tested in air dried condition.
AR = Sample tested in as-received condition.
AS = Accreditation status.
D = Sample tested in dry condition.
L = Laboratory prepared leachate.
SC = Sub contracted.
^ = Clients supplied information.
All MCERTS certified test values reported on a dry weight basis.
Method uncertainty available on request.

Key to HWOL Acronyms

Acronym	Description
HS	- Headspace analysis
EH	- Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	- Clean-up - e.g. by florisil, silica gel
1D	- GC - Single coil gas chromatography
Total	- Aliphatics & Aromatics
AL	- Aliphatics only
AR	- Aromatics only
2D	- GC-GC - Double coil gas chromatography
#1	- e.g. EH_2D_Total_#1 means humics mathematically subtracted
#2	- e.g. EH_2D_Total_#2 means fatty acids mathematically subtracted
_	- Operator - underscore to separate acronyms (exception for +)
+	- Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Deviating Codes

Deviating Samples

The use of any of the following symbols indicates that the sample was deviating and it is possible therefore that the results provided may not be representative of the sample taken.

- a – The date and /or time of sampling has not been provided, therefore it is not known if the time lapse between sampling and analysis has exceeded the acceptable holding time(s)*.
- b – The test item was received in a container which has not been recommended*.
- c – On receipt, the temperature of the sample received was found to fall outside the recommendations of BS ISO 18512:2007, Soil Quality. Guidance on long and short term storage of soil samples*.
- d – The sample was received in a container that had not been filled as recommended*.
- e – The delay between sampling and sample receipt is greater than the recommended holding time for the analyte of interest in this matrix*.
- f – The delay between sampling and analysis is greater than the recommended holding time for the analyte of interest in this matrix*.

In accordance with the requirements of Technical Policy Statement TPS 63; UKAS Policy on Deviating Samples, all UKAS accredited testing laboratories are required to notify their clients that calibration or test results may be invalid where samples are found to be deviating. It is the opinion of ACSE that the term invalid should be interpreted as 'not fully representative of the sample taken at source'.

The following Additional Deviating Sample Codes may also be used.

- I/S – Insufficient sample mass/volume received for accurate quantification of this analyte.
- U/S – The sample received was deemed unsuitable for accurate determination of this analyte using the Test Methods available.

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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 22-40855

Issue: 2. Replaces Analytical Report number 22-40855; issue no.1

Date of Issue: 13/06/2022

Contact: Dave Redfern

Customer Details: ACS Environmental testing Ltd
Unit 14b Blackhill Road West
Holton heath Trading park
Poole
DorsetBH16 6LE

Quotation No: Q22-02670

Order No: E / 22-00900 / 4561

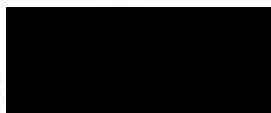
Customer Reference: 22-00900

Date Received: 25/05/2022

Date Approved: 13/06/2022

Details: 22-00900

Approved by:



Tim Reeve, Quality Officer

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

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Sample Summary

Report No.: 22-40855, issue number 2

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
280829	TP01 (652651)	20/05/2022	25/05/2022		
280830	TP01 (652652)	20/05/2022	25/05/2022		
280831	TP02 (652653)	20/05/2022	25/05/2022		
280832	TP02 (652654)	20/05/2022	25/05/2022		
280833	TP03 (652655)	20/05/2022	25/05/2022		
280834	TP05 (652656)	20/05/2022	25/05/2022		
280835	TP09 (652658)	20/05/2022	25/05/2022		
280836	TP11 (652660)	20/05/2022	25/05/2022		
280837	STK 01 (652670)	20/03/2022	25/05/2022		
280838	Skip 01 (652671)	20/03/2022	25/05/2022		



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Results Summary

Report No.: 22-40855, issue number 2

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
280829		TP01 (652651)	Brown Soil, Stones, Clinker, Concrete	Chrysotile (Gasket)	0.014	0.014 Gasket, Chrysotile	< 0.001	0.014
280830		TP01 (652652)	Brown Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t
280831		TP02 (652653)	Brown Soil, Stones, Clinker, Concrete	Chrysotile (Asbestos Cement)	0.993	0.993 Asbestos Cement, Chrysotile	< 0.001	0.993
280832		TP02 (652654)	Brown Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t
280833		TP03 (652655)	Brown Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t
280834		TP05 (652656)	Brown Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t
280835		TP09 (652658)	Brown Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t
280836		TP11 (652660)	Brown Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t
280837		STK 01 (652670)	Brown Soil, Stones, Clinker	Chrysotile (Asbestos Cement)	0.003	0.003 Asbestos Cement, Chrysotile	< 0.001	0.003
280838		Skip 01 (652671)	Brown Soil, Stones, Clinker, Concrete	Chrysotile (Asbestos Cement)	0.851	0.851 Asbestos Cement, Chrysotile	< 0.001	0.851



Method Summary

Report No.: 22-40855, issue number 2

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Asbestos identification	U	Air dried sample	30/05/2022	260	Microscopy

Report Information

Report No.: 22-40855, issue number 2

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination. Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed. ELAB are unable to provide an interpretation or opinion on the content of this report. The results relate only to the sample received. PCB congener results may include any coeluting PCBs Uncertainty of measurement for the determinands tested are available upon request Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
 All water samples will be retained for 7 days following the date of the test report
 Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

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)



LTSPB-HYL6Z-UCQAK

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

Job name

22-00900

Description/Comments

Project

22-83227

Site

Hamble Aerostructures

Classified by

Name: **Brent Graham**
 Date: **17 Jun 2022 14:41 GMT**
 Telephone: **01202 622858**
 Company: **ACS Testing Limited**
Unit 14 Blackhill Road West
Holton Heath Trading Park
Poole
BH16 6LE

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:

CERTIFIED

Course

Hazardous Waste Classification

Date

04 Feb 2021

Next 3 year Refresher due by Feb 2024

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	652651 - 22-83227-0.23-0.55mbgl		Non Hazardous		2
2	652653 - 22-83227-0.30-0.50mbgl		Non Hazardous		5
3	652658 - 22-83227-0.60-0.80mbgl		Non Hazardous		8
4	652670 - 22-83227-n/a		Non Hazardous		11
5	652671 - 22-83227-n/a		Non Hazardous		14

Related documents

#	Name	Description
1	22-00900.HWOL	.hwol file used to create the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Brent Graham

Created date: 17 Jun 2022 14:41 GMT

Appendices

	Page
Appendix A: Classifier defined and non GB MCL determinands	17
Appendix B: Rationale for selection of metal species	18
Appendix C: Version	19

Classification of sample: 652651 - 22-83227-0.23-0.55mbgl

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

Sample details

Sample name:	LoW Code:
652651 - 22-83227-0.23-0.55mbgl	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
12.4% (dry weight correction)	

Hazard properties

None identified

Determinands

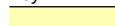
Moisture content: 12.4% Dry Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number								
1		antimony { antimony trioxide }				0.26 mg/kg	1.197	0.277 mg/kg	0.0000277 %	✓		
		051-005-00-X	215-175-0	1309-64-4								
2		arsenic { arsenic trioxide }				4.65 mg/kg	1.32	5.462 mg/kg	0.000546 %	✓		
		033-003-00-0	215-481-4	1327-53-3								
3		beryllium { beryllium oxide }				0.46 mg/kg	2.775	1.136 mg/kg	0.000114 %	✓		
		004-003-00-8	215-133-1	1304-56-9								
4		boron { diboron trioxide; boric oxide }				0.533 mg/kg	3.22	1.527 mg/kg	0.000153 %	✓		
		005-008-00-8	215-125-8	1303-86-2								
5		cadmium { cadmium oxide }				<1 mg/kg	1.142	<1.142 mg/kg	<0.000114 %		<LOD	
		048-002-00-0	215-146-2	1306-19-0								
6		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				23.4 mg/kg	1.462	30.427 mg/kg	0.00304 %	✓		
			215-160-9	1308-38-9								
7		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.2 mg/kg	2.27	<0.454 mg/kg	<0.0000454 %		<LOD	
		024-017-00-8										
8		copper { dicopper oxide; copper (I) oxide }				9.67 mg/kg	1.126	9.686 mg/kg	0.000969 %	✓		
		029-002-00-X	215-270-7	1317-39-1								
9		lead { lead chromate }			1	15.5 mg/kg	1.56	21.51 mg/kg	0.00138 %	✓		
		082-004-00-2	231-846-0	7758-97-6								
10		manganese { manganese sulphate }				393 mg/kg	2.749	961.019 mg/kg	0.0961 %	✓		
		025-003-00-4	232-089-9	7785-87-7								
11		mercury { mercury dichloride }				0.029 mg/kg	1.353	0.0349 mg/kg	0.00000349 %	✓		
		080-010-00-X	231-299-8	7487-94-7								
12		molybdenum { molybdenum(VI) oxide }				<0.05 mg/kg	1.5	<0.075 mg/kg	<0.0000075 %		<LOD	
		042-001-00-9	215-204-7	1313-27-5								
13		nickel { nickel chromate }				11.6 mg/kg	2.976	30.716 mg/kg	0.00307 %	✓		
		028-035-00-7	238-766-5	14721-18-7								
14		selenium { nickel selenate }				<6 mg/kg	2.554	<15.323 mg/kg	<0.00153 %		<LOD	
		028-031-00-5	239-125-2	15060-62-5								
15		zinc { zinc chromate }				46.5 mg/kg	2.774	114.767 mg/kg	0.0115 %	✓		
		024-007-00-3	236-878-9	13530-65-9								
16		TPH (C6 to C40) petroleum group		TPH		76 mg/kg		67.616 mg/kg	0.00676 %	✓		

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
19	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
20	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
21	xylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
	601-022-00-9	202-422-2 [1]	95-47-6 [1]							
		203-396-5 [2]	106-42-3 [2]							
		203-576-3 [3]	108-38-3 [3]							
		215-535-7 [4]	1330-20-7 [4]							
22	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
23	pH				7.1 pH		7.1 pH	7.1 pH		
			PH							
24	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
25	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
26	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
27	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
28	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
29	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
30	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
31	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
32	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
33	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
34	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
35	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
36	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							
37	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
38	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
39	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
40	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
41	polychlorobiphenyls; PCB				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
42	n-hexane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-037-00-0	203-777-6	110-54-3							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
43	heptane; n-heptane; [1] 2,4-dimethylpentane; [2] 2,2,3-trimethylbutane; [3] 3,3-dimethylpentane; [4] 2,3-dimethylpentane; [5] 3-methylhexane; [6] 2,2-dimethylpentane; [7] 2-methylhexane; [8] 3-ethylpentane; [9] isoheptane; [10]				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-008-00-2	205-563-8 [1] 203-548-0 [2] 207-346-3 [3] 209-230-8 [4] 209-280-0 [5] 209-643-3 [6] 209-680-5 [7] 209-730-6 [8] 210-529-0 [9] 250-610-8 [10]	142-82-5 [1] 108-08-7 [2] 464-06-2 [3] 562-49-2 [4] 565-59-3 [5] 589-34-4 [6] 590-35-2 [7] 591-76-4 [8] 617-78-7 [9] 31394-54-4 [10]							
44	octane; n-octane; [1] 2,2,4-trimethylpentane; [2] 2,3,3-trimethylpentane; [3] 3,3-dimethylhexane; [4] 2,2,3-trimethylpentane; [5] 2,3,4-trimethylpentane; [6] 3,4-dimethylhexane; [7] 2,3-dimethylhexane; [8] 2,4-dimethylhexane; [9] 4-methylheptane; [10] 3-methylheptane; [11] 2,2-dimethylhexane; [12] 2,5-dimethylhexane; [13] 2-methylheptane; [14] 2,2,3,3-tetramethylbutane; [15] 3-ethyl-2-methylpentane; [16] 3-ethylhexane; [17] 3-ethyl-3-methylpentane; [18] isooctane; [19]				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-009-00-8	203-892-1 [1] 208-759-1 [2] 209-207-2 [3] 209-243-9 [4] 209-266-4 [5] 209-292-6 [6] 209-504-7 [7] 209-547-1 [8] 209-649-6 [9] 209-650-1 [10] 209-660-6 [11] 209-689-4 [12] 209-745-8 [13] 209-747-9 [14] 209-855-6 [15] 210-187-2 [16] 210-621-0 [17] 213-923-0 [18] 247-861-0 [19]	111-65-9 [1] 540-84-1 [2] 560-21-4 [3] 563-16-6 [4] 564-02-3 [5] 565-75-3 [6] 583-48-2 [7] 584-94-1 [8] 589-43-5 [9] 589-53-7 [10] 589-81-1 [11] 590-73-8 [12] 592-13-2 [13] 592-27-8 [14] 594-82-1 [15] 609-26-7 [16] 619-99-8 [17] 1067-08-9 [18] 26635-64-3 [19]							
	Total:									

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 Unlikely to be flammable at recorded concentration

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00676%)

Classification of sample: 652653 - 22-83227-0.30-0.50mbgl

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

Sample details

Sample name:	LoW Code:
652653 - 22-83227-0.30-0.50mbgl	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
12.4% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 12.4% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	antimony { antimony trioxide }				27.5 mg/kg	1.197	29.289 mg/kg	0.00293 %	✓	
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				4.99 mg/kg	1.32	5.862 mg/kg	0.000586 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				0.32 mg/kg	2.775	0.79 mg/kg	0.000079 %	✓	
	004-003-00-8	215-133-1	1304-56-9							
4	boron { diboron trioxide; boric oxide }				0.586 mg/kg	3.22	1.679 mg/kg	0.000168 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
5	cadmium { cadmium oxide }				<1 mg/kg	1.142	<1.142 mg/kg	<0.000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				23 mg/kg	1.462	29.907 mg/kg	0.00299 %	✓	
		215-160-9	1308-38-9							
7	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.2 mg/kg	2.27	<0.454 mg/kg	<0.0000454 %		<LOD
	024-017-00-8									
8	copper { dicopper oxide; copper (I) oxide }				10.5 mg/kg	1.126	10.518 mg/kg	0.00105 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
9	lead { lead chromate }			1	47.2 mg/kg	1.56	65.501 mg/kg	0.0042 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
10	manganese { manganese sulphate }				337 mg/kg	2.749	824.08 mg/kg	0.0824 %	✓	
	025-003-00-4	232-089-9	7785-87-7							
11	mercury { mercury dichloride }				0.043 mg/kg	1.353	0.0518 mg/kg	0.00000518 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
12	molybdenum { molybdenum(VI) oxide }				0.271 mg/kg	1.5	0.362 mg/kg	0.0000362 %	✓	
	042-001-00-9	215-204-7	1313-27-5							
13	nickel { nickel chromate }				10.2 mg/kg	2.976	27.009 mg/kg	0.0027 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
14	selenium { nickel selenate }				<6 mg/kg	2.554	<15.323 mg/kg	<0.00153 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
15	zinc { zinc chromate }				56.8 mg/kg	2.774	140.188 mg/kg	0.014 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
16	TPH (C6 to C40) petroleum group				139 mg/kg		123.665 mg/kg	0.0124 %	✓	
			TPH							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
18	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
19	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
20	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
21	xylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
22	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
23	pH				8.2 pH		8.2 pH	8.2 pH			
24	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
25	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
26	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
27	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
28	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
29	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
30	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
31	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
32	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
33	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
34	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
35	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
36	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								
37	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
38	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
39	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
40	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
41	polychlorobiphenyls; PCB				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
42	n-hexane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-037-00-0	203-777-6	110-54-3								

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
43		heptane; n-heptane; [1] 2,4-dimethylpentane; [2] 2,2,3-trimethylbutane; [3] 3,3-dimethylpentane; [4] 2,3-dimethylpentane; [5] 3-methylhexane; [6] 2,2-dimethylpentane; [7] 2-methylhexane; [8] 3-ethylpentane; [9] isoheptane; [10]									
	601-008-00-2	205-563-8 [1] 203-548-0 [2] 207-346-3 [3] 209-230-8 [4] 209-280-0 [5] 209-643-3 [6] 209-680-5 [7] 209-730-6 [8] 210-529-0 [9] 250-610-8 [10]	142-82-5 [1] 108-08-7 [2] 464-06-2 [3] 562-49-2 [4] 565-59-3 [5] 589-34-4 [6] 590-35-2 [7] 591-76-4 [8] 617-78-7 [9] 31394-54-4 [10]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD	
44		octane; n-octane; [1] 2,2,4-trimethylpentane; [2] 2,3,3-trimethylpentane; [3] 3,3-dimethylhexane; [4] 2,2,3-trimethylpentane; [5] 2,3,4-trimethylpentane; [6] 3,4-dimethylhexane; [7] 2,3-dimethylhexane; [8] 2,4-dimethylhexane; [9] 4-methylheptane; [10] 3-methylheptane; [11] 2,2-dimethylhexane; [12] 2,5-dimethylhexane; [13] 2-methylheptane; [14] 2,2,3,3-tetramethylbutane; [15] 3-ethyl-2-methylpentane; [16] 3-ethylhexane; [17] 3-ethyl-3-methylpentane; [18] isooctane; [19]									
	601-009-00-8	203-892-1 [1] 208-759-1 [2] 209-207-2 [3] 209-243-9 [4] 209-266-4 [5] 209-292-6 [6] 209-504-7 [7] 209-547-1 [8] 209-649-6 [9] 209-650-1 [10] 209-660-6 [11] 209-689-4 [12] 209-745-8 [13] 209-747-9 [14] 209-855-6 [15] 210-187-2 [16] 210-621-0 [17] 213-923-0 [18] 247-861-0 [19]	111-65-9 [1] 540-84-1 [2] 560-21-4 [3] 563-16-6 [4] 564-02-3 [5] 565-75-3 [6] 583-48-2 [7] 584-94-1 [8] 589-43-5 [9] 589-53-7 [10] 589-81-1 [11] 590-73-8 [12] 592-13-2 [13] 592-27-8 [14] 594-82-1 [15] 609-26-7 [16] 619-99-8 [17] 1067-08-9 [18] 26635-64-3 [19]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD	
	Total:								0.126 %		

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 Unlikely to be flammable at recorded concentration

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0124%)

Classification of sample: 652658 - 22-83227-0.60-0.80mbgl

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

Sample details

Sample name:	LoW Code:
652658 - 22-83227-0.60-0.80mbgl	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
13.3% (dry weight correction)	

Hazard properties

None identified

Determinands

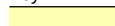
Moisture content: 13.3% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				<0.1	mg/kg	1.197	<0.12	mg/kg	<0.000012 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				9.8	mg/kg	1.32	11.42	mg/kg	0.00114 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
3	beryllium { beryllium oxide }				0.41	mg/kg	2.775	1.004	mg/kg	0.0001 %	✓	
	004-003-00-8	215-133-1	1304-56-9									
4	boron { diboron trioxide; boric oxide }				0.382	mg/kg	3.22	1.086	mg/kg	0.000109 %	✓	
	005-008-00-8	215-125-8	1303-86-2									
5	cadmium { cadmium oxide }				<1	mg/kg	1.142	<1.142	mg/kg	<0.000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				28.3	mg/kg	1.462	36.507	mg/kg	0.00365 %	✓	
		215-160-9	1308-38-9									
7	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.2	mg/kg	2.27	<0.454	mg/kg	<0.0000454 %		<LOD
	024-017-00-8											
8	copper { dicopper oxide; copper (I) oxide }				7.44	mg/kg	1.126	7.393	mg/kg	0.000739 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
9	lead { lead chromate }			1	22.8	mg/kg	1.56	31.389	mg/kg	0.00201 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
10	manganese { manganese sulphate }				144	mg/kg	2.749	349.332	mg/kg	0.0349 %	✓	
	025-003-00-4	232-089-9	7785-87-7									
11	mercury { mercury dichloride }				0.064	mg/kg	1.353	0.0765	mg/kg	0.00000765 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
12	molybdenum { molybdenum(VI) oxide }				0.104	mg/kg	1.5	0.138	mg/kg	0.0000138 %	✓	
	042-001-00-9	215-204-7	1313-27-5									
13	nickel { nickel chromate }				11	mg/kg	2.976	28.896	mg/kg	0.00289 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
14	selenium { nickel selenate }				<6	mg/kg	2.554	<15.323	mg/kg	<0.00153 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
15	zinc { zinc chromate }				28.4	mg/kg	2.774	69.537	mg/kg	0.00695 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
16	TPH (C6 to C40) petroleum group		TPH		51	mg/kg		45.013	mg/kg	0.0045 %	✓	

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
19	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
20	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
21	xylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
	601-022-00-9	202-422-2 [1]	95-47-6 [1]							
		203-396-5 [2]	106-42-3 [2]							
		203-576-3 [3]	108-38-3 [3]							
		215-535-7 [4]	1330-20-7 [4]							
22	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
23	pH				7.3 pH		7.3 pH	7.3 pH		
			PH							
24	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
25	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
26	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
27	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
28	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
29	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
30	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
31	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
32	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
33	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
34	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
35	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
36	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							
37	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
38	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
39	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
40	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
41	polychlorobiphenyls; PCB				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
42	n-hexane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-037-00-0	203-777-6	110-54-3							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used						
	EU CLP index number	EC Number	CAS Number													
43	heptane; n-heptane; [1] 2,4-dimethylpentane; [2] 2,2,3-trimethylbutane; [3] 3,3-dimethylpentane; [4] 2,3-dimethylpentane; [5] 3-methylhexane; [6] 2,2-dimethylpentane; [7] 2-methylhexane; [8] 3-ethylpentane; [9] isoheptane; [10]				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD						
	601-008-00-2	205-563-8 [1] 203-548-0 [2] 207-346-3 [3] 209-230-8 [4] 209-280-0 [5] 209-643-3 [6] 209-680-5 [7] 209-730-6 [8] 210-529-0 [9] 250-610-8 [10]	142-82-5 [1] 108-08-7 [2] 464-06-2 [3] 562-49-2 [4] 565-59-3 [5] 589-34-4 [6] 590-35-2 [7] 591-76-4 [8] 617-78-7 [9] 31394-54-4 [10]													
44	octane; n-octane; [1] 2,2,4-trimethylpentane; [2] 2,3,3-trimethylpentane; [3] 3,3-dimethylhexane; [4] 2,2,3-trimethylpentane; [5] 2,3,4-trimethylpentane; [6] 3,4-dimethylhexane; [7] 2,3-dimethylhexane; [8] 2,4-dimethylhexane; [9] 4-methylheptane; [10] 3-methylheptane; [11] 2,2-dimethylhexane; [12] 2,5-dimethylhexane; [13] 2-methylheptane; [14] 2,2,3,3-tetramethylbutane; [15] 3-ethyl-2-methylpentane; [16] 3-ethylhexane; [17] 3-ethyl-3-methylpentane; [18] isooctane; [19]				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD						
	601-009-00-8	203-892-1 [1] 208-759-1 [2] 209-207-2 [3] 209-243-9 [4] 209-266-4 [5] 209-292-6 [6] 209-504-7 [7] 209-547-1 [8] 209-649-6 [9] 209-650-1 [10] 209-660-6 [11] 209-689-4 [12] 209-745-8 [13] 209-747-9 [14] 209-855-6 [15] 210-187-2 [16] 210-621-0 [17] 213-923-0 [18] 247-861-0 [19]	111-65-9 [1] 540-84-1 [2] 560-21-4 [3] 563-16-6 [4] 564-02-3 [5] 565-75-3 [6] 583-48-2 [7] 584-94-1 [8] 589-43-5 [9] 589-53-7 [10] 589-81-1 [11] 590-73-8 [12] 592-13-2 [13] 592-27-8 [14] 594-82-1 [15] 609-26-7 [16] 619-99-8 [17] 1067-08-9 [18] 26635-64-3 [19]													
	Total:										0.0593 %					

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 Unlikely to be flammable at recorded concentration

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0045%)

Classification of sample: 652670 - 22-83227-n/a

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

Sample details

Sample name:	LoW Code:
652670 - 22-83227-n/a	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
17.2% (dry weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17.2% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	 antimony { antimony trioxide }				<0.1 mg/kg	1.197	<0.12 mg/kg	<0.000012 %		<LOD
	051-005-00-X	215-175-0	1309-64-4							
2	 arsenic { arsenic trioxide }				5.68 mg/kg	1.32	6.399 mg/kg	0.00064 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
3	 beryllium { beryllium oxide }				0.06 mg/kg	2.775	0.142 mg/kg	0.0000142 %	✓	
	004-003-00-8	215-133-1	1304-56-9							
4	 boron { diboron trioxide; boric oxide }				<0.03 mg/kg	3.22	<0.0966 mg/kg	<0.00000966 %		<LOD
	005-008-00-8	215-125-8	1303-86-2							
5	 cadmium { cadmium oxide }				<1 mg/kg	1.142	<1.142 mg/kg	<0.000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
6	 chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				27.1 mg/kg	1.462	33.795 mg/kg	0.00338 %	✓	
		215-160-9	1308-38-9							
7	 chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.2 mg/kg	2.27	<0.454 mg/kg	<0.0000454 %		<LOD
	024-017-00-8									
8	 copper { dicopper oxide; copper (I) oxide }				7.09 mg/kg	1.126	6.811 mg/kg	0.000681 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
9	 lead { lead chromate }			1	35.7 mg/kg	1.56	47.513 mg/kg	0.00305 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
10	 manganese { manganese sulphate }				253 mg/kg	2.749	593.333 mg/kg	0.0593 %	✓	
	025-003-00-4	232-089-9	7785-87-7							
11	 mercury { mercury dichloride }				0.046 mg/kg	1.353	0.0531 mg/kg	0.00000531 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
12	 molybdenum { molybdenum(VI) oxide }				<0.05 mg/kg	1.5	<0.075 mg/kg	<0.0000075 %		<LOD
	042-001-00-9	215-204-7	1313-27-5							
13	 nickel { nickel chromate }				9.22 mg/kg	2.976	23.414 mg/kg	0.00234 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
14	 selenium { nickel selenate }				<6 mg/kg	2.554	<15.323 mg/kg	<0.00153 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
15	 zinc { zinc chromate }				28 mg/kg	2.774	66.277 mg/kg	0.00663 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
16	 TPH (C6 to C40) petroleum group		TPH		<50 mg/kg		<50 mg/kg	<0.005 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
18	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
19	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
20	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
21	xylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
22	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
23	pH				6.9 pH		6.9 pH	6.9 pH			
24	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
25	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
26	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
27	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
28	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
29	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
30	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
31	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
32	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
33	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
34	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
35	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
36	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								
37	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
38	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
39	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
40	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
41	polychlorobiphenyls; PCB				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
42	n-hexane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-037-00-0	203-777-6	110-54-3								

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
43		heptane; n-heptane; [1] 2,4-dimethylpentane; [2] 2,2,3-trimethylbutane; [3] 3,3-dimethylpentane; [4] 2,3-dimethylpentane; [5] 3-methylhexane; [6] 2,2-dimethylpentane; [7] 2-methylhexane; [8] 3-ethylpentane; [9] isoheptane; [10]									
	601-008-00-2	205-563-8 [1] 203-548-0 [2] 207-346-3 [3] 209-230-8 [4] 209-280-0 [5] 209-643-3 [6] 209-680-5 [7] 209-730-6 [8] 210-529-0 [9] 250-610-8 [10]	142-82-5 [1] 108-08-7 [2] 464-06-2 [3] 562-49-2 [4] 565-59-3 [5] 589-34-4 [6] 590-35-2 [7] 591-76-4 [8] 617-78-7 [9] 31394-54-4 [10]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD	
44		octane; n-octane; [1] 2,2,4-trimethylpentane; [2] 2,3,3-trimethylpentane; [3] 3,3-dimethylhexane; [4] 2,2,3-trimethylpentane; [5] 2,3,4-trimethylpentane; [6] 3,4-dimethylhexane; [7] 2,3-dimethylhexane; [8] 2,4-dimethylhexane; [9] 4-methylheptane; [10] 3-methylheptane; [11] 2,2-dimethylhexane; [12] 2,5-dimethylhexane; [13] 2-methylheptane; [14] 2,2,3,3-tetramethylbutane; [15] 3-ethyl-2-methylpentane; [16] 3-ethylhexane; [17] 3-ethyl-3-methylpentane; [18] isooctane; [19]									
	601-009-00-8	203-892-1 [1] 208-759-1 [2] 209-207-2 [3] 209-243-9 [4] 209-266-4 [5] 209-292-6 [6] 209-504-7 [7] 209-547-1 [8] 209-649-6 [9] 209-650-1 [10] 209-660-6 [11] 209-689-4 [12] 209-745-8 [13] 209-747-9 [14] 209-855-6 [15] 210-187-2 [16] 210-621-0 [17] 213-923-0 [18] 247-861-0 [19]	111-65-9 [1] 540-84-1 [2] 560-21-4 [3] 563-16-6 [4] 564-02-3 [5] 565-75-3 [6] 583-48-2 [7] 584-94-1 [8] 589-43-5 [9] 589-53-7 [10] 589-81-1 [11] 590-73-8 [12] 592-13-2 [13] 592-27-8 [14] 594-82-1 [15] 609-26-7 [16] 619-99-8 [17] 1067-08-9 [18] 26635-64-3 [19]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD	
	Total:								0.0833 %		

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: 652671 - 22-83227-n/a

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

Sample details

Sample name:	LoW Code:
652671 - 22-83227-n/a	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
12.7% (dry weight correction)	

Hazard properties

None identified

Determinands

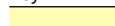
Moisture content: 12.7% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				0.4	mg/kg	1.197	0.425	mg/kg	0.0000425 %	✓	
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				7.68	mg/kg	1.32	8.997	mg/kg	0.0009 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
3	beryllium { beryllium oxide }				0.03	mg/kg	2.775	0.0739	mg/kg	0.00000739 %	✓	
	004-003-00-8	215-133-1	1304-56-9									
4	boron { diboron trioxide; boric oxide }				0.471	mg/kg	3.22	1.346	mg/kg	0.000135 %	✓	
	005-008-00-8	215-125-8	1303-86-2									
5	cadmium { cadmium oxide }				<1	mg/kg	1.142	<1.142	mg/kg	<0.000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
6	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				52.9	mg/kg	1.462	68.604	mg/kg	0.00686 %	✓	
		215-160-9	1308-38-9									
7	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.2	mg/kg	2.27	<0.454	mg/kg	<0.0000454 %		<LOD
	024-017-00-8											
8	copper { dicopper oxide; copper (I) oxide }				9.54	mg/kg	1.126	9.531	mg/kg	0.000953 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
9	lead { lead chromate }			1	29.9	mg/kg	1.56	41.383	mg/kg	0.00265 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
10	manganese { manganese sulphate }				313	mg/kg	2.749	763.354	mg/kg	0.0763 %	✓	
	025-003-00-4	232-089-9	7785-87-7									
11	mercury { mercury dichloride }				0.061	mg/kg	1.353	0.0733	mg/kg	0.00000733 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
12	molybdenum { molybdenum(VI) oxide }				0.071	mg/kg	1.5	0.0945	mg/kg	0.00000945 %	✓	
	042-001-00-9	215-204-7	1313-27-5									
13	nickel { nickel chromate }				13.1	mg/kg	2.976	34.595	mg/kg	0.00346 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
14	selenium { nickel selenate }				<6	mg/kg	2.554	<15.323	mg/kg	<0.00153 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
15	zinc { zinc chromate }				49.7	mg/kg	2.774	122.338	mg/kg	0.0122 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
16	TPH (C6 to C40) petroleum group		TPH		<50	mg/kg		<50	mg/kg	<0.005 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
19	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
20	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
21	xylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
	601-022-00-9	202-422-2 [1]	95-47-6 [1]							
		203-396-5 [2]	106-42-3 [2]							
		203-576-3 [3]	108-38-3 [3]							
		215-535-7 [4]	1330-20-7 [4]							
22	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
23	pH				7.8 pH		7.8 pH	7.8 pH		
			PH							
24	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
25	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
26	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
27	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
28	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
29	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
30	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
31	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
32	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
33	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
34	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
35	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
36	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							
37	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
38	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
39	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
40	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
41	polychlorobiphenyls; PCB				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
42	n-hexane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-037-00-0	203-777-6	110-54-3							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
43	heptane; n-heptane; [1] 2,4-dimethylpentane; [2] 2,2,3-trimethylbutane; [3] 3,3-dimethylpentane; [4] 2,3-dimethylpentane; [5] 3-methylhexane; [6] 2,2-dimethylpentane; [7] 2-methylhexane; [8] 3-ethylpentane; [9] isoheptane; [10]				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-008-00-2	205-563-8 [1] 203-548-0 [2] 207-346-3 [3] 209-230-8 [4] 209-280-0 [5] 209-643-3 [6] 209-680-5 [7] 209-730-6 [8] 210-529-0 [9] 250-610-8 [10]	142-82-5 [1] 108-08-7 [2] 464-06-2 [3] 562-49-2 [4] 565-59-3 [5] 589-34-4 [6] 590-35-2 [7] 591-76-4 [8] 617-78-7 [9] 31394-54-4 [10]							
44	octane; n-octane; [1] 2,2,4-trimethylpentane; [2] 2,3,3-trimethylpentane; [3] 3,3-dimethylhexane; [4] 2,2,3-trimethylpentane; [5] 2,3,4-trimethylpentane; [6] 3,4-dimethylhexane; [7] 2,3-dimethylhexane; [8] 2,4-dimethylhexane; [9] 4-methylheptane; [10] 3-methylheptane; [11] 2,2-dimethylhexane; [12] 2,5-dimethylhexane; [13] 2-methylheptane; [14] 2,2,3,3-tetramethylbutane; [15] 3-ethyl-2-methylpentane; [16] 3-ethylhexane; [17] 3-ethyl-3-methylpentane; [18] isooctane; [19]				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-009-00-8	203-892-1 [1] 208-759-1 [2] 209-207-2 [3] 209-243-9 [4] 209-266-4 [5] 209-292-6 [6] 209-504-7 [7] 209-547-1 [8] 209-649-6 [9] 209-650-1 [10] 209-660-6 [11] 209-689-4 [12] 209-745-8 [13] 209-747-9 [14] 209-855-6 [15] 210-187-2 [16] 210-621-0 [17] 213-923-0 [18] 247-861-0 [19]	111-65-9 [1] 540-84-1 [2] 560-21-4 [3] 563-16-6 [4] 564-02-3 [5] 565-75-3 [6] 583-48-2 [7] 584-94-1 [8] 589-43-5 [9] 589-53-7 [10] 589-81-1 [11] 590-73-8 [12] 592-13-2 [13] 592-27-8 [14] 594-82-1 [15] 609-26-7 [16] 619-99-8 [17] 1067-08-9 [18] 26635-64-3 [19]							
	Total:									

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

Appendix A: Classifier defined and non GB MCL determinands

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

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H332, Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Resp. Sens. 1; H334, Skin Sens. 1; H317, Repr. 1B; H360FD, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

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

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: Flam. Liq. 3; H226, Asp. Tox. 1; H304, STOT RE 2; H373, Muta. 1B; H340, Carc. 1B; H350, Repr. 2; H361d, Aquatic Chronic 2; H411

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

GB MCL index number: 601-023-00-4

Description/Comments:

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

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

GB MCL index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

• **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

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

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

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

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

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

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

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

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

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

GB MCL 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.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds

beryllium {beryllium oxide}

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

boron {diboron trioxide; boric oxide}

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

cadmium {cadmium oxide}

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

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

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

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

Worst case species based on hazard statements/molecular weight

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight

manganese {manganese sulphate}

Worst case CLP species based on hazard statements/molecular weight

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight

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

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**

HazWasteOnline Classification Engine Version: 2022.167.5183.9758 (16 Jun 2022)

HazWasteOnline Database: 2022.167.5183.9758 (16 Jun 2022)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

Certificate of Analysis Landfill Waste Acceptance Criteria (WAC) (10:1)

Certificate Number : 22-00900-Issue 1-Page: 1

Report Fao:	GEO RESULTS
Site Address^:	Hamble Aerostructures
Customer Order No:	22-83227
Date of Sampling^:	20/05/2022
Date Received:	24/05/2022
Date of Analysis:	24/05/2022 - 16/06/2022
Report Date:	17/06/2022

Please find your certificates of test attached for your samples received in the laboratory on 24/05/2022 under our laboratory reference 22-00900.

Remarks:

None

Results reviewed by:



Craig Williams Senior Analyst

Results approved by:



Eoin Byrne Laboratory Manager

*Any opinions or interpretations indicated are outside the scope of our UKAS accreditation.
This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.
Excel copies of reports are valid only when accompanied by this PDF certificate.
Client's Sample Description / ACS Material Description are noted for reference only.*

Head Office

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Tel 01202 628680

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Registered Office

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Poole
Dorset BH16 6LE
ACS Environmental Testing Limited
Registered in England and
Wales No. 6000065



Certificate No. 22-00900-Issue 1-Page: 2

Site Address^ Hamble Aerostructures



ACSE Sample Number 63805
 Sample ID 652651 - 22-83227
 Clients Sample Ref.^ TP01
 Material Source^ In Situ
 Location / Sample Depth (m)^ 0.23-0.55mbgl
 Time Sampled^
 Date Sampled^ 20/05/2022
 Sample Deviating Codes f
 Client's Sample Description^
 ACS Testing Material Description^ Brown sandy gravelly CLAY
 Principal Matrix (as received) CLAY

LANDFILL WASTE ACCEPTANCE CRITERIA (WAC)

TEST VALUES

Mass of Undried Test Portion (Mw)	90.0	g	Volume of Leachant Used (L10)	0.900	litres
Mass of Dried Test Portion (Mp)	90.0	g			
Moisture Content Ratio (MC)	0.0	%	Volume of Eluate (VE10)	0.873	litres
Dry Matter Content (DR)	100	%			

SOLIDS ANALYSIS

Analyte	HWOL Acroynm	Method	AS	Sample Condition for Analysis	Results
Total Organic Carbon (%)		SC		As received	0.20
Loss on ignition (%)		MT/ACSE/302	*	Air dried at 30°C	1.0
BTEX (mg/kg)	HS_1D_TOTAL	MT/ACSE/101	*f	As received	< 0.60
PCBs (7 congeners) (mg/kg)		MT/ACSE/110		As received	< 1.00
Mineral oil (C10-C40) (mg/kg)	EH_CU_1D_TOTAL	MT/ACSE/105		As received	76
PAHs (mg/kg)		MT/ACSE/108	*	As received	< 2.00
pH (units)		MT/ACSE/301	*f	Air dried at 30°C	7.1

LANDFILL WASTE ACCEPTANCE CRITERIA SPECIFICATION

Inert Waste	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste
3 %	5 %	6 %
---	---	10 %
6	---	---
1	---	---
500	---	---
100	---	---
---	>6	---

ELUATE ANALYSIS

Analyte	Method	AS	Concentration in Eluate (mg/l)	Amount Leached (mg/kg)
Eluate Preparation	LP/ACSE/811			
Liquid : Solid Ratio (L/S)	LP/ACSE/101	*	L/S 10	L/S 10
pH (units)	MT/ACSE/301	*	8.2	
Temperature (°C)	MT/ACSE/301		20	
Conductivity (mS/m)	MT/ACSE/303	*	43.60	
Arsenic	MT/ACSE/205	*	< 0.007	< 0.070
Barium	MT/ACSE/205	*	0.0481	0.481
Cadmium	MT/ACSE/205	*	< 0.0008	< 0.008
Chromium (total)	MT/ACSE/205	*	0.009	0.085
Copper	MT/ACSE/205	*	0.008	0.082
Mercury	MT/ACSE/202	*	< 0.0001	< 0.0010
Molybdenum	MT/ACSE/205	*	< 0.0010	< 0.010
Nickel	MT/ACSE/205	*	0.0012	0.0117
Lead	MT/ACSE/205	*	< 0.004	< 0.040
Antimony	MT/ACSE/205	*	< 0.003	< 0.030
Selenium	MT/ACSE/205	*	< 0.006	< 0.060
Zinc	MT/ACSE/205	*	< 0.002	< 0.020
Chloride	MT/ACSE/204	*	3.34	33.44
Fluoride	MT/ACSE/204	*	0.21	2.050
Sulphate	MT/ACSE/204	*	52.10	521.0
Total dissolved solids	MT/ACSE/304	*	350	3500
Phenol index	MT/ACSE/107	*	< 0.05	< 0.50
Dissolved organic carbon	MT/ACSE/103	*	9.41	94.10

LANDFILL WASTE ACCEPTANCE CRITERIA SPECIFICATION

BS EN 12457-2-2002 LIMIT VALUES (mg/kg) at L/S 10		
Inert Waste	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15000	25000
10	150	500
1000	20000	50000
4000	60000	100000
1	---	---
500	800	1000

Comments: (comments are beyond the scope of UKAS accreditation)

Key (at clients request): a Simple Acceptance Rule has been applied in accordance with ILAC-G8: 09/2019 where measurement uncertainty has been ignored.

☐ The measured value exceeds the landfill waste acceptance criteria limit for inert waste.

The landfill waste acceptance criteria limits are provided for guidance only.

ACSE Sample Number 63807
Sample ID 652653 - 22-83227
Clients Sample Ref.^ TP02
Material Source^ In Situ
Location / Sample Depth (m)^ 0.30-0.50mbgl
Time Sampled^
Date Sampled^ 20/05/2022
Sample Deviating Codes f
Client's Sample Description^
ACS Testing Material Description^ Grey GRAVEL
Principal Matrix (as received) GRAVEL

LANDFILL WASTE ACCEPTANCE CRITERIA (WAC)**TEST VALUES**

Mass of Undried Test Portion (Mw)	90.7	g	Volume of Leachant Used (L10)	0.899	litres
Mass of Dried Test Portion (Mp)	90.0	g			
Moisture Content Ratio (MC)	0.7	%	Volume of Eluate (VE10)	0.867	litres
Dry Matter Content (DR)	99.3	%			

SOLIDS ANALYSIS

Analyte	HWOL Acronym	Method	AS	Sample Condition for Analysis	Results
Total Organic Carbon (%)		SC		As received	---
Loss on ignition (%)		MT/ACSE/302	*	Air dried at 30°C	1.7
BTEX (mg/kg)	HS_1D_TOTAL	MT/ACSE/101	*f	As received	< 0.60
PCBs (7 congeners) (mg/kg)		MT/ACSE/110		As received	< 1.00
Mineral oil (C10-C40) (mg/kg)	EH_CU_1D_TOTAL	MT/ACSE/105		As received	139
PAHs (mg/kg)		MT/ACSE/108	*	As received	< 2.00
pH (units)		MT/ACSE/301	*f	Air dried at 30°C	8.2

LANDFILL WASTE ACCEPTANCE CRITERIA SPECIFICATION

Inert Waste	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste
3 %	5 %	6 %
---	---	10 %
6	---	---
1	---	---
500	---	---
100	---	---
---	>6	---

ELUATE ANALYSIS

Analyte	Method	AS	Concentration in Eluate (mg/l)	Amount Leached (mg/kg)
Eluate Preparation	LP/ACSE/811			
Liquid : Solid Ratio (L/S)	LP/ACSE/101	*	L/S 10	L/S 10
pH (units)	MT/ACSE/301	*	8.1	
Temperature (°C)	MT/ACSE/301		20	
Conductivity (mS/m)	MT/ACSE/303	*	26.90	
Arsenic	MT/ACSE/205	*	< 0.007	< 0.070
Barium	MT/ACSE/205	*	0.0353	0.353
Cadmium	MT/ACSE/205	*	< 0.0008	< 0.008
Chromium (total)	MT/ACSE/205	*	0.021	0.213
Copper	MT/ACSE/205	*	< 0.008	< 0.080
Mercury	MT/ACSE/202	*	< 0.0001	< 0.0010
Molybdenum	MT/ACSE/205	*	< 0.0010	< 0.010
Nickel	MT/ACSE/205	*	< 0.0008	< 0.0080
Lead	MT/ACSE/205	*	< 0.004	< 0.040
Antimony	MT/ACSE/205	*	0.031	0.312
Selenium	MT/ACSE/205	*	0.025	0.250
Zinc	MT/ACSE/205	*	< 0.002	< 0.020
Chloride	MT/ACSE/204	*	2.80	27.98
Fluoride	MT/ACSE/204	*	0.30	3.040
Sulphate	MT/ACSE/204	*	20.42	204.2
Total dissolved solids	MT/ACSE/304	*	155	1550
Phenol index	MT/ACSE/107	*	< 0.05	< 0.50
Dissolved organic carbon	MT/ACSE/103	*	12.3	122.7

LANDFILL WASTE ACCEPTANCE CRITERIA SPECIFICATION**BS EN 12457-2-2002 LIMIT VALUES (mg/kg) at L/S 10**

Inert Waste	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15000	25000
10	150	500
1000	20000	50000
4000	60000	100000
1	---	---
500	800	1000

Comments: (comments are beyond the scope of UKAS accreditation)

Key (at clients request): a Simple Acceptance Rule has been applied in accordance with ILAC-G8: 09/2019 where measurement uncertainty has been ignored.

 The measured value exceeds the landfill waste acceptance criteria limit for inert waste.

The landfill waste acceptance criteria limits are provided for guidance only.

Certificate No. 22-00900-Issue 1-Page: 4

Site Address^ Hamble Aerostructures



ACSE Sample Number 63812
 Sample ID 652658 - 22-83227
 Clients Sample Ref.^ TP09
 Material Source^ In Situ
 Location / Sample Depth (m)^ 0.60-0.80mbgl
 Time Sampled^
 Date Sampled^ 20/05/2022
 Sample Deviating Codes f
 Client's Sample Description^
 ACS Testing Material Description^ Brown sandy gravelly CLAY
 Principal Matrix (as received) CLAY

LANDFILL WASTE ACCEPTANCE CRITERIA (WAC)

TEST VALUES

Mass of Undried Test Portion (Mw)	90.6	g	Volume of Leachant Used (L10)	0.899	litres
Mass of Dried Test Portion (Mp)	90.0	g			
Moisture Content Ratio (MC)	0.7	%	Volume of Eluate (VE10)	0.845	litres
Dry Matter Content (DR)	99.4	%			

SOLIDS ANALYSIS

Analyte	HWOL Acroynm	Method	AS	Sample Condition for Analysis	Results
Total Organic Carbon (%)		SC		As received	0.40
Loss on ignition (%)		MT/ACSE/302	*	Air dried at 30°C	1.4
BTEX (mg/kg)	HS_1D_TOTAL	MT/ACSE/101	*f	As received	< 0.60
PCBs (7 congeners) (mg/kg)		MT/ACSE/110		As received	< 1.00
Mineral oil (C10-C40) (mg/kg)	EH_CU_1D_TOTAL	MT/ACSE/105		As received	51
PAHs (mg/kg)		MT/ACSE/108	*	As received	< 2.00
pH (units)		MT/ACSE/301	*f	Air dried at 30°C	7.3

LANDFILL WASTE ACCEPTANCE CRITERIA SPECIFICATION

Inert Waste	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste
3 %	5 %	6 %
---	---	10 %
6	---	---
1	---	---
500	---	---
100	---	---
---	>6	---

ELUATE ANALYSIS

Analyte	Method	AS	Concentration in Eluate (mg/l)	Amount Leached (mg/kg)
Eluate Preparation	LP/ACSE/811			
Liquid : Solid Ratio (L/S)	LP/ACSE/101	*	L/S 10	L/S 10
pH (units)	MT/ACSE/301	*	7.6	
Temperature (°C)	MT/ACSE/301		20	
Conductivity (mS/m)	MT/ACSE/303	*	19.31	
Arsenic	MT/ACSE/205	*	< 0.007	< 0.070
Barium	MT/ACSE/205	*	0.0241	0.241
Cadmium	MT/ACSE/205	*	< 0.0008	< 0.008
Chromium (total)	MT/ACSE/205	*	0.008	0.075
Copper	MT/ACSE/205	*	< 0.008	< 0.080
Mercury	MT/ACSE/202	*	< 0.0001	< 0.0010
Molybdenum	MT/ACSE/205	*	0.0041	0.041
Nickel	MT/ACSE/205	*	0.0026	0.0258
Lead	MT/ACSE/205	*	< 0.004	< 0.040
Antimony	MT/ACSE/205	*	< 0.003	< 0.030
Selenium	MT/ACSE/205	*	< 0.006	< 0.060
Zinc	MT/ACSE/205	*	0.019	0.187
Chloride	MT/ACSE/204	*	33.57	335.7
Fluoride	MT/ACSE/204	*	0.13	1.330
Sulphate	MT/ACSE/204	*	10.02	100.2
Total dissolved solids	MT/ACSE/304	*	120	1200
Phenol index	MT/ACSE/107	*	< 0.05	< 0.50
Dissolved organic carbon	MT/ACSE/103	*	18.3	182.6

LANDFILL WASTE ACCEPTANCE CRITERIA SPECIFICATION

BS EN 12457-2-2002 LIMIT VALUES (mg/kg) at L/S 10		
Inert Waste	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15000	25000
10	150	500
1000	20000	50000
4000	60000	100000
1	---	---
500	800	1000

Comments: (comments are beyond the scope of UKAS accreditation)

Key (at clients request): a Simple Acceptance Rule has been applied in accordance with ILAC-G8: 09/2019 where measurement uncertainty has been ignored.

☐ The measured value exceeds the landfill waste acceptance criteria limit for inert waste.

The landfill waste acceptance criteria limits are provided for guidance only.

ACSE Sample Number 63816
 Sample ID 652670 - 22-83227
 Clients Sample Ref.^ STK 01
 Material Source^ Stockpile
 Location / Sample Depth (m)^ n/a
 Time Sampled^
 Date Sampled^ 20/03/2022
 Sample Deviating Codes ef
 Client's Sample Description^
 ACS Testing Material Description^ Brown sandy gravelly CLAY
 Principal Matrix (as received) GRAVEL

LANDFILL WASTE ACCEPTANCE CRITERIA (WAC)

TEST VALUES

Mass of Undried Test Portion (Mw)	90.7	g	Volume of Leachant Used (L10)	0.899	litres
Mass of Dried Test Portion (Mp)	90.0	g			
Moisture Content Ratio (MC)	0.8	%	Volume of Eluate (VE10)	0.870	litres
Dry Matter Content (DR)	99.2	%			

SOLIDS ANALYSIS

Analyte	HWOL Acroynm	Method	AS	Sample Condition for Analysis	Results
Total Organic Carbon (%)		SC	ef	As received	0.20
Loss on ignition (%)		MT/ACSE/302	*ef	Air dried at 30°C	1.0
BTEX (mg/kg)	HS_1D_TOTAL	MT/ACSE/101	*ef	As received	< 0.60
PCBs (7 congeners) (mg/kg)		MT/ACSE/110	ef	As received	< 1.00
Mineral oil (C10-C40) (mg/kg)	EH_CU_1D_TOTAL	MT/ACSE/105	ef	As received	< 50
PAHs (mg/kg)		MT/ACSE/108	*ef	As received	< 2.00
pH (units)		MT/ACSE/301	*ef	Air dried at 30°C	6.9

LANDFILL WASTE ACCEPTANCE CRITERIA SPECIFICATION

Inert Waste	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste
3 %	5 %	6 %
---	---	10 %
6	---	---
1	---	---
500	---	---
100	---	---
---	>6	---

ELUATE ANALYSIS

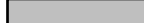
Analyte	Method	AS	Concentration in Eluate (mg/l)	Amount Leached (mg/kg)
Eluate Preparation	LP/ACSE/811			
Liquid : Solid Ratio (L/S)	LP/ACSE/101	*	L/S 10	L/S 10
pH (units)	MT/ACSE/301	*	7.9	
Temperature (°C)	MT/ACSE/301		20	
Conductivity (mS/m)	MT/ACSE/303	*	26.50	
Arsenic	MT/ACSE/205	*	< 0.007	< 0.070
Barium	MT/ACSE/205	*	0.0314	0.314
Cadmium	MT/ACSE/205	*	< 0.0008	< 0.008
Chromium (total)	MT/ACSE/205	*	0.002	0.023
Copper	MT/ACSE/205	*	< 0.008	< 0.080
Mercury	MT/ACSE/202	*	< 0.0001	< 0.0010
Molybdenum	MT/ACSE/205	*	< 0.0010	< 0.010
Nickel	MT/ACSE/205	*	0.0009	0.0090
Lead	MT/ACSE/205	*	< 0.004	< 0.040
Antimony	MT/ACSE/205	*	0.006	0.056
Selenium	MT/ACSE/205	*	0.008	0.085
Zinc	MT/ACSE/205	*	< 0.002	< 0.020
Chloride	MT/ACSE/204	*	2.77	27.66
Fluoride	MT/ACSE/204	*	0.20	2.030
Sulphate	MT/ACSE/204	*	28.65	286.5
Total dissolved solids	MT/ACSE/304	*	130	1300
Phenol index	MT/ACSE/107	*	< 0.05	< 0.50
Dissolved organic carbon	MT/ACSE/103	*	6.16	61.60

LANDFILL WASTE ACCEPTANCE CRITERIA SPECIFICATION

BS EN 12457-2-2002 LIMIT VALUES (mg/kg) at L/S 10		
Inert Waste	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15000	25000
10	150	500
1000	20000	50000
4000	60000	100000
1	---	---
500	800	1000

Comments: (comments are beyond the scope of UKAS accreditation)

Key (at clients request): a Simple Acceptance Rule has been applied in accordance with ILAC-G8: 09/2019 where measurement uncertainty has been ignored.

 The measured value exceeds the landfill waste acceptance criteria limit for inert waste.

The landfill waste acceptance criteria limits are provided for guidance only.

ACSE Sample Number 63817
 Sample ID 652671 - 22-83227
 Clients Sample Ref.^ Skip 01
 Material Source^ Skip 01
 Location / Sample Depth (m)^ n/a
 Time Sampled^
 Date Sampled^ 20/03/2022
 Sample Deviating Codes ef
 Client's Sample Description^
 ACS Testing Material Description^ Brown sandy gravelly CLAY
 Principal Matrix (as received) GRAVEL

LANDFILL WASTE ACCEPTANCE CRITERIA (WAC)

TEST VALUES

Mass of Undried Test Portion (Mw)	90.6	g	Volume of Leachant Used (L10)	0.899	litres
Mass of Dried Test Portion (Mp)	90.0	g			
Moisture Content Ratio (MC)	0.7	%	Volume of Eluate (VE10)	0.859	litres
Dry Matter Content (DR)	99.3	%			

SOLIDS ANALYSIS

Analyte	HWOL Acroynm	Method	AS	Sample Condition for Analysis	Results
Total Organic Carbon (%)		SC	ef	As received	0.20
Loss on ignition (%)		MT/ACSE/302	*ef	Air dried at 30°C	1.1
BTEX (mg/kg)	HS_1D_TOTAL	MT/ACSE/101	*ef	As received	< 0.60
PCBs (7 congeners) (mg/kg)		MT/ACSE/110	ef	As received	< 1.00
Mineral oil (C10-C40) (mg/kg)	EH_CU_1D_TOTAL	MT/ACSE/105	ef	As received	< 50
PAHs (mg/kg)		MT/ACSE/108	*ef	As received	< 2.00
pH (units)		MT/ACSE/301	*ef	Air dried at 30°C	7.8

LANDFILL WASTE ACCEPTANCE CRITERIA SPECIFICATION

Inert Waste	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste
3 %	5 %	6 %
---	---	10 %
6	---	---
1	---	---
500	---	---
100	---	---
---	>6	---

ELUATE ANALYSIS

Analyte	Method	AS	Concentration in Eluate (mg/l)	Amount Leached (mg/kg)
Eluate Preparation	LP/ACSE/811			
Liquid : Solid Ratio (L/S)	LP/ACSE/101	*	L/S 10	L/S 10
pH (units)	MT/ACSE/301	*	7.9	
Temperature (°C)	MT/ACSE/301		20	
Conductivity (mS/m)	MT/ACSE/303	*	24.70	
Arsenic	MT/ACSE/205	*	< 0.007	< 0.070
Barium	MT/ACSE/205	*	0.0288	0.288
Cadmium	MT/ACSE/205	*	< 0.0008	< 0.008
Chromium (total)	MT/ACSE/205	*	0.008	0.078
Copper	MT/ACSE/205	*	0.008	0.081
Mercury	MT/ACSE/202	*	< 0.0001	< 0.0010
Molybdenum	MT/ACSE/205	*	< 0.0010	< 0.010
Nickel	MT/ACSE/205	*	0.0014	0.0139
Lead	MT/ACSE/205	*	< 0.004	< 0.040
Antimony	MT/ACSE/205	*	0.009	0.089
Selenium	MT/ACSE/205	*	< 0.006	< 0.060
Zinc	MT/ACSE/205	*	< 0.002	< 0.020
Chloride	MT/ACSE/204	*	2.10	21.00
Fluoride	MT/ACSE/204	*	0.25	2.470
Sulphate	MT/ACSE/204	*	20.65	206.5
Total dissolved solids	MT/ACSE/304	*	140	1400
Phenol index	MT/ACSE/107	*	< 0.05	< 0.50
Dissolved organic carbon	MT/ACSE/103	*	9.82	98.20

LANDFILL WASTE ACCEPTANCE CRITERIA SPECIFICATION

BS EN 12457-2-2002 LIMIT VALUES (mg/kg) at L/S 10		
Inert Waste	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15000	25000
10	150	500
1000	20000	50000
4000	60000	100000
1	---	---
500	800	1000

Comments: (comments are beyond the scope of UKAS accreditation)

Key (at clients request): a Simple Acceptance Rule has been applied in accordance with ILAC-G8: 09/2019 where measurement uncertainty has been ignored.

 The measured value exceeds the landfill waste acceptance criteria limit for inert waste.

The landfill waste acceptance criteria limits are provided for guidance only.

Technical Information for Analytical Results

Analysis

* - denotes analysis covered by our UKAS accreditation

- denotes analysis covered by our MCERTS certification & UKAS accreditation.

AD = Sample tested in air dried condition.

AR = Sample tested in as-received condition.

AS = Accreditation status.

D = Sample tested in dry condition.

L = Laboratory prepared leachate

SC = sub contracted

^ = Clients supplied information.

All MCERTS certified test values reported on a dry weight basis.

The preparation of 10:1 leachates (to BS EN 12457-2: 2002) and 2:1 leachates (to BS EN 12457-1: 2002) fall outside the scope of our UKAS accreditation.

Measurement uncertainty available on request.

Where results are less than the limit of detection, the value of 0 is used in calculations.

For Phenol index, m- and p- cresol are reported as mixed isomers, calibrated with reference to a p-cresol reference solution.

The individual concentrations of m- and p- cresol cannot be quantified using this method, however, the result reported for the mixed isomers will be an over estimation of the true

Key to HWOL Acronyms

Acronym Description

HS - Headspace analysis

EH - Extractable Hydrocarbons - i.e. everything extracted by the solvent

CU - Clean-up - e.g. by florisil, silica gel

1D - GC - Single coil gas chromatography

Total - Aliphatics & Aromatics

AL - Aliphatics only

AR - Aromatics only

2D - GC-GC - Double coil gas chromatography

#1 - e.g. EH_2D_Total_#1 means humics mathematically subtracted

#2 - e.g. EH_2D_Total_#2 means fatty acids mathematically subtracted

_ - Operator - underscore to separate acronyms (exception for +)

+ - Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Deviating Codes

Deviating Samples

The use of any of the following symbols indicates that the sample was deviating and it is possible therefore that the results provided may not be representative of the sample taken.

a – The date and /or time of sampling has not been provided, therefore it is not known if the time lapse between sampling and analysis has exceeded the acceptable holding time(s)*.

b – The test item was received in a container which has not been recommended*.

c – On receipt, the temperature of the sample received was found to fall outside the recommendations of BS ISO 18512:2007, Soil Quality. Guidance on long and short term storage of soil samples*.

d – The sample was received in a container that had not been filled as recommended*.

e – The delay between sampling and sample receipt is greater than the recommended holding time for the analyte of interest in this matrix*.

f – The delay between sampling and analysis is greater than the recommended holding time for the analyte of interest in this matrix*.

In accordance with the requirements of Technical Policy Statement TPS 63; UKAS Policy on Deviating Samples, all UKAS accredited testing laboratories are required to notify their clients that calibration or test results may be invalid where samples are found to be deviating. It is the opinion of ACSE that the term invalid should be interpreted as 'not fully representative of the sample taken at source'.

The following Additional Deviating Sample Codes may also be used.

I/S – Insufficient sample mass/volume received for accurate quantification of this analyte.

U/S – The sample received was deemed unsuitable for accurate determination of this analyte using the Test Methods available.

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ACS Environmental Testing Limited
Registered in England and
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APPENDIX L

Geotechnical Laboratory Certificates

TEST REPORT
MOISTURE CONTENT



Client	Develotec Design & Build Limited	Lab Ref	22-83227 - 652798
Project Name	Hamble Aerostructures	Clients Ref	TP06
Source of Material	In Situ		
Sample Location	0.70-1.00mbgl	Date Sampled	20/05/2022
Material Description	Brown sandy gravelly CLAY	Sampled By	LF
Clients Specification	n/a	Date Received	23/05/2022
Sampling Certificate	Client Instruction, results apply to sample as received	Date Tested	25/05/2022

Sample Type :

Undisturbed

Method of preparation

BS 1377-1:2016, Clause 9

The test specimen was oven dried at :

108 °C

Moisture Content

15 %

Remarks

Ref S02 Rev 0 Apr-22	Page 1 of 1	Report No. 22-83227 - 652798-1-S02	Printed 08/06/2022	Checked JZ	Approved
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Bulk samples will be retained for a minimum of 21 days from date of receipt unless a written instruction is received within 14 days of receipt requesting sample retention. Any opinions or interpretations indicated are outside the scope of our UKAS accreditation. The results included within the test report are representative of the samples submitted for analysis. This test report should not be reproduced, except in full, without the express permission of the laboratory. See remarks section for any additions, deviations or exclusions from the stated test method.

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INTERIM REPORT
DETERMINATION OF LIQUID/PLASTIC LIMIT, PLASTICITY/LIQUIDITY INDEX

BS 1377 : Part 2 : 1990, Clause 4.3, 5.0 and 5.4



Client	Develotec Design & Build Limited	Lab Ref	22-83227 - 652798
Project Name	Hamble Aerostructures	Clients Ref	TP06
Source of Material	In Situ		
Sample Location	0.70-1.00mbgl	Date Sampled	20/05/2022
Material Description	Brown sandy gravelly CLAY	Sampled By	LF
Clients Specification	n/a	Date Received	23/05/2022
Sampling Certificate	Client Instruction, results apply to sample as received	Date Tested	31/05/2022

Preparation	Sample Type : 0 Material was natural Tested after washing to remove >425um
-------------	--

Proportion of material retained on 425µm test sieve	23
Proportion of material passing 425µm test sieve	77

Plastic Limit	14	%
Liquid Limit	43	%
Plasticity Index	29	
Liquidity Index	0.186	

Remarks

Ref S04_4 Rev 0 Apr-22	Page 1 of 1	Report No. 22-83227 - 652798-1-S04_4	Printed 08/06/2022	Checked JZ	Approved 	ACS Testing Limited Unit 14, Blackhill Road West Holton Heath Trading Park Poole Dorset BH16 6LE 01202 622858	
Bulk samples will be retained for a minimum of 21 days from date of receipt unless a written instruction is received within 14 days of receipt requesting sample retention. Any opinions or interpretations indicated are outside the scope of our UKAS accreditation. The results included within the test report are representative of the samples submitted for analysis. This test report should not be reproduced, except in full, without the express permission of the laboratory. See remarks section for any additions, deviations or exclusions from the stated test method.							

TEST REPORT
MOISTURE CONTENT



Client	Develotec Design & Build Limited	Lab Ref	22-83227 - 652799
Project Name	Hamble Aerostructures	Clients Ref	TP07
Source of Material	In Situ		
Sample Location	1.10-1.40mbgl	Date Sampled	20/05/2022
Material Description	Brown sandy gravelly CLAY	Sampled By	LF
Clients Specification	n/a	Date Received	23/05/2022
Sampling Certificate	Client Instruction, results apply to sample as received	Date Tested	25/05/2022

Sample Type :

Undisturbed

Method of preparation

BS 1377-1:2016, Clause 9

The test specimen was oven dried at :

108 °C

Moisture Content

25 %

Remarks

Ref S02 Rev 0 Apr-22	Page 1 of 1	Report No. 22-83227 - 652799-1-S02	Printed 08/06/2022	Checked JZ	Approved 
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Bulk samples will be retained for a minimum of 21 days from date of receipt unless a written instruction is received within 14 days of receipt requesting sample retention. Any opinions or interpretations indicated are outside the scope of our UKAS accreditation. The results included within the test report are representative of the samples submitted for analysis. This test report should not be reproduced, except in full, without the express permission of the laboratory. See remarks section for any additions, deviations or exclusions from the stated test method.

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INTERIM REPORT
DETERMINATION OF LIQUID/PLASTIC LIMIT, PLASTICITY/LIQUIDITY INDEX

BS 1377 : Part 2 : 1990, Clause 4.3, 5.0 and 5.4



Client	Develotec Design & Build Limited	Lab Ref	22-83227 - 652799
Project Name	Hamble Aerostructures	Clients Ref	TP07
Source of Material	In Situ		
Sample Location	1.10-1.40mbgl	Date Sampled	20/05/2022
Material Description	Brown sandy gravelly CLAY	Sampled By	LF
Clients Specification	n/a	Date Received	23/05/2022
Sampling Certificate	Client Instruction, results apply to sample as received	Date Tested	01/06/2022

Preparation	Sample Type : 0 Material was natural Tested after washing to remove >425um
-------------	--

Proportion of material retained on 425µm test sieve	28
---	----

Proportion of material passing 425µm test sieve	72
---	----

Plastic Limit	17	%
Liquid Limit	28	%
Plasticity Index	11	
Liquidity Index	1.626	

Remarks

Ref S04_4 Rev 0 Apr-22	Page 1 of 1	Report No. 22-83227 - 652799-1-S04_4	Printed 08/06/2022	Checked MJK	Approved 	ACS Testing Limited Unit 14, Blackhill Road West Holton Heath Trading Park Poole Dorset BH16 6LE 01202 622858	
Bulk samples will be retained for a minimum of 21 days from date of receipt unless a written instruction is received within 14 days of receipt requesting sample retention. Any opinions or interpretations indicated are outside the scope of our UKAS accreditation. The results included within the test report are representative of the samples submitted for analysis. This test report should not be reproduced, except in full, without the express permission of the laboratory. See remarks section for any additions, deviations or exclusions from the stated test method.							

APPENDIX M

Chemical Analysis Results and Human Health Assessment Criteria

Generic Assessment Criteria (GAC) Comparison - Commercial (1% SOM)			Site:	Hamble	GAC Source:		Published Suitable for Use Levels (S4UL) and Category 4 Screening Levels (C4SL) - see report for references		Key:		
			Project No:	22-83227					Below GAC	Exceeds GAC	
Exploratory Hole Location			TP01	TP01	TP02	TP02	TP03	TP05	TP05	TP09	
Sample Depth			0.23-0.55mbgl	0.55-1.25mbgl	0.30-0.50mbgl	0.50-1.25mbgl	0.40-1.50mbgl	0.40-0.60mbgl	0.70-1.50mbgl	0.60-0.80mbgl	
Soil/Rock Unit			Brown sandy gravelly CLAY	Brown sandy CLAY	Grey GRAVEL	Brown sandy gravelly CLAY	Brown SAND and CLAY	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY	
REPNAME	Units	GAC									
Arsenic	mg/kg	640	4.65	7.67	4.99	5.71	4.08	4.47	9.89	9.8	
Cadmium	mg/kg	190	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	
Chromium	mg/kg	8600	23.4	17.9	23	22.3	26.4	96.7	23.9	28.3	
Copper	mg/kg	68000	9.67	11	10.5	8.44	6.94	5.1	10.3	7.44	
Mercury	mg/kg	1100	0.029	0.058	0.043	0.029	0.02	0.044	0.069	0.064	
Nickel	mg/kg	980	11.6	9.51	10.2	13.1	9.94	7.11	10.4	11	
Lead	mg/kg	2300	15.5	33.8	47.2	18.8	12.6	17.1	29.2	22.8	
Selenium	mg/kg	12000	< 6.00	< 6.00	< 6.00	< 6.00	< 6.00	< 6.00	< 6.00	< 6.00	
Zinc	mg/kg	730000	46.5	36.5	56.8	37.9	28	63.9	28	28.4	
Chromium III	mg/kg	8600	23.4	17.9	23	22.3	26.4	96.7	23.9	28.3	
Chromium Hexavalent	mg/kg	33	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	
Naphthalene	mg/kg	190	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthylene	mg/kg	83000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	mg/kg	84000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluorene	mg/kg	63000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Phenanthrene	mg/kg	22000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Anthracene	mg/kg	520000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluoranthene	mg/kg	23000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Pyrene	mg/kg	54000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo (a) anthracene	mg/kg	170	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Chrysene	mg/kg	350	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo (b) fluoranthene	mg/kg	44	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo (k) fluoranthene	mg/kg	1200	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo (a) pyrene	mg/kg	35	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Indeno (1 2 3-CD) pyrene	mg/kg	500	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Dibenzo(a h)anthracene	mg/kg	3.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo(g h i)perylene	mg/kg	3900	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzene	mg/kg	27	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	
Toluene	mg/kg	56000	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	
Ethylbenzene	mg/kg	5700	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	
m+p-xylene	mg/kg	6200	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	
o-xylene	mg/kg	6600	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	
C5-C6 Aliphatic	mg/kg	32000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
>C6-C8 Aliphatic	mg/kg	7800	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
>C8-C10 Aliphatic	mg/kg	2000	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	
>C10-C12 Aliphatic	mg/kg	9700	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	
>C12-C16 Aliphatic	mg/kg	59000	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	
>C16-C21 Aliphatic	mg/kg	1.6E+06	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	
>C21-C35 Aliphatic	mg/kg	1.6E+06	17.6	< 10.0	< 10.0	< 10.0	14.3	16.5	10.4	10.1	
C6-C7 Aromatic	mg/kg	26000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
C7-C8 Aromatic	mg/kg	56000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
>C8-C10 Aromatic	mg/kg	3500	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	
>C10-C12 Aromatic	mg/kg	16000	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	
>C12-C16 Aromatic	mg/kg	36000	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	
>C16-C21 Aromatic	mg/kg	28000	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	
>C21-C35 Aromatic	mg/kg	28000	21.7	< 10.0	11.9	20.5	10.8	20.5	28.7	23.8	

Generic Assessment Criteria (GAC) Comparison - Commercial (1% SOM)			Site:	Hamble	GAC Source:	Published Suitable for Use Levels (S4UL) and Category 4 Screening Levels (C4SL) - see report for references		Key:		ACS
			Project No:	22-83227				Below GAC	Exceeds GAC	
Exploratory Hole Location			TP09	TP11	TP11	STK 01	Skip 01			
Sample Depth			1.30-1.50mbgl	0.20-0.50mbgl	1.50-1.80mbgl					
Soil/Rock Unit			Brown sandy gravelly CLAY	Grey sandy gravelly CLAY	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY	Brown sandy gravelly CLAY			
REPNAME	Units	GAC								
Arsenic	mg/kg	640	3.78	1.66	4.46	5.68	7.68			
Cadmium	mg/kg	190	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00			
Chromium	mg/kg	8600	21.5	19.6	29.1	27.1	52.9			
Copper	mg/kg	68000	6.45	5.84	9.69	7.09	9.54			
Mercury	mg/kg	1100	0.047	0.026	0.027	0.046	0.061			
Nickel	mg/kg	980	7.58	7.72	16.5	9.22	13.1			
Lead	mg/kg	2300	32.4	17.3	12.1	35.7	29.9			
Selenium	mg/kg	12000	< 6.00	< 6.00	< 6.00	< 6.00	< 6.00			
Zinc	mg/kg	730000	25.3	23.2	39.9	28	49.7			
Chromium III	mg/kg	8600	21.5	19.6	29.1					
Chromium Hexavalent	mg/kg	33	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20			
Naphthalene	mg/kg	190	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Acenaphthylene	mg/kg	83000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Acenaphthene	mg/kg	84000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Fluorene	mg/kg	63000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Phenanthrene	mg/kg	22000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Anthracene	mg/kg	520000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Fluoranthene	mg/kg	23000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Pyrene	mg/kg	54000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Benzo (a) anthracene	mg/kg	170	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Chrysene	mg/kg	350	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Benzo (b) fluoranthene	mg/kg	44	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Benzo (k) fluoranthene	mg/kg	1200	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Benzo (a) pyrene	mg/kg	35	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Indeno (1 2 3-CD) pyrene	mg/kg	500	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Dibenzo(a h)anthracene	mg/kg	3.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Benzo(g h i)perylene	mg/kg	3900	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10			
Benzene	mg/kg	27	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100			
Toluene	mg/kg	56000	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100			
Ethylbenzene	mg/kg	5700	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100			
m+p-xylene	mg/kg	6200	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100			
o-xylene	mg/kg	6600	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100			
C5-C6 Aliphatic	mg/kg	32000	< 0.10	< 0.10	< 0.10					
>C6-C8 Aliphatic	mg/kg	7800	< 0.10	< 0.10	< 0.10					
>C8-C10 Aliphatic	mg/kg	2000	< 10.0	< 10.0	< 10.0					
>C10-C12 Aliphatic	mg/kg	9700	< 10.0	< 10.0	< 10.0					
>C12-C16 Aliphatic	mg/kg	59000	< 10.0	< 10.0	< 10.0					
>C16-C21 Aliphatic	mg/kg	1.6E+06	< 10.0	11.5	< 10.0					
>C21-C35 Aliphatic	mg/kg	1.6E+06	28.7	63.5	27.4					
C6-C7 Aromatic	mg/kg	26000	< 0.10	< 0.10	< 0.10					
C7-C8 Aromatic	mg/kg	56000	< 0.10	< 0.10	< 0.10					
>C8-C10 Aromatic	mg/kg	3500	< 10.0	< 10.0	< 10.0					
>C10-C12 Aromatic	mg/kg	16000	< 10.0	< 10.0	< 10.0					
>C12-C16 Aromatic	mg/kg	36000	< 10.0	< 10.0	< 10.0					
>C16-C21 Aromatic	mg/kg	28000	< 10.0	< 10.0	< 10.0					
>C21-C35 Aromatic	mg/kg	28000	24.7	40	31.5					

APPENDIX N

Asbestos Calculation Worksheets



Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Project Reference	22-83227
Site Name	Hamble Aerostructures
Client	Develotec Design and Build Ltd
Run by	Claudia Norman
Date	14-Jun-22
Scenario details	gasket, chrysolite

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

Select ACM type (run model for each type to generate 'Worst Case' output)
Extent of degradation of ACMs at outset of work
Friability and degree of bonding by matrix (ACM matrix, not ground materials)
Distribution of Visible Asbestos Across Affected Area
Amount of asbestos fibre in selected ACM/fibre type as % of host material

Woven textiles, string, rope, paper, felt, gaskets etc.	1
Weathered (Slight degradation in ACM; material still retains its basic integrity)	2
Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Occasional/random occurrences of visible contamination by ACMs	1
Very Low quantities - <0.001 to 0.01 %wt/wt	1

Sub-total

Score

5

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking

Very low

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.

It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2

Exposure Factors

Score

Anticipated airborne fibre concentration - Control Limit or SALI?
 Anticipated duration of exposure to asbestos
 Activity type and effect on deterioration of ACMs during work
 Best description of primary host material matrix (soil/made ground)
 Respirable fibre index for ACM - RIVM report 711701034 (2003)

<0.01 fibres/ml	1
> 2 hours in a 7 day period and Up to 10 hours in a day (e.g. full time occupational exposure)	4
Not low intensity, significant deterioration expected	4
Made Ground - Recycled Aggregate, Track Ballast	4
Very low	1

Sub-total

14

Exposure ranking

Medium

Combined hazard and exposure ranking

19

Low

Stage 3

Risk Assessment Outputs

Probable Licensing Status	Non-Licensed Work
RPE*	EN149 type FFP3 disposable
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.

**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)

***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis



Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Project Reference	22-83227
Site Name	Hamble Aerostructures
Client	Develotec Design and Build Ltd
Run by	Claudia Norman
Date	14-Jun-22
Scenario details	Asbestos Cement, Chrysotile

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

Select ACM type (run model for each type to generate 'Worst Case' output)
Extent of degradation of ACMs at outset of work
Friability and degree of bonding by matrix (ACM matrix, not ground materials)
Distribution of Visible Asbestos Across Affected Area
Amount of asbestos fibre in selected ACM/fibre type as % of host material

Bonded ACMs: cement, vinyl, composites, textured decorative coatings, bitumen products	1
Intact (Very good condition ACM/ACM fragments)	1
Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Occasional/random occurrences of visible contamination by ACMs	1
Very Low quantities - <0.001 to 0.01 %wt/wt	1

Score

Sub-total

4

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking

Very low

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.

It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2

Exposure Factors

Score

Anticipated airborne fibre concentration - Control Limit or SALI?
 Anticipated duration of exposure to asbestos
 Activity type and effect on deterioration of ACMs during work
 Best description of primary host material matrix (soil/made ground)
 Respirable fibre index for ACM - RIVM report 711701034 (2003)

<0.01 fibres/ml	1
> 2 hours in a 7 day period and Up to 10 hours in a day (e.g. full time occupational exposure)	4
Not low intensity, significant deterioration expected	4
Made Ground - Recycled Aggregate, Track Ballast	4
Very low	1

Sub-total

14

Exposure ranking

Medium

Combined hazard and exposure ranking

18

Low

Stage 3

Risk Assessment Outputs

Probable Licensing Status	Non-Licensed Work
RPE*	EN149 type FFP3 disposable
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.

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