

## Phase II Site Investigation Report

Land South of Wandleys Lane, Fontwell, Eastergate, West Sussex PO20 3SE

On behalf of Imperial Homes Limited

| Report Reference: GWPR6869/GIR/January 2026 |                                                                        |                                                      | Status: Final                                               |
|---------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------|
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| EXECUTIVE SUMMARY                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROPOSED DEVELOPMENT                          | At the time of reporting, January 2026, the proposed development was understood to comprise the construction of 10No residential properties with associated private gardens and/or soft landscaped areas, along with access roads and areas of car parking.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| GEOLOGY AND HYDROGEOLOGY                      | <p>The site was underlain by the Head Deposits (Secondary A Aquifer) overlying bedrock deposits of the Lambeth Group (Secondary a Aquifer). London Clay Formation (Unproductive Strata) may be encountered in the extreme south-east corner. An area of Worked Ground was noted ~222m to the south-east.</p> <p>Examination of the Environment Agency records showed that the site was located within an Inner Zone – subsurface activity only (Zone Ic) Groundwater Source Protection Zone (SPZ) as classified in the Policy and Practice for the Protection of Groundwater. Inner Zone – subsurface activity only (Zone Ic) Groundwater Source Protection Zone (SPZ) extends the Zone I where the aquifer is confined and maybe impacted by deep drilling activities.</p> <p>From analysis of hydrogeological and topographical maps the actual groundwater table was anticipated to be encountered at shallow to moderate depth perched within the Head Deposits (Vally Gravel) above the London Clay Formation. Some amounts of groundwater however may be present at shallower depths within Made ground or silty/sandy pockets of the London Clay Formation. It was considered that groundwater was flowing in a southerly direction in line with local topography.</p> |
| GROUND AND GROUNDWATER CONDITONS ENCOUNTERED. | During the site investigation Topsoil was encountered to a maximum depth of 0.60m bgl, overlying slightly clayey sandy gravel of the Head Deposits to the base of the boreholes at a maximum depth of 3.00m bgl. Groundwater was not encountered during the intrusive investigation or the subsequent groundwater and ground-gas monitoring.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| VOLUME CHANGE POTENTIAL                       | The granular soils of the Head Deposits were shown to have a volume change potential in accordance with BRE240 and no volume change potential in accordance with NHBC Standards Chapter 4.2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| FOUNDATION DESIGN                             | Foundations should be taken through the Topsoil and into the underlying Head Deposits. Details are presented in section 6.2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| SUB-SURFACE CONCRETE                          | According to BRE Special Digest 1, 2005, 'Concrete in Aggressive Ground' a Sulphate Design Class of DS-1 could be used for sub-surface concrete in contact with the soils beneath the site. Table C1 of the Digest indicated an ACEC (Aggressive Chemical Environment for Concrete) classification of AC-1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CONTAMINATION AND REMEDIATION                 | Based on the results of the intrusive works, chemical analyses and risk assessments undertaken, no significantly elevated levels of determinants which pose an unacceptable risk to end-users for a ' <i>Residential with homegrown produce</i> ' land-use scenario and no remedial measures are required                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| GROUND GAS                                    | A soil derived approach identified soils of the Topsoil was not considered to pose an unacceptable ground gas risk at the site and warrant classification of <b>Characteristic Situation CS1</b> . The ground gas monitoring and the derived GSVs have indicated that there is a very low risk from ground gases, equating to <b>Characteristic Situation CS1</b> across the site. Therefore, based on the evidence available, the risk assessment for the site indicates that the site should be classified as <b>Characteristic Situation CS1</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>During the monitoring of the boreholes installed, a Photoionization Detector (PID) was utilised. No elevated PID readings were found in any of the boreholes except during the second monitoring visit undertaken on 11<sup>th</sup> December 2025. The PID reading was 84.3ppm in WS1, 18.4ppm in WS3 and 90.5ppm in WS5. Since no positive readings were recorded before or for the four readings over a period of one month subsequently, it was concluded that these readings were anomalous and were disregarded. For added reassurance, the testing of gas cannisters taken from the boreholes could be considered.</p> <p>Additionally, no elevated concentrations of BTEX compounds (Benzene, Toluene, Ethylbenzene, Xylene) and MTBE that were used as marker compounds for Volatile Organic Compounds (VOCs) were determined within the soil samples.</p> <p>It is therefore considered that no protective measures are required with respect to vapours.</p> |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## **1. INTRODUCTION**

### **1.1. General**

Ground and Water Limited were instructed by LandQuest UK (Southern) Limited on the 1<sup>st</sup> September 2023 to conduct a Phase II Ground Investigation on the site at Land South of Wandleys Lane, Fontwell, Eastergate, West Sussex PO20 3SE. The scope of the investigation was detailed within the fee proposal GW2282Rev2, dated 1<sup>st</sup> September 2023.

Ground and Water Limited were subsequently instructed by Imperial Homes Limited on the 28<sup>th</sup> November 2025 to undertake a period of ground-gas monitoring in accordance with the email fee proposal dated 28<sup>th</sup> November 2025.

### **1.2. Aims of the Investigation**

The aim of this report was to supply the client and their designers with information regarding the ground conditions underlying the site to assist them in preparing an appropriate scheme for development.

The investigation was to be undertaken to provide parameters for the design of foundations by means of in-situ and laboratory geotechnical testing undertaken on soil samples recovered from trial holes.

A contamination assessment was to be undertaken following chemical laboratory testing on soil samples recovered from the site to enable recommendations for the safe redevelopment of the site and the protection of site workers, end-users and the public from any potential contamination identified. The assessment comprises a Tier 2 Generic Quantitative Risk Assessment, under Land Contamination Risk Management (LCRM), with the intention of discharging any relevant planning conditions.

This Site Investigation Report must be read in conjunction with the Desk Study Report referenced GWPR5571/DS/October 2023.

The techniques adopted for the investigation were chosen considering the requirements of the client, anticipated ground conditions, and bearing in mind the nature of the site, limitations to site access and other logistical limitations.

### **1.3. Conditions and Limitations**

This report has been prepared based on the terms, conditions and limitations outlined within Appendix A.

This report has been updated with the results of the ground-gas monitoring undertaken between December 2025 and January 2026 and supersedes the Phase II Ground Investigation Report produced by Ground and Water Limited reference GWPR6869/GIR/February 2025 v3.01.

### **1.4. Technical Glossary**

Generic technical terms and their description can be viewed within the glossary provided within Appendix B.



## 2. SITE SETTING

### 2.1. Site Location

The site comprised a ~4,100m<sup>2</sup> irregular-shaped plot of land located on the southern side of Wandleys Lane. The site was located between the villages of Fontwell and Eastergate in West Sussex.

The national grid reference/Easting Northing for the centre of the site was approximately SU 94851 06243. A site location plan is given within Figure 1.

### 2.2. Site Description

A Site Walkover was undertaken on the 6<sup>th</sup> September 2023. A description of the site, as noted during the Site Walkover, is tabulated below.

| Site Description Sheet                                       |                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Use of site</b>                                           | At the time of the Site Walkover, 6 <sup>th</sup> September 2023 the site comprised an area of undeveloped fields with stables/sheds located in the north-west corner close to the site entrance.                                                               |
| <b>Site topography</b>                                       | The site was flat.                                                                                                                                                                                                                                              |
| <b>Area topography</b>                                       | The area in which the site was located was flat.                                                                                                                                                                                                                |
| <b>Structures on-site</b>                                    | Wooden stables/sheds were located in the north-west corner close to the site entrance.                                                                                                                                                                          |
| <b>Structures off-site and the use of surrounding ground</b> | A caravan park was located to the north-east/east of the site and two storey residential properties were located to the west. Open undeveloped fields were located to the east and south.                                                                       |
| <b>Boundary features</b>                                     | Northern Boundary: ~1.20 – 1.50m high wooden fence and hedgerow/trees.<br>Eastern Boundary: ~1.20 – 1.50m high wooden fence and hedgerow/trees.<br>Southern Boundary: ~1.20m high fence<br>Western Boundary ~1.20 – 1.50m high wooden fence and hedgerow/trees. |
| <b>Site covering</b>                                         | The site was grass covered with trees and bushes around the northern, eastern and western boundaries.                                                                                                                                                           |
| <b>Contamination sources onsite</b>                          | None noted.                                                                                                                                                                                                                                                     |
| <b>Contamination sources off-site</b>                        | None noted                                                                                                                                                                                                                                                      |
| <b>Vegetation on-site</b>                                    | 3 – 7m mature to semi- trees and bushes around the northern, eastern and western boundaries.                                                                                                                                                                    |
| <b>Vegetation off-site</b>                                   | Scattered vegetation was noted.                                                                                                                                                                                                                                 |
| <b>Services</b>                                              | None noted.                                                                                                                                                                                                                                                     |

### 2.3. Proposed Development

At the time of reporting, January 2026, the proposed development was understood to comprise the construction of 10No residential properties with associated private gardens and/or soft landscaped areas, along with access roads and areas of car parking.

The proposed development plan can be seen within Figure 2.

### 2.4. Geology

The British Geological Survey Solid and Drift Geology Map for the Fontwell area (Chichester Sheet No. 317) revealed that the site was underlain by superficial Head Deposits (Valley Gravel) and bedrock deposits of the Lambeth Group. London Clay Formation may be encountered in the extreme south-east corner. An area of Worked Ground was noted ~222m to the south-east.

Superficial deposits (Drift) are the youngest geological deposits formed during the most recent period of geological time. They rest on older deposits or rocks referred to as bedrock (Solid), which are the main mass forming the Earth. Bedrock is present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

#### *Head Deposits (Valley Gravel)*

The Head Deposits (Valley Gravel) consists of local tracts of gravel at low level in the bottom of valleys, usually along the line of a former or existing water course. The soils generally comprise poorly sorted sand and gravel.

#### *London Clay Formation*

The London Clay Formation comprises stiff grey fissured clay, weathering to brown near surface. Concretions of argillaceous limestone in nodular form (Claystones) occur throughout the formation. Crystals of Gypsum (Selenite) are often found within the weathered part of the London Clay Formation, and precautions against sulphate attack to concrete are sometimes required. The lowest part of the formation is a sandy bed with black rounded gravel and occasional layers of sandstone and is known as the Basement Bed.

#### *Lambeth Group*

The Lambeth Group (formerly known as the Woolwich and Reading Beds) is a sedimentary complex comprising a basal bed (the Upnor Formation also known as the Bottom Bed) composed of glauconitic sand, sandy clay and gravel (well-rounded flint pebbles), with laterally variable sand and clay above. In the eastern part of the area the basal bed is mostly overlain by a shelly grey sandy clay or silty sand and laminated beds (Woolwich Formation). At the top of the sedimentary complex is the Reading Formation, which is made up of multi-coloured mottled clays and silty clays.

Lignite, or brown coal, a carbonaceous rock composed of plant remains which has not been subject to the same intensity of heat and pressure as has ordinary coal, is occasionally found within the Lambeth Group, as are individual logs and groups of logs indicating the position of a former log jam, which was covered by sand and clay at the time of deposition.

## **2.5. Hydrogeology and Hydrology**

A study of the aquifer maps on the DEFRA website revealed the site was underlain by a **Secondary A Aquifer** comprising the superficial Head Deposits (Valley Gravel) underlain by the Lambeth Group also classified as a Secondary A Aquifer. **Unproductive Strata** comprising bedrock deposits of the London Clay Formation may be encountered in the extreme south-east corner.

Examination of the Environment Agency records showed that the site was located within an Inner Zone – subsurface activity only (Zone 1c) Groundwater Source Protection Zone (SPZ) as classified in the Policy and Practice for the Protection of Groundwater. Inner Zone – subsurface activity only (Zone 1c) Groundwater Source Protection Zone (SPZ) extends the Zone 1 where the aquifer is confined and may be impacted by deep drilling activities.

No surface water features were present within a 250m radius of the site.

From analysis of hydrogeological and topographical maps the actual groundwater table was anticipated to be encountered at shallow to moderate depth perched within the Head Deposits (Valley Gravel) above the London Clay Formation. Some amounts of groundwater however may be present at shallower depths within Made ground. It was considered that groundwater was flowing in a southerly direction in line with local topography.

Examination of the Environment Agency records showed that the site was located within a Flood Zone 1, i.e. an area with a low probability of fluvial/coastal flooding.

The Groundsure Datasheets revealed the site was not at risk of flooding from rivers and the sea. The datasheets also revealed the site was at a moderate to high risk of groundwater flooding. The extreme western corner of the site had a 1 in 30 year return period risk of surface water flooding at a depth of between 0.10 – 0.30m.

## **2.6. Radon**

A review of the freely available Public Health England radon database, UK Radon, indicated that the site was located within a 1km grid square, where the maximum radon potential of 3 – 5% was recorded. Basic radon protection measures are required in areas where more than 3% of houses are at or above the Action Level.

A BGS Radon Risk Assessment was commissioned for the site which indicated that **no radon protection measures are required to be installed in new buildings**. The risk assessment can be seen in Appendix C.

## **2.7. Internet Search (Site Setting)**

### **2.7.1. Available Unexploded Ordnance (UXO) Map Review**

A review of the data available on [www.zeticauxo.com/](http://www.zeticauxo.com/) revealed the site was located within a low-risk area associated with unexploded ordnance (UXO), as indicated by having <15 bombs dropped per 1000 acres. A known Luftwaffe Bombing Target site was located ~500m west of the site.

### **2.7.2. Historical Landfill Tool Review**

A review of the data available on [www.groundsure.io/](http://www.groundsure.io/) revealed 2No. areas of Historical Landfilling within 250m of the site. One was located on the northern side of Wandleys Lane ~9m north of the site. The site was active between 14/03/1979 – 13/03/1981 and was infilled with inert waste. The second was located off Eastergate Lane ~214m south-east of the site and was active between 31/12/1949 – 1/12/1963 and was infilled with household waste.

## **2.8. Preliminary Risk Assessment**

The tabulated Conceptual Site Model developed as part of the Ground and Water Ltd Desk Study (GWPR5771/DS/October 2023) is outlined overleaf. For ease of reference and understanding, the risks have been classified within this risk assessment against four possible levels / categories, summarised in the table below. Any risk deemed to be negligible within the Preliminary Risk Assessment have been excluded from this report.

| Risk Categories used in the Tabulated CSM |                                                                                                                                                                                                                                                                 |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Low Risk</b>                           | Regarding this potential SPR linkage, the site is considered suitable for the proposed end-use and there is not considered to be an unacceptable risk to receptors. However, it is considered that further investigation to confirm this is recommended.        |
| <b>Moderate Risk</b>                      | Regarding this potential SPR linkage, the site may not be suitable for the proposed end-use in its current condition and there may be an unacceptable risk to receptors. Further investigation is required to confirm this.                                     |
| <b>High Risk</b>                          | Regarding this potential SPR linkage, the site is probably or certainly not suitable for proposed end-use and there is likely to be an unacceptable risk to receptors. Contaminants probably or certainly present and urgent action required in the short term. |



| Tabulated Conceptual Site Model – Pollutant Linkage Summary                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                       | (On-Site Sources)   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Potential Sources                                                                                                                                                                    | Potential Absorption Pathways                                                                                                                                                                                                                                                                                                                                                                                             | Potential Receptors                                                                                                                                                                                                                                                                                   | Risk Classification |
| <ul style="list-style-type: none"> <li>No potential sources for contamination identified.</li> </ul>                                                                                 | <ul style="list-style-type: none"> <li>Direct ingestion of soil and soil derived dust</li> <li>Dermal contact of soil and soil derived dust</li> <li>Inhalation of dust (indoors and outdoors) with elevated concentration of determinands</li> <li>Ingestion of home-grown produce, and soils attached</li> <li>Direct ingestion of groundwater</li> <li>Inhalation of volatile vapour (indoors and outdoors)</li> </ul> | <b>Human Health</b> <ul style="list-style-type: none"> <li>End Users (Residents/Future site visitors)</li> <li>Construction workers during development</li> <li>Site operatives during maintenance works</li> <li>Neighbours and public</li> </ul>                                                    | Low                 |
|                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Direct uptake of groundwater</li> <li>Direct uptake of determinands in the soil</li> </ul>                                                                                                                                                                                                                                                                                         | <b>Flora and Fauna</b> <ul style="list-style-type: none"> <li>Vegetation within soft landscaped areas</li> <li>Ecological Receptor (Clapham Common)</li> </ul>                                                                                                                                        | Low                 |
|                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Anthropogenic (man-made) pathways</li> <li>Vertical and lateral migration in permeable strata</li> <li>Surface water runoff</li> </ul>                                                                                                                                                                                                                                             | <b>Controlled Waters</b> <ul style="list-style-type: none"> <li>Secondary A Aquifer (Head Deposits and Lambeth Group)</li> </ul>                                                                                                                                                                      | Low                 |
| Aggressive ground conditions with Made Ground and natural ground, including groundwater: <ul style="list-style-type: none"> <li>Sulphates,</li> <li>PAH/TPH.</li> </ul>              | <ul style="list-style-type: none"> <li>Direct contact with aggressive ground conditions</li> </ul>                                                                                                                                                                                                                                                                                                                        | <b>Building Materials and Services</b> <ul style="list-style-type: none"> <li>Buried Concrete</li> <li>Underground services (water pipes)</li> </ul>                                                                                                                                                  | Low                 |
| Ground gases generated by Made Ground: <ul style="list-style-type: none"> <li>Methane,</li> <li>Carbon Dioxide,</li> <li>Hydrogen Sulphide, and</li> <li>Carbon Monoxide.</li> </ul> | <ul style="list-style-type: none"> <li>Migration through anthropogenic &amp; natural pathways</li> <li>Inhalation of Asphyxiating gases</li> <li>Explosion (methane only)</li> </ul>                                                                                                                                                                                                                                      | <b>Human Health</b> <ul style="list-style-type: none"> <li>End Users (Residents/Future site visitors)</li> <li>Construction workers during development (especially in confined spaces)</li> <li>Site operatives during maintenance works in confined spaces</li> <li>Neighbours and public</li> </ul> | Low                 |
|                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Migration through anthropogenic &amp; natural pathways</li> <li>Explosion (methane only)</li> </ul>                                                                                                                                                                                                                                                                                | <b>Building Materials and Services</b> <ul style="list-style-type: none"> <li>Buildings</li> <li>Confined spaces</li> <li>Underground services</li> </ul>                                                                                                                                             | Low                 |



| Tabulated Conceptual Site Model – Pollutant Linkage Summary                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                              | (Off-Site Sources)  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Potential Sources                                                                                                                                                                                                                                                      | Potential Absorption Pathways                                                                                                                                                                                                                                                                                                                                | Potential Receptors                                                                                                                                                                                                                                                                                          | Risk Classification |
| <p>Made Ground from nearby works:</p> <ul style="list-style-type: none"> <li>Asbestos,</li> <li>PAHs,</li> <li>TPHs,</li> <li>VOCs,</li> <li>Sulphates, and</li> <li>Metals.</li> </ul>                                                                                | <ul style="list-style-type: none"> <li>Direct ingestion of soil and soil derived dust</li> <li>Dermal contact of soil and soil derived dust</li> <li>Inhalation of dust (indoors and outdoors) with elevated concentration of determinands</li> <li>Direct ingestion of groundwater</li> <li>Inhalation of volatile vapour (indoors and outdoors)</li> </ul> | <p><b>Human Health</b></p> <ul style="list-style-type: none"> <li>End Users (Residents/Future site visitors)</li> <li>Construction workers during development</li> <li>Site operatives during maintenance works</li> <li>Neighbours and public</li> </ul>                                                    | <b>Low</b>          |
|                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Direct uptake of groundwater</li> </ul>                                                                                                                                                                                                                                                                               | <p><b>Flora and Fauna</b></p> <ul style="list-style-type: none"> <li>Vegetation within soft landscaped areas</li> </ul>                                                                                                                                                                                      | <b>Low</b>          |
|                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                              | <p><b>Controlled Waters</b></p> <ul style="list-style-type: none"> <li>Secondary A Aquifer (Head Deposits and Lambeth Group)</li> </ul>                                                                                                                                                                      | <b>Low</b>          |
| <p>Aggressive ground conditions associated with impacted groundwater;</p> <ul style="list-style-type: none"> <li>Sulphates,</li> <li>PAH/TPH.</li> </ul>                                                                                                               | <ul style="list-style-type: none"> <li>Direct contact with aggressive ground conditions</li> </ul>                                                                                                                                                                                                                                                           | <p><b>Building Materials and Services</b></p> <ul style="list-style-type: none"> <li>Buried Concrete</li> <li>Underground services (water pipes)</li> </ul>                                                                                                                                                  | <b>Low</b>          |
| <p>Ground gases generated by infilled ground excavations and Historical Landfill Sites 9m north and 214m south-east:</p> <ul style="list-style-type: none"> <li>Methane,</li> <li>Carbon Dioxide,</li> <li>Hydrogen Sulphide, and</li> <li>Carbon Monoxide.</li> </ul> | <ul style="list-style-type: none"> <li>Migration through anthropogenic &amp; natural pathways</li> <li>Inhalation of Asphyxiating gases</li> <li>Explosion (methane only)</li> </ul>                                                                                                                                                                         | <p><b>Human Health</b></p> <ul style="list-style-type: none"> <li>End Users (Residents/Future site visitors)</li> <li>Construction workers during development (especially in confined spaces)</li> <li>Site operatives during maintenance works in confined spaces</li> <li>Neighbours and public</li> </ul> | <b>Moderate</b>     |
|                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Migration through anthropogenic &amp; natural pathways</li> <li>Explosion (methane only)</li> </ul>                                                                                                                                                                                                                   | <p><b>Building Materials and Services</b></p> <ul style="list-style-type: none"> <li>Buildings</li> <li>Confined spaces</li> <li>Underground services</li> </ul>                                                                                                                                             | <b>Low</b>          |

### 3. SITE WORKS

#### 3.1. Scope of Works

Site works were undertaken in two phases.

Phase I was undertaken on 26<sup>th</sup> September 2023 and comprised the drilling of 5No. Windowless Sampler Borehole (WS1 – WS5) to a depth of between 1.00 – 3.00m bgl where the density of the soils prevented further progress of each of the boreholes. Standard Penetration Tests were carried out at 1.00m intervals within the boreholes. A “Super Heavy” Dynamic Probe (DP1 – DP5) was undertaken adjacent to each of the boreholes to a depth of between 1.00 – 5.00m bgl where the density of the soils again prevented further penetration. A combined ground-gas/groundwater monitoring standpipe, with an internal diameter of 50mm, was installed in WS1, WS3 and WS5. The installation details can be viewed within the table below.

| Combined Ground-gas and Groundwater Monitoring Well Construction |                               |                                                         |                                                   |                       |                               |
|------------------------------------------------------------------|-------------------------------|---------------------------------------------------------|---------------------------------------------------|-----------------------|-------------------------------|
| Trial Hole                                                       | Depth of Installation (m bgl) | Thickness of slotted piping with gravel filter pack (m) | Depth of plain piping with bentonite seal (m bgl) | Response Zone (m bgl) | Piping internal diameter (mm) |
| WS1                                                              | 3.00                          | 2.00                                                    | 1.00                                              | 1.00 – 3.00           | 50                            |
| WS3                                                              | 2.50                          | 1.50                                                    | 1.00                                              | 1.00 – 2.50           | 50                            |
| WS5                                                              | 2.00                          | 1.00                                                    | 1.00                                              | 1.00 – 2.00           | 50                            |

Phase II was undertaken on 22<sup>nd</sup> January 2025 and comprised the machine excavation of 4No. trial pits (TPA – TPD) to a depth of between 0.80m – 1.50m bgl to enable the undertaking of infiltration tests in accordance with BRE365. The trial hole locations can be seen within Figure 3.

Subsequently, a period of ground-gas monitoring using the standpipes installed in WS1, WS3 and WS5 was undertaken between December 2025 and January 2026.

Prior to commencing the ground investigation, a walkover survey was carried out to identify the presence of underground services and drainage. Where underground services/drainage were suspected and/or positively identified, the exploratory position was relocated away from these areas.

As a further precautionary measure, the borehole was hand excavated to 1.20m below the local ground level (bgl) and scanned with a Cable Avoidance Tool (CAT scanner) to minimise the risk to services.

Upon completion of the drilling works, the trial holes were backfilled and made good, in relation to the surrounding area.

#### 3.2. Sampling Procedures

Small disturbed samples and environmental samples were recovered from the trial holes at the depths shown on the trial hole records. Soil samples were generally retrieved from each change of strata and/or at specific areas of concern. Samples were also taken at approximately 0.5m intervals during broad homogenous soil horizons. A selection of samples were despatched to a laboratory for both geotechnical and chemical testing purposes.



## 4. ENCOUNTERED GROUND CONDITIONS

### 4.1. Soil Conditions

The trial holes were logged by a Ground and Water Limited representative, generally in accordance with BS EN 14688 'Geotechnical Investigation and Testing – Identification and Classification of Soil'.

The ground conditions encountered within the trial holes constructed on the site did generally conform to that anticipated from examination of the geology map. A capping of Topsoil was noted to overlie the superficial Head Deposits. The bedrock deposits of the Lambeth Group and the London Clay Formation were not encountered in the trial holes.

The succession of conditions and description of soils encountered in the trial holes in descending order is tabulated below.

| Summary of Strata Encountered                                                                                                                                                 |                   |                    |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|---------------|
| Strata                                                                                                                                                                        | Top Depth (m bgl) | Base Depth (m bgl) | Thickness (m) |
| <b>TOPSOIL:</b> Dark brown slightly gravelly SAND. The sand was fine and the gravel was fine, sub-angular flint                                                               | GL                | 0.25 – 0.60        | 0.25 – 0.60   |
| <b>HEAD DEPOSITS:</b> Dark brown to pale brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint.. | 0.25 – 0.60       | >0.80 – >3.00      | >0.75 – >2.40 |

For details of the composition of the soils encountered at particular points, reference must be made to the individual trial hole logs within Appendix D of this report. A trial hole location plan can also be viewed within Figure 3.

### 4.2. Roots Encountered

Roots were noted to a proved depth of between 0.20 – 0.50m bgl within the boreholes. A summary of the depth of root penetration can be viewed below.

| Root Depth |                                |
|------------|--------------------------------|
| Trial Hole | Fresh Root Penetration (m bgl) |
| WS1        | 0.50                           |
| WS2        | 0.30                           |
| WS3        | 0.25                           |
| WS4        | 0.20                           |
| WS5        | 0.50                           |
| TPA        | 0.40                           |
| TPB        | 0.40                           |
| TPC        | 0.40                           |
| TPD        | 0.40                           |

It must be noted that the chance of determining actual depth of root penetration through a narrow diameter borehole is low. Roots may be found to greater depths at other locations on the site, particularly close to trees and/or trees that have been removed both within the site and its close environs.

#### 4.3. Groundwater Conditions

Groundwater was not encountered during either phase of the ground investigation. It should be noted that groundwater strikes may be obscured by the drilling/excavation process.

Changes in groundwater level occur for a number of reasons including seasonal effects and variations in drainage. The investigation was undertaken in September 2023 when groundwater levels are likely to be rising from their annual minimum (lowest elevation) and in January 2025 when groundwater levels are likely to be close to their annual maximum (highest elevation). Exact groundwater levels may only be determined through long term measurements from monitoring wells installed on-site.

Groundwater monitoring was undertaken on twelve occasions between October 2023 and March 2024. The results can be seen tabulated below.

| Depth of Standing Groundwater Within The Standpipes |            |                              |                            |
|-----------------------------------------------------|------------|------------------------------|----------------------------|
| Trial Hole                                          | Date       | Depth of Groundwater (m bgl) | Depth of Standpipe (m bgl) |
| WS1                                                 | 16/10/2023 | Dry                          | 2.60m                      |
|                                                     | 10/11/2023 | Dry                          | 1.90m                      |
|                                                     | 22/11/2023 | Dry                          | 2.50m                      |
|                                                     | 08/12/2023 | Dry                          | 2.70m                      |
|                                                     | 21/12/2023 | Dry                          | 2.80m                      |
|                                                     | 05/01/2024 | Dry                          | 2.60m                      |
|                                                     | 22/01/2024 | Dry                          | 2.60m                      |
|                                                     | 05/02/2024 | Dry                          | 2.70m                      |
|                                                     | 19/02/2024 | Dry                          | 2.70m                      |
|                                                     | 07/03/2023 | Dry                          | 2.70m                      |
|                                                     | 21/03/2024 | Dry                          | 2.70m                      |
|                                                     | 28/03/2024 | Dry                          | 2.70m                      |
| WS3                                                 | 16/10/2023 | Dry                          | 1.50m                      |
|                                                     | 10/11/2023 | Dry                          | 1.50m                      |
|                                                     | 22/11/2023 | Dry                          | 1.30m                      |
|                                                     | 08/12/2023 | Dry                          | 1.90m                      |
|                                                     | 21/12/2023 | Dry                          | 1.80m                      |
|                                                     | 05/01/2024 | Dry                          | 1.50m                      |
|                                                     | 22/01/2024 | Dry                          | 1.50m                      |
|                                                     | 05/02/2024 | Dry                          | 1.60m                      |
|                                                     | 19/02/2024 | Dry                          | 1.60m                      |
|                                                     | 07/03/2023 | Dry                          | 1.55m                      |
|                                                     | 21/03/2024 | Dry                          | 1.55m                      |
|                                                     | 28/03/2024 | Dry                          | 1.60m                      |
| WS5                                                 | 16/10/2023 | Dry                          | 2.00m                      |
|                                                     | 10/11/2023 | Dry                          | 2.00m                      |
|                                                     | 22/11/2023 | Dry                          | 2.00m                      |
|                                                     | 08/12/2023 | Dry                          | 2.00m                      |
|                                                     | 21/12/2023 | Dry                          | 2.00m                      |
|                                                     | 05/01/2024 | Dry                          | 1.90m                      |
|                                                     | 22/01/2024 | Dry                          | 1.90m                      |
|                                                     | 05/02/2024 | Dry                          | 2.00m                      |
|                                                     | 19/02/2024 | Dry                          | 2.00m                      |

|  |            |     |       |
|--|------------|-----|-------|
|  | 07/03/2023 | Dry | 1.90m |
|  | 21/03/2024 | Dry | 1.90m |
|  | 28/03/2024 | Dry | 2.00m |

Groundwater monitoring was undertaken on six occasions between December 2025 and January 2026 during the ground-gas monitoring. The results can be seen tabulated below.

| Depth of Standing Groundwater Within The Standpipes |            |                              |                            |
|-----------------------------------------------------|------------|------------------------------|----------------------------|
| Trial Hole                                          | Date       | Depth of Groundwater (m bgl) | Depth of Standpipe (m bgl) |
| WS1                                                 | 02/12/2025 | Dry                          | 2.54m                      |
|                                                     | 11/12/2025 | Dry                          | 1.58m                      |
|                                                     | 16/12/2025 | Dry                          | 2.54m                      |
|                                                     | 23/12/2025 | Dry                          | 2.54m                      |
|                                                     | 07/01/2026 | Dry                          | 2.54m                      |
|                                                     | 14/01/2026 | Dry                          | 2.54m                      |
| WS3                                                 | 02/12/2025 | Dry                          | 1.50m                      |
|                                                     | 11/12/2025 | Dry                          | 1.53m                      |
|                                                     | 16/12/2025 | Dry                          | 1.50m                      |
|                                                     | 23/12/2025 | Dry                          | 1.53m                      |
|                                                     | 07/01/2026 | Dry                          | 1.53m                      |
|                                                     | 14/01/2026 | Dry                          | 1.53m                      |
| WS5                                                 | 02/12/2025 | Dry                          | 1.88m                      |
|                                                     | 11/12/2025 | Dry                          | 1.87m                      |
|                                                     | 16/12/2025 | Dry                          | 1.88m                      |
|                                                     | 23/12/2025 | Dry                          | 1.88m                      |
|                                                     | 07/01/2026 | Dry                          | 1.88m                      |
|                                                     | 14/01/2026 | Dry                          | 1.88m                      |

#### 4.4. Obstructions

The density of the soils prevented further progress of the boreholes (WS1 – WS5) below a depth of between 1.00 – 3.00m bgl and the dynamic probes below a depth of between 1.00 – 5.00m bgl.

No other artificial or natural sub-surface obstructions were noted during construction of the trial holes.



## 5. IN-SITU AND LABORATORY TESTING

### 5.1. In-situ Strength Testing

Standard Penetration Tests (SPTs) and Super Heavy Dynamic Probes (SHDPs) were undertaken as part of the site investigation. The results of the SPT's have not been amended to consider hammer efficiency, rod lengths and overburden pressure in accordance with Eurocode 7. The test results are presented on the borehole logs within Appendix D. An interpretation of the in-situ geotechnical testing results is given in the table below.

| Interpretation of In-situ Geotechnical Testing Results |                                                          |                                                                |                       |               |                 |
|--------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------|-----------------------|---------------|-----------------|
| Strata                                                 | SPT "N" Blow Counts and Equivalent SPT "N" Value from DP | Equivalent Undrained Shear Strength (Cu) (kPa) (Stroud (1974)) | Soil Type             |               | Trial Hole/s    |
|                                                        |                                                          |                                                                | Granular (Density)    | Cohesive (Cu) |                 |
| Head Deposits                                          | 16 - >106                                                | -                                                              | Med Dense – Ext Dense | -             | WS1/0.60 – 3.00 |
|                                                        | 12 - >65                                                 |                                                                | Med Dense – Ext Dense |               | WS2/0.25 – 2.00 |
|                                                        | 8 - >56                                                  |                                                                | Med Dense – Ext Dense |               | WS3/0.30 – 2.50 |
|                                                        | 13 – 56                                                  |                                                                | Med Dense – V Dense   |               | WS5/0.55 – 2.00 |
|                                                        |                                                          |                                                                |                       |               |                 |
| Assumed Head Deposits                                  | 10 – 55                                                  | -                                                              | Med Dense – Dense     | -             | DP1/0.60 – 5.00 |
|                                                        | 18 – 110                                                 |                                                                | Med Dense – Ext Dense |               | DP2/0.25 – 2.40 |
|                                                        | 10 – 83                                                  |                                                                | Med Dense – Ext Dense |               | DP3/0.30 – 3.30 |
|                                                        | 16 – 108                                                 |                                                                | Med Dense – Ext Dense |               | DP4/0.20 – 1.00 |
|                                                        | 12 – 114                                                 |                                                                | Med Dense – Ext Dense |               | DP5/0.55 – 2.40 |

### 5.2. Geotechnical Laboratory Testing

A programme of geotechnical laboratory testing, scheduled by Ground and Water Limited and carried out by an accredited geotechnical testing laboratory was undertaken on samples recovered. Details of the specific tests used in each case are given below.

| Standard Methodology for Laboratory Geotechnical Testing |                                                                  |                 |
|----------------------------------------------------------|------------------------------------------------------------------|-----------------|
| Test                                                     | Standard                                                         | Number of Tests |
| Particle Size Distribution Tests                         | BS1377:2016:Part 2:Clause 9                                      | 5               |
| Water Soluble Sulphate and pH Test                       | BS1377:2018:Part 3:Clause 5                                      | 1               |
| BRE Special Digest 1 Tests                               | BRE Special Digest 1 "Concrete in Aggressive Ground (BRE, 2005). | 2               |

#### 5.2.1. Particle Size Distribution Testing

The results of particle size distribution (PSD) testing undertaken show that the Head Deposits have a volume change potential in accordance with BRE240 and no volume change potential in accordance with NHBC Standards Chapter 4.2. The results of the PSD testing can be viewed within Appendix E and summarised overpage.

| Particle Size Distribution Results Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              |                         |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------|------|
| Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Range Passing 63µm Sieve (%) | Volume Change Potential |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              | BRE                     | NHBC |
| Head Deposits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 19 – 27                      | Yes                     | No   |
| <ul style="list-style-type: none"> <li>Volume Change Potential refers to BRE Digest 240 (based on Grading test results).</li> <li>Shrinkability refers to NHBC Standards Chapter 4.2 (based on Grading test results).</li> <li>BRE 240 states that a soil has a volume change potential when the clay fraction exceeds 15%. Only the silt and clay combined fraction are determined by sieving therefore the volume change potential is estimated from the percentage passing the 63µm sieve.</li> <li>NHBC Standards Chapter 4.2 states that a soil is shrinkable if the percentage of silt and clay passing the 63µm sieve is greater than 35% and the Plasticity Index is greater than 10%.</li> </ul> |                              |                         |      |

## 6. ENGINEERING CONSIDERATIONS

### 6.1.1. Chalk Dissolution Risk Assessment

Chalk will be encountered at depth underlying the soils of the Lambeth Group and this combination of soils can result in the creation of chalk dissolution features.

The presence of dissolution features on-site can prove problematic, as they often provide inconsistency within the underlying geology. Often formed during glacial and periglacial conditions, the depth and width of these features can vary substantially, often providing inconsistency in geological strength data.

If a dissolution feature is suspected, a geotechnical engineer and structural engineer should be contacted for suitable engineering designs, based on further works identifying and classifying the area the feature occupies.

The Groundsure Geosight datasheets, presented Appendix E of this report, revealed the following information which may be pertinent to this risk assessment.

- Ground Dissolution of Soluble Rocks – The site was classified as having a negligible risk of ground dissolution of soluble rocks.
- An on-site Class A Historical Mining area was identified on-site. A Class A area was described as *“Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level, where they need not be considered”*. However, this is generally a precautionary statement attributed to all areas associated with chalk within the ground profile. Therefore, this does not identify any underground chalk features at the site location.
- 10No. off-site records of surface ground workings were noted corresponding to: unspecified pit/gravel pit 11 – 18m north and 22 – 25m north-west; gravel pits 130m north; and unspecified pits/disused pits/sand pit/gravel pits 217 – 242m south-east.
- No underground workings, natural cavities or Britpits were noted within 250m radius of the site.
- The Edmonds Procedure (Edmonds, C.N., 2001. Predicting natural cavities in chalk. Geological Society, London, Engineering Geology Special Publications, 18(1), pp.29-38.); highlighted a low subsidence hazard classification.

The historical mapping review undertaken in section 3.1 of this report confirmed the findings of the groundsure datasheets discussed above.

This risk assessment indicates that in principle there is a negligible risk from the dissolution of soluble rocks at the site.

The risk from dissolution should be closely monitored, along with the geological sequence of soils below the site.

## **6.2. Soil Characteristics and Foundation Considerations**

A summary of the soil characteristics following the intrusive site investigation and laboratory testing and the relevant foundation considerations has been provided below. The following information from the ground investigation was considered pertinent to the design of foundations.

- Foundations should be taken through any Topsoil and either into, or onto a suitable underlying natural stratum of adequate bearing characteristics.
- Foundations should be designed in accordance with soils of low volume change potential, based on PSD results showing some VCP being present.
- Given the presence of soils exhibiting some volume change potential at shallow depth, special foundation precautions may be required to prevent possible future shrinkage/swelling of the soils affecting the integrity of the faces of foundations (underfloor void diameter/compressible material/void formers etc.).
- The loads of proposed foundations should not exceed the allowable bearing capacity of the soils they are founding upon.
- Foundations must not be placed within fresh root penetrated and/or desiccated soils with volume change potential. It is recommended that foundations are taken at least 300mm into non-fresh root penetrated strata if the soils have volume change potential, or into soils of no volume change potential.
- The influence of trees on or surrounding the site will need to be taken into account in final design (NHBC Standards Chapter 4. 2) (tree rings).
- Any water ingress must be prevented from entering foundation trenches and excavations must be kept dry and either concreted or blinded as soon after excavation as possible. If water were allowed to accumulate within the excavation for even a short period of time, an increase in heave occur. The shear strength will also be reduced, resulting in lower bearing capacities, resulting in increased settlements. Instability issues may arise within the foundation trenches, in case of perched water being present.

## **6.3. Shallow Foundations**

Based on the previous section, foundations should bypass any Topsoil before extending 300mm below the proved depth of root penetration. Foundations would therefore be constructed on competent, moisture stable soils of the Head Deposits.

Foundations must not be placed within cohesive root penetrated and/or desiccated soils and the influence of the trees surrounding the site must be taken into account, in case of soils with volume change potential. The base of foundation excavations must extend at least 300mm into non-root penetrated soils.

Foundations should be taken through any Topsoil/Made Ground, extend 300mm below the proven depth of root penetration and found on moisture stable, competent granular soils of the Head Deposits; minimum foundation depths are likely to vary between 0.75 – 0.90m bgl, with locally deepened foundations in the vicinity of WS3 to ~1.50m bgl in order to by pass the softer/loose zones encountered at that location.



Foundations based on the above recommendations can be designed based on an allowable bearing capacity of 150kN/m<sup>2</sup>.

This is based on trial hole records, the results of in-situ testing, inspection of samples recovered, and based on a 5m long by 1m wide foundation and a maximum settlement of 25mm. Settlements on loading are likely to be moderate.

Water seepages may be encountered within foundation excavations, and this should be taken into account in the final design. Some instabilities may be recorded, especially within sandy layers.

### **Additional Comments**

A number of comments and recommendations has been provided below.

- It is prudent to avoid having a foundation spanning across materials of different consistency, like clay and gravel, in order to avoid potential differential settlements. If unavoidable, foundations must be reinforced to allow for such potential differential movement. It should be noted that differential settlement may also occur between strip and isolated pad foundations.
- Foundation excavations must be carefully bottomed out and any loose soil or soft spots removed prior to the foundation concrete or blinding being placed. Failure to ensure that foundation excavations are suitably bottomed out could result in additional settlements.
- Inspection of foundation excavations, prior to concreting, must be made by a competent and suitably qualified person to check for soft spots and to check for the presence of roots.
- Foundations must not be cast over foundations of former structures and/or other hard spots.
- Given soils of volume change potential were encountered, a suspended slab is recommended.
- Isolated Pad Foundations must be at least 1.5 times the width of the widest pad apart to keep to the anticipated settlements.
- Final designs for the foundations should be carried out by a suitably qualified Engineer based on the findings of this investigation and with reference to the anticipated loadings, serviceability requirements for the structure and the developments proximity to former, present, and proposed trees. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

### **6.4. Piled Foundation**

Based on the results of the intrusive investigation, a piled foundation scheme was unlikely to be required.

### **6.5. Excavations and Stability**

Shallow excavations in the Topsoil and Head Deposits are likely to be marginally stable at best. Long, deep excavations, through these strata are likely to become unstable.

Unsupported earth faces formed during excavation may be liable to collapse without warning and suitable safety precautions should therefore be taken to ensure that such earth faces are adequately supported before excavations are entered by personnel.

## **6.6. Sub-Surface Concrete Design**

Concrete to be placed in contact with soil or groundwater must be designed in accordance with the recommendations of Building Research Establishment Special Digest 1, 2005, '*Concrete in Aggressive Ground*' considering the pH of the soils. For the classification given below, the "mobile" and "natural" case was adopted given the geology encountered and the use of the site.

### **Topsoil**

The water-soluble sulphates in the Topsoil were noted to be <4 – 10.9mg/l, with a pH of 5.65 – 6.41, from chemical and geotechnical laboratory testing.

### **Head Deposits**

The water-soluble sulphates in the Head Deposits were noted to be <4mg/l, with a pH of 8.25 – 9.06, from chemical and geotechnical laboratory testing.

According to BRE Special Digest 1, 2005, '*Concrete in Aggressive Ground*' a Sulphate Design Class of DS-1 could be used for sub-surface concrete in contact with the Head Deposits. Table C1 of the Digest indicated an ACEC (Aggressive Chemical Environment for Concrete) classification of AC-1.

## **6.7. Roads and Hardstanding Design**

This section provides information relating to the construction of roads and hardstanding, for each strata encountered.

### **6.7.1. Anticipated CBR Values and Frost Susceptibility**

#### **Topsoil**

Roads and hardstanding should bypass Topsoil given the likely low strength, high compressibility and general variability.

#### **Head Deposits**

Roads and hardstanding constructed on the granular Head Deposits should be designed based on a CBR value of 40%. This is based on reference to Table C1 of TRL1132 and average construction conditions. Based on wet conditions a CBR of 20% should be adopted, with dry conditions a CBR of 60% being applicable. Given that the soils encountered beneath the site had a clay content of 19 - 27% **these deposits are likely to be frost susceptible.**

All formation levels for roads and hardstanding should be proof rolled to highlight any soft areas which should then be dug out and replaced with selected granular material compacted in thin layers to a suitable specification.

## **6.8. Surface Water Disposal**

Soakaway testing in accordance with BRE365 was undertaken within TPA - TPD with the results tabulated below.

| Soakage Testing Results |             |               |                     |                      |                   |                           |
|-------------------------|-------------|---------------|---------------------|----------------------|-------------------|---------------------------|
| Trial Hole              | Test Number | Depth (m bgl) | Start Depth (m bgl) | Finish Depth (m bgl) | Time Taken (mins) | Infiltration Rate (m/sec) |
| TPA                     | 1           | 1.25          | 0.53                | 1.25                 | 70                | $2.69 \times 10^{-5}$     |
|                         | 2           | 1.10*         | 0.68                | 1.10 Dry             | 100               | $2.35 \times 10^{-5}$     |
|                         | 3           | 1.10*         | 0.69                | 1.10 Dry             | 110               | $2.17 \times 10^{-5}$     |
| TPB                     | 1           | 1.16**        | 0.77                | 1.16 Dry             | 10                | $2.57 \times 10^{-4}$     |
|                         | 2           | 1.16**        | 0.77                | 1.10                 | 6                 | $5.84 \times 10^{-4}$     |
|                         | 3           | 1.16**        | 0.74                | 1.10                 | 10                | $2.94 \times 10^{-4}$     |
| TPC                     | 1           | 1.25***       | 0.75                | 1.25 Dry             | 70                | $3.61 \times 10^{-5}$     |
|                         | 2           | 1.25***       | 0.80                | 1.14                 | 30                | $1.04 \times 10^{-4}$     |
|                         | 3           | 1.25***       | 0.77                | 1.14                 | 40                | $6.66 \times 10^{-5}$     |
| TPD                     | 1           | 0.80          | 0.55                | 0.80 Dry             | 4                 | $5.41 \times 10^{-4}$     |
|                         | 2           | 0.80          | 0.57                | 0.80 Dry             | 6                 | $3.79 \times 10^{-4}$     |
|                         | 3           | 0.80          | 0.59                | 0.80 Dry             | 7                 | $2.65 \times 10^{-4}$     |

\*hole had collapsed to 1.10m bgl.

\*\*hole had collapsed to 1.16m bgl.

\*\*\*hole had collapsed to 1.25m bgl.

Falling head testing was undertaken within WS1 and WS2 to give preliminary infiltration rates with the results tabulated below.

| Soakage Testing Results |             |               |                     |                      |                   |                           |
|-------------------------|-------------|---------------|---------------------|----------------------|-------------------|---------------------------|
| Trial Hole              | Test Number | Depth (m bgl) | Start Depth (m bgl) | Finish Depth (m bgl) | Time Taken (mins) | Infiltration Rate (m/sec) |
| WS1                     | 1           | 3.00          | 1.10                | 3.00                 | 2                 | $6.67 \times 10^{-4}$     |
| WS2                     | 1           | 2.00          | 1.15                | 2.00                 | 28                | $5.34 \times 10^{-5}$     |

Based upon the results of the infiltration tests, it was considered that the soils of the Head Deposits encountered would provide a suitable medium for soakaway installation provided that adequate storage was included in the design.

Any soakaways should be located sufficiently away from buildings and infrastructure, in order to prevent undermining of foundations.

The submission of a Sustainable Urban Drainage Scheme (SUDS) is likely to be required for this site due to the proposed development increasing the amounts of hardstanding.

Consultation with the Environment Agency must be sought regarding any use that may have an impact on groundwater resources, abstractions and surface water features/watercourses.

It should be noted that water discharge into the chalk may worsen / create dissolution features. Therefore, soakaways should be remote from structures and undertaken in accordance with available guidance.

A number of published information sources make reference to an appropriate distance at which a soakaway should be sited in relation to any building foundations in the vicinity:

- The British Standard BS8301 :1985 “Code of practice for building drainage” (1985), suggests that: “A soakaway is not desirable nearer to a building than about 5 metres nor in such a position that the ground below foundations is likely to be adversely affected.”
- The Building Research Establishment Digest 365 “Soakaway design” (1991), suggests that “Soakaways should not normally be constructed closer than 5m to building foundations. In chalk or other soil and fill material subject to modification or instability, the advice of a specialist geotechnologist should be sought as to the advisability and siting of a soakaway”.

In addition, the distance a soakaway is located from any foundations can be informed by both the soakaway type and chalk density present at the site.

- The Kent County Council Soakaway Design Guide (July 2000) states that “Highway soakaways shall be situated the following minimum distances from dwellings (measured from the outside edge of the soakaway): (1) 5 metres for conventional perforated soakaway; (2) 10 metres for deep bored soakaway. In addition, adjacent soakaways of a similar type shall also be spaced a minimum of 10 metres apart.
  - CIRIA 574 states that soakaways should be sited at least 5-10m away from any structure, depending on the chalk density. Where the chalk present is of low or unknown density, soakaways should be sited at least 10m from any foundations, and where the chalk is of medium density or higher, any foundations should be sited at least 5m from any foundations.
-



## 7. CONTAMINATION RISK ASSESSMENT

### 7.1. Results of the Preliminary Risk Assessment

The tabulated Conceptual Site Model (CSM) developed by the Ground and Water Desk Study (ref. GWPR5771/DS/October 2023) is reproduced in section 2.8. For the complete information please see the Desk Study report.

No additional source of contamination, pathway or receptor was identified between the desk study and the ground investigation and as such, it was not necessary to modify the CSM.

In the UK, the assessment of risk from contamination follows the source-pathway-receptor (SPR) approach. For a risk to be present there must be a source of contamination, a receptor or receptors, and a pathway for contaminants to migrate or be absorbed. If there is a linkage between any given source and receptor, then a quantitative risk assessment is used to assess the significance or impact of the pollutant linkage.

### 7.2. Sampling Locations

The synopsis for the trial hole locations and their final depth can be seen tabulated below. A trial hole location plan is provided within Figure 3. The table also indicates whether any locations targeted a source of contamination as well as the proposed end-use. The proposed development can be seen in Figure 2.

| Trial Hole Location Synopsis |                   |                  |
|------------------------------|-------------------|------------------|
| Trial Hole/Final Depth       | Sampling Strategy | Proposed End-Use |
| WS1/3.00m                    | Random            | Access Road      |
| WS2/2.00m                    | Random            | Access Road      |
| WS3/2.50m                    | Random            | Soft Landscaping |
| WS4/1.00m                    | Random            | Soft Landscaping |
| WS5/2.00m                    | Random            | Soft Landscaping |

The investigation area totals approximately 4,100m<sup>2</sup> and with five sampling locations, given an unknown hotspot shape, the sampling density means that a hotspot with an area of approximately 1,023m<sup>2</sup> and a radius of approximately 19.8m would be encountered (CLR 4).

### 7.3. Soil Risk Assessment

Sampling depths were chosen to reflect the receptor of concern (e.g. human health, controlled waters and vegetation). The samples were scheduled under a random strategy. The receptors relevant to the sampling depths are tabulated below.

| Summary of Receptors per Sample Depth |                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Depth                                 | Receptors                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Shallow Samples (< 0.75m bgl)         | <ul style="list-style-type: none"> <li>• End Users (Residents/Future site visitors)</li> <li>• Construction workers during development</li> <li>• Site operatives during maintenance works</li> <li>• Neighbours and public</li> <li>• Vegetation within soft landscaped areas (shallow rooted)</li> <li>• Secondary A Aquifer (Head Deposits and Lambeth Group)</li> <li>• Buried Concrete</li> <li>• Receiving landfill</li> </ul> |

Chemical laboratory testing, scheduled by Ground and Water Limited, and carried out by ALS Laboratories UK Limited, was undertaken on three samples of Topsoil. The samples were subjected to a combination of analysis that comprised:

- Asbestos screen;
- Semi-metals and heavy metals incl. Arsenic, Cadmium, Chromium (incl. Hexavalent Chromium), Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc;
- Polycyclic Aromatic Hydrocarbons (PAH's) incl. Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(ghi)perylene;
- Speciated TPH including full aliphatic/aromatic split; and
- BTEX compounds (Benzene, Toluene, Ethylbenzene, Xylene) and MTBE – used as marker compounds for Volatile Organic Compounds (VOCs).

A breakdown of the number of tests undertaken for each determinand is discussed in further sections. The chemical laboratory results are presented in Appendix F.

### 7.3.1. Soil Assessment Criteria and Results

At the time of reporting, January 2026, the proposed development was understood to comprise the construction of 10 No residential properties with associated private gardens and/or soft landscaped areas, along with access roads and areas of car parking. The proposed development plan can be seen within Figure 2.

Based on the proposed development, the results of the chemical laboratory testing were compared to the Generic Assessment Criteria (GAC) for a ***'Residential with homegrown produce'*** land-use scenario, as this was considered the most appropriate land-use scenario.

Where a contaminant of concern's GAC varies according to the Soil's Organic Matter (SOM), the SOM recorded for each uncontaminated soil type was used to derive the appropriate GAC for each soil type. A SOM value of 1%, the most conservative value, was utilised.

A summary of the analytical results and the comparison to the determinands adopted screening value are presented in the table overleaf.

| Soil Contamination Test Results and Screening Values |                   |                               |                               |                                 |                                                                          |
|------------------------------------------------------|-------------------|-------------------------------|-------------------------------|---------------------------------|--------------------------------------------------------------------------|
| Determinand                                          | Number of Samples | Minimum Concentration (mg/kg) | Maximum Concentration (mg/kg) | Adopted Screening Value (mg/kg) | Was the adopted screening value exceeded for relevant land-use scenario? |
| <b>INORGANICS</b>                                    |                   |                               |                               |                                 |                                                                          |
| Asbestos                                             | 3                 | ND                            | ND                            | ND                              | No                                                                       |
| Cyanide (total)                                      | 3                 | <1                            | <1                            | 24                              | No                                                                       |
| Phenols                                              | 3                 | <0.035                        | <0.035                        | 280                             | No                                                                       |
| <b>METALS</b>                                        |                   |                               |                               |                                 |                                                                          |
| Arsenic                                              | 3                 | 6.76                          | 9.78                          | 37                              | No                                                                       |
| Boron                                                | 3                 | <1                            | <1                            | 290                             | No                                                                       |
| Cadmium                                              | 3                 | <0.02                         | 0.287                         | 11                              | No                                                                       |
| Chromium (III)                                       | 3                 | 12.2                          | 17.1                          | 910                             | No                                                                       |
| Chromium (Hexavalent)                                | 3                 | <0.6                          | <0.6                          | 6                               | No                                                                       |
| Copper                                               | 3                 | 10.6                          | 27.4                          | 2400                            | No                                                                       |
| Lead                                                 | 3                 | 28.6                          | 36.2                          | 200                             | No                                                                       |
| Mercury                                              | 3                 | <0.1                          | <0.1                          | 1.2                             | No                                                                       |
| Nickel                                               | 3                 | 10.4                          | 16.6                          | 130                             | No                                                                       |
| Selenium                                             | 3                 | <1                            | 1.54                          | 250                             | No                                                                       |
| Vanadium                                             | 3                 | 24.7                          | 26.8                          | 410                             | No                                                                       |
| Zinc                                                 | 3                 | 47.5                          | 66.1                          | 3700                            | No                                                                       |
| <b>TOTAL PETROLEUM HYDROCARBONS (TPHs)</b>           |                   |                               |                               |                                 |                                                                          |
| Aliphatic >C5 - C6                                   | 2                 | <0.01                         | <0.01                         | 42                              | No                                                                       |
| Aliphatic >C6 - C8                                   | 2                 | <0.01                         | <0.01                         | 100                             | No                                                                       |
| Aliphatic >C8 - C10                                  | 2                 | <0.01                         | <0.01                         | 27                              | No                                                                       |
| Aliphatic >C10 - C12                                 | 2                 | <1                            | <1                            | 130                             | No                                                                       |
| Aliphatic >C12 - C16                                 | 2                 | <1                            | <1                            | 1100                            | No                                                                       |
| Aliphatic >C16 - C21                                 | 2                 | <1                            | <1                            | 65000                           | No                                                                       |
| Aliphatic >C21 - C35                                 | 2                 | 3.02                          | 6.91                          | 65000                           | No                                                                       |
| Aliphatic >C35 - C44                                 | 2                 | <1                            | <1                            | 65000                           | No                                                                       |
| Aromatic >C5 - C7                                    | 2                 | <0.01                         | <0.01                         | 70                              | No                                                                       |
| Aromatic >C7 - C8                                    | 2                 | <0.01                         | <0.01                         | 130                             | No                                                                       |
| Aromatic >C8 - C10                                   | 2                 | <0.01                         | <0.01                         | 34                              | No                                                                       |
| Aromatic >C10 - C12                                  | 2                 | <1                            | <1                            | 74                              | No                                                                       |
| Aromatic >C12 - C16                                  | 2                 | <1                            | <1                            | 140                             | No                                                                       |
| Aromatic >C16 - C21                                  | 2                 | <1                            | <1                            | 260                             | No                                                                       |
| Aromatic >C21 - C35                                  | 2                 | 6.62                          | 10.5                          | 1100                            | No                                                                       |
| Benzene                                              | 3                 | <0.001                        | <0.001                        | 0.087                           | No                                                                       |
| Toluene                                              | 3                 | <0.001                        | <0.001                        | 130                             | No                                                                       |
| Ethylbenzene                                         | 3                 | <0.001                        | <0.001                        | 47                              | No                                                                       |
| m,p-Xylene                                           | 3                 | <0.002                        | <0.002                        | 56                              | No                                                                       |
| o-Xylene                                             | 3                 | <0.002                        | <0.002                        | 60                              | No                                                                       |
| <b>POLYCYCLIC-AROMATIC HYDROCARBONS</b>              |                   |                               |                               |                                 |                                                                          |
| Acenaphthene                                         | 3                 | <0.008                        | <0.008                        | 210                             | No                                                                       |
| Acenaphthylene                                       | 3                 | <0.012                        | <0.012                        | 170                             | No                                                                       |
| Anthracene                                           | 3                 | <0.016                        | <0.016                        | 2400                            | No                                                                       |
| Benzo(a)anthracene                                   | 3                 | 0.0364                        | 0.095                         | 7.2                             | No                                                                       |
| Benzo(a)pyrene                                       | 3                 | 0.0404                        | 0.119                         | 2.2                             | No                                                                       |
| Benzo(b)fluoranthene                                 | 3                 | 0.0598                        | 0.145                         | 2.6                             | No                                                                       |
| Benzo(ghi)perylene                                   | 3                 | 0.0293                        | 0.0789                        | 320                             | No                                                                       |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |   |         |         |      |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------|---------|------|----|
| Benzo(k)fluoranthene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3 | 0.0196  | 0.053   | 77   | No |
| Chrysene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3 | 0.0417  | 0.103   | 15   | No |
| Dibenzo(a,h)anthracene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3 | <0.023  | <0.023  | 0.24 | No |
| Fluoranthene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3 | 0.0814  | 0.192   | 280  | No |
| Fluorene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3 | <0.01   | <0.01   | 170  | No |
| Indeno(1,2,3-cd)pyrene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3 | 0.0307  | 0.085   | 27   | No |
| Naphthalene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3 | <0.009  | <0.009  | 2.3  | No |
| Phenanthrene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3 | 0.0246  | 0.0507  | 95   | No |
| Pyrene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3 | 0.072   | 0.173   | 620  | No |
| <b>MARKER FOR VOLATILE ORGANIC COMPOUND</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |         |         |      |    |
| Methyl tert-butyl ether (MTBE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3 | < 0.005 | < 0.005 | 49   | No |
| The derivation of the Soil Assessment Criteria used within this report can be seen within Appendix G. The soil concentrations were typically compared to the LQM/CIEH Suitable for Use Levels (S4UL) (2014), based upon the assumption of 1% soil organic matter. A screening value for Lead is based on the Category 4 Screening Levels (C4SLs). Where no S4UL or C4SL is available for Cyanide, a SoBRA acute GAC is assigned. Where no S4UL or C4SL is available for MTBE, a CL:AIRE 2010 GAC is assigned. Where exceedances are noted, the trial hole and depth of sample is recorded. |   |         |         |      |    |

The proposed development includes areas of soft-landscaping, where shallow rooted vegetation may be exposed to aggressive ground conditions. The previous table compares the results of the laboratory analysis to GAC that is protective of Human Health and therefore different GAC is required for vegetation.

| Soil Contamination Test Results and Screening Value                                                                                                                                                                                                                                                                                                                                                         |                   |                               |                               |                                 |                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------|-------------------------------|---------------------------------|--------------------------------------------------------------------------|
| Determinand                                                                                                                                                                                                                                                                                                                                                                                                 | Number of Samples | Minimum Concentration (mg/kg) | Maximum Concentration (mg/kg) | Adopted Screening Value (mg/kg) | Was the adopted screening value exceeded for relevant land-use scenario? |
| Copper                                                                                                                                                                                                                                                                                                                                                                                                      | 3                 | 10.6                          | 27.4                          | 100                             | No                                                                       |
| Nickel                                                                                                                                                                                                                                                                                                                                                                                                      | 3                 | 10.4                          | 16.6                          | 60                              | No                                                                       |
| Zinc                                                                                                                                                                                                                                                                                                                                                                                                        | 3                 | 47.5                          | 66.1                          | 200                             | No                                                                       |
| The derivation of the Soil Assessment Criteria used within this report can be seen within Appendix G. The soil concentrations were compared to BS3882:2015 <i>Specification for Topsoil</i> and based on differing pH. For the purpose of conservatism, the pH of the soils have been assumed to be below 6 within this table. Where exceedances are noted, the trial hole and depth of sample is recorded. |                   |                               |                               |                                 |                                                                          |

### 7.3.2. Soil Assessment

The comparison between the laboratory analysis and the assessment criteria indicates that the determinands were identified at below the adopted screening values and are not considered to represent an unacceptable risk to future receptors.

#### Asbestos

No asbestos has been identified during the testing, however, an **Asbestos Management Strategy** should be put in place so that any potentially asbestos containing materials are identified and removed from site in a suitable manner to prevent cross-contamination.

### 7.3.3. Water Supply Pipe Risk Assessment

As part of the proposed development it is expected that new water supply pipes will be installed at the site. Water supply pipes have the potential to be exposed to contaminants in the ground that can



lead to unacceptable concentrations within the drinking water. If a risk is identified, specialist pipes that are protective of the drinking water are required.

A pipe selection risk assessment should be submitted to the water supply company as part of the development based on the supplier's assessment criteria. An indication of whether there is likely to be a risk can be seen tabulated below, where the PE pipe thresholds are based on *UKWIR Contaminated Land Assessment Guidance, 2014*.

| Pipe Selection Risk Assessment             |                           |                                   |                             |
|--------------------------------------------|---------------------------|-----------------------------------|-----------------------------|
| Determinand                                | PE Pipe Threshold (mg/kg) | Laboratory Analysis Range (mg/kg) | Was the Threshold Exceeded? |
| Total BTEX and MTBE                        | 0.1                       | < 0.01                            | No                          |
| Total VOCs                                 | 0.5                       | -                                 | No                          |
| Total SVOCs                                | 2                         | -                                 | No                          |
| Phenols                                    | 2                         | < 0.035                           | No                          |
| TPH EC5 – EC10 (aliphatics and aromatics)  | 2                         | < 0.01                            | No                          |
| TPH EC10 – EC16 (aliphatics and aromatics) | 10                        | < 1                               | No                          |
| TPH EC16 – EC40 (aliphatics and aromatics) | 500                       | < 1 – 10.5                        | No                          |
| Naphthalene                                | 5                         | < 0.09                            | No                          |

The results indicate that no determinands were above the threshold for the use of a PE pipe at the site.

#### 7.4. Groundwater Risk Assessment

In the UK, the water environment is protected under a number of regulatory regimes, mainly governed by the Environment Agency. The Environment Agency is consulted when there may be a risk to Controlled Waters, or where a pollution incident has occurred historically. The Water Framework Directive is implemented in various guises covering groundwater, surface water and drinking water supply.

A study of the aquifer maps on the DEFRA website revealed the site was underlain by a **Secondary A Aquifer** comprising the superficial Head Deposits (Valley Gravel) underlain by the Lambeth Group also classified as a Secondary A Aquifer. **Unproductive Strata** comprising bedrock deposits of the London Clay Formation may be encountered in the extreme south-east corner.

Examination of the Environment Agency records showed that the site was located within an Inner Zone – subsurface activity only (Zone 1c) Groundwater Source Protection Zone (SPZ) as classified in the Policy and Practice for the Protection of Groundwater. Inner Zone – subsurface activity only (Zone 1c) Groundwater Source Protection Zone (SPZ) extends the Zone 1 where the aquifer is confined and may be impacted by deep drilling activities.

No surface water features were present within a 250m radius of the site.

From analysis of hydrogeological and topographical maps the actual groundwater table was anticipated to be encountered at shallow to moderate depth perched within the Head Deposits (Valley Gravel) above the London Clay Formation. Some amounts of groundwater however may be present

at shallower depths within Made ground. It was considered that groundwater was flowing in a southerly direction in line with local topography.

During the site investigation Topsoil was encountered to a maximum depth of 0.60m bgl, overlying slightly clayey sandy gravel of the Head Deposits to the base of the boreholes at a maximum depth of 3.00m bgl. Groundwater was not encountered.

Given the history of the site and the Unproductive Strata, it is not expected that the soils on-site represent an unacceptable risk to controlled water receptors. No further action is considered necessary.

The findings of this risk assessment should be agreed with the Environment Agency.

### **7.5. Ground Gas Risk Assessment**

A review of the Phase I Desk Study has identified a source of ground gas on-site or within influencing distance of the site that warrants investigation through ground gas monitoring.

The investigation undertaken to date have identified the main sources of ground gases to be associated with the degradation of putrescible material within the limited Made Ground on-site and potential deep Made Ground off-site, where the off-site sources include the presence of historical landfill sites 9m north and 214m south-east of the site. Ground gases have the potential to migrate vertically through preferential pathways and build up within the proposed development, especially enclosed spaces on the ground floor. Based on the preceding information, ground gas monitoring was undertaken at the site.

#### **7.5.1. Available Data**

##### Soils

An alternative approach to ground gas risk assessment is presented within the CL:AIRE research bulletin RB17 and included within Annex D of BS8485:2015+A1:2019. The method considers the gas generation potential of the soils from data that is not subject to external influences, for example atmospheric pressure can change the recorded flow and concentrations of ground gas during spot monitoring, or a rising groundwater level can displace ground gases in pore spaces. Determination of the characteristic situation is based on the total organic carbon (TOC) of the soils, coupled with any organic-rich material identified within the borehole logs, such as wood gravels. TOC is easily analysed by the laboratory and can also be calculated by the equation outlined below.

$$\text{Total Organic Carbon (TOC)} = 0.58 \times \text{Soil Organic Matter (SOM)} = 1.33 \times \text{Degradable Organic Carbon (DOC)}$$

As part of the ground investigation works, six samples were submitted to the laboratory for analysis, which identified TOC to vary between 1.26 and 1.96% in the Topsoil. Topsoil was identified to a maximum depth between 0.20m and 0.60m bgl.

##### Gas Monitoring

In order to assess the ground-gas risk, three combined ground-gas/groundwater monitoring standpipes were installed to a maximum depth of 3.00m bgl. The construction of the wells has been tabulated below.



| Monitoring Well Construction |                               |                               |                       |                      |
|------------------------------|-------------------------------|-------------------------------|-----------------------|----------------------|
| Trial Hole                   | Piping internal diameter (mm) | Depth of Installation (m bgl) | Response Zone (m bgl) | Response Zone Strata |
| WS1                          | 50                            | 3.00                          | 1.00 – 3.00           | Head Deposits        |
| WS3                          | 50                            | 2.50                          | 1.00 – 2.50           | Head Deposits        |
| WS5                          | 50                            | 2.00                          | 1.00 – 2.00           | Head Deposits        |

Ground-gas monitoring has been undertaken on six occasions by a representative of Ground and Water Limited using a GasData GFM436 landfill gas analyser, where monitoring was undertaken during a combination of atmospheric pressures and pressure trends. During monitoring the borehole flow, as well as concentrations of methane, carbon dioxide, carbon monoxide and hydrogen sulphide were recorded. In addition to the borehole readings, a reading was taken from the ambient air of the site to ensure that the gas analyser was functioning correctly.

The results of the ground-gas monitoring have been tabulated below and the full Ground and Water Limited monitoring results are provided within Appendix H. Where the reliability of the monitoring results will require consideration in line with CIRIA C665 and BS8485:2015+A1:2019, the table has been highlighted orange.

| Ground-Gas Monitoring Results                                               |                                 |                                 |                               |                                |                  |                          |                                |
|-----------------------------------------------------------------------------|---------------------------------|---------------------------------|-------------------------------|--------------------------------|------------------|--------------------------|--------------------------------|
| Trial Hole                                                                  | Highest CH <sub>4</sub> (% v/v) | Highest CO <sub>2</sub> (% v/v) | Lowest O <sub>2</sub> (% v/v) | Highest H <sub>2</sub> S (ppm) | Highest CO (ppm) | Highest Flow Rate (l/hr) | Shallowest Groundwater (m BGL) |
| Ambient Air                                                                 | 0.00                            | 0.00                            | 20.20 <sup>2</sup>            | 0                              | 0                | n/a                      | n/a                            |
| WS1                                                                         | 0.00                            | 1.60 <sup>2</sup>               | 18.70 <sup>2</sup>            | 0                              | 0                | 0.00                     | Dry                            |
| WS3                                                                         | 0.00                            | 0.80 <sup>2</sup>               | 19.50 <sup>2</sup>            | 0                              | 0                | 0.00                     | Dry                            |
| WS5                                                                         | 0.00                            | 2.20 <sup>2</sup>               | 16.50 <sup>2</sup>            | 0                              | 0                | 0.00                     | Dry                            |
| Notes: Number <sup>1,2</sup> etc. indicates monitoring round when recorded. |                                 |                                 |                               |                                |                  |                          |                                |

No methane, hydrogen sulphide or carbon monoxide was recorded. Carbon dioxide was encountered in all boreholes at a maximum concentration of 2.20%v/v and was elevated during the six monitoring visits undertaken. No positive flows were recorded. No groundwater was noted.

### 7.5.2. Data Quality

A review was made of the quality of the available data for the site, which can be viewed in the table below. CIRIA Report C665 (2007), BS 8485:2015+A1:2019 and BS 8576:2013 stress the need for risk assessments to be based on good quality data and give guidance as to best practice in this respect.

| Review of Data Quality                     |                                                                                                                                                                                                 |                                                                                                                    |                                                                                                                                                                            |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data Type                                  | Current Understanding                                                                                                                                                                           | UK Practice                                                                                                        | Recommendation                                                                                                                                                             |
| Geological and hydro-geological conditions | The CSM identified the site to be located on limited Topsoil (<0.50m), overlying permeable strata of the Head Deposits. Groundwater has not been encountered during drilling or the monitoring. | CIRIA C665 & C659, Wilson and Card (1999) and BS 8485 recommend that geology and hydrogeology be fully understood. | The geological and hydrogeological model is understood to a standard that will not comprise the findings of the risk assessment.<br><br><b>No further action required.</b> |

| Review of Data Quality   |                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                        |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Soil Laboratory Analysis | A dataset of soil analysis from 6No. samples of the Topsoil have identified a range of TOC concentrations between 1.26% and 1.96%.                                                                         | CL:AIRE RB17 outlines an approach to ground gas risk assessment away from the influences that directly affect ground gas monitoring. It should typically be used on sites with limited sources identified in the CSM and Made Ground with average thickness <3m and maximum thickness <5m. TOC should be < 6%. | The TOC concentrations are below the limit of 6% in order to use the soil derived approach for the risk assessment.<br><br><b>No further action required.</b>                                                          |
| Monitoring period        | The monitoring has been undertaken on a total of six occasions.<br><br>Monitoring has been undertaken during a variety of atmospheric conditions including periods of falling, steady and rising pressure. | CIRIA C665 and BS 8576 recommends monitoring over a range of weather conditions. Concentrations of ground gas are likely to be highest during falling pressures, with sharp falls providing the worst-case results. In line with CIRIA C665 / BS8576 a minimum of 6No. monitoring visits are required.         | Monitoring should be undertaken over a 2 month period with weekly readings.<br><br>Monitoring has been undertaken during atmospheric pressures of between 1003 and 1020 mbar<br><br><b>No further action required.</b> |
| Gas data sets            | Carbon dioxide concentrations were recorded up to 2.20%. No methane, hydrogen sulphide or carbon monoxide has been detected during monitoring. Monitoring revealed no flows.                               | Borehole flow velocity and borehole gas volume (methane and carbon dioxide) are required for ground gas flux categorisation. Modified Wilson and Card classification, CIRIA C665 (2007), BS8485:2015+A1:2019.                                                                                                  | 6No. suitable gas datasets are available for the risk assessment.<br><br><b>No further action required.</b>                                                                                                            |

### 7.5.3. Risk Assessment

#### Soil Derived Method

The intrusive investigation has revealed a maximum thickness of Topsoil of 0.60m overlying Head Deposits comprising granular soils. Limited degradable material has been identified. The introduction of oxygen to the ground through redevelopment may lead to an initial increase of ground gas generation as degradable material within the soils present on-site may act as source of ground gas. The soils at the site are considered to be of variable permeability (low to high) in nature and pathways for ground gas migration will be present.

Using the soil derived method, it is considered that a TOC value of <1% within soil is unlikely to pose an unacceptable risk from ground gases and the site can be characterised as Characteristic Situation CS1. Any value between 3 and 6% warrants classification as a Characteristic Situation CS3. Any value over 4% requires investigation through ground gas monitoring. Any site with Made Ground <1.00m bgl will have a limited gas generation potential from the organic carbon present and consideration should be given to this thickness within the risk assessment.

An alternative approach for ground gas risk assessment (CL:AIRE RB17) can be considered utilising measured concentrations from soil parameters that are independent of influencing factors such as atmospheric pressure and groundwater level. Total Organic Carbon (TOC) was tested on 3No. samples



with the analytical results ranging between 1.26 and 1.96%. Furthermore, it is considered that a thickness of <0.90m would not generate sufficient ground gas to pose an unacceptable risk.

Based on the soil derived method outlined and the maximum TOC concentration encountered, the soils from site would warrant classification as **Characteristic Situation CS1**, based solely on the maximum TOC. It should be noted that this only represents the assessment from an on-site source.

#### Gas Monitoring Data

The ground gas monitoring undertaken to date has been reviewed and following any omissions caused by contradiction of the UK guidance (e.g. flooded wells), is deemed suitable for use in the risk assessment. The monitoring undertaken recorded methane concentrations of 0.00%v/v, carbon dioxide concentrations of up to 3.40%v/v and the maximum steady-state flow rate recorded was 0.00l/hr.

Based on the documentation presented in BS 8485:2015+A1:2019 “Code of practice for the characterisation and remediation from ground gas in affected developments”, the *hazardous gas flow rate* ( $Q_{hg}$ ) should be calculated for each borehole using the equation below.

$$Q_{hg} = (C_{hg}/100) * q$$

Where:  $Q_{hg}$  is the measured hazardous gas concentration (in percentage volume-by-volume);  
 $q$  is the flow rate (in litres per hour) of combined gases found by direct measurement.

The hazardous gas flow rate has been calculated for each borehole, referred to as the Gas Screening Value (GSV) using the worst-case steady-state concentration and flow, from all monitoring to date. The results are presented within the table below. Following the generation of the GSV, a ground gas characteristic situation can be assigned to the borehole. This has also been included within the table below.

| Hazardous Gas Flow Rate Assessment |                           |                           |                     |                               |                             |                               |                             |
|------------------------------------|---------------------------|---------------------------|---------------------|-------------------------------|-----------------------------|-------------------------------|-----------------------------|
| Trial Hole                         | CH <sub>4</sub><br>(%v/v) | CO <sub>2</sub><br>(%v/v) | Flow Rate<br>(l/hr) | CH <sub>4</sub> GSV<br>(l/hr) | Characteristic<br>Situation | CO <sub>2</sub> GSV<br>(l/hr) | Characteristic<br>Situation |
| WS1                                | 0.0 <sup>1-6</sup>        | 1.60 <sup>2</sup>         | 0.0 <sup>1-6</sup>  | 0.0002                        | CS1                         | 0.0016                        | CS1                         |
| WS3                                | 0.0 <sup>1-6</sup>        | 0.80 <sup>2</sup>         | 0.0 <sup>1-6</sup>  | 0.0002                        | CS1                         | 0.0008                        | CS1                         |
| WS5                                | 0.0 <sup>1-6</sup>        | 2.20 <sup>2</sup>         | 0.0 <sup>1-6</sup>  | 0.0002                        | CS1                         | 0.0022                        | CS1                         |

<sup>1</sup>Where a value of 0.0 %v/v is detected the detection error is to be used of 0.2%v/v for methane.

<sup>2</sup>Where a value of 0.0 %v/v is detected the detection error is to be used of 0.1%v/v for carbon dioxide.

<sup>3</sup>Where a value of 0.0 l/hr is detected the detection error is to be used of 0.1 l/hr for flow.

<sup>4</sup>CS1 typically when <1% methane and <5% carbon dioxide otherwise *consider* an increase to CS2.

Based upon the available ground gas monitoring, the risk from ground gas is considered to be **very low (CS1)**, in accordance with BS8485:2015+A1:2019. Carbon monoxide and hydrogen sulphide was not detected at a concentration to warrant further assessment.

Consideration is required to any GSV that falls into the CS1 category, however the methane concentration is greater than 1% and/or the carbon dioxide concentration is greater than 5%. These locations are typical of sites where the hazardous gas concentration is significant, however marginal

flow has been recorded during monitoring. It should be noted that consideration does not indicate that an increase is required. The monitoring results indicate that consideration is not required for an increase.

Assessing the sufficiency of the data is a requirement of BS 8576:2013, to determine whether further monitoring is required and the impact that this may have on the risk assessment. The current worst-case scenario is within WS5, which has identified a carbon dioxide GSV of 0.0022 l/hr. A GSV of 0.07 l/hr or above would result in an increase to Characteristic Situation CS2. Should the flow rate remain (0.1l/hr), a carbon dioxide concentration of 70% would be required to increase the classification to CS2. The understanding of the CSM indicates that this is unlikely to occur, however a slight increase may be plausible. Should the concentration of carbon dioxide remain constant (2.2%), a borehole flow rate of 3.18l/hr would be required to increase the classification to CS2. This increase in flow is unlikely within the understanding of the CSM.

#### **7.5.4. Ground Gas Risk Assessment Summary**

Two methods of ground gas risk assessment have been applied to the site following site investigation, comprising a review of organic content of soils and ground gas monitoring.

A soil derived approach identified the Topsoil was not considered to pose an unacceptable ground gas risk at the site and warrant classification of **Characteristic Situation CS1**.

The ground gas monitoring and the derived GSVs have indicated that there is a very low risk from ground gases, equating to **Characteristic Situation CS1** across the site.

Therefore, based on the evidence available, the risk assessment for the site indicates that the site should be classified as **Characteristic Situation CS1**.

Boreholes can act as preferential pathways for ground gas and therefore prior to construction, all boreholes should be suitably decommissioned in line with Environment Agency guidance. This usually comprises pumping liquid grout down a tremie pipe to the base of the borehole, raising as the borehole fills.

#### **7.6. Vapour Risk Assessment**

During the monitoring of the boreholes installed, a Photoionization Detector (PID) was utilised. No PID readings were found in any of the boreholes except during the second monitoring visit undertaken on 11<sup>th</sup> December 2025. The PID reading was 84.3ppm in WS1, 18.4ppm in WS3 and 90.5ppm in WS5. Since no positive readings were recorded before or for the four readings over a period of one month subsequently, it was concluded that these readings were anomalous and were disregarded. For added reassurance, the testing of gas cannisters taken from the boreholes could be considered.

Additionally, no elevated concentrations of BTEX compounds (Benzene, Toluene, Ethylbenzene, Xylene) and MTBE that were used as marker compounds for Volatile Organic Compounds (VOCs) were determined within the soil samples.

It is therefore considered that no protective measures are required with respect to vapours.

## 7.7. Updated Conceptual Site Model

Following completion of the Phase 2 Site Investigation, the CSM, inclusive of associated risk, within Section 2.8 of this report was re-evaluated.

For ease of reference and understanding, the risks have been re-assigned within this risk assessment against three possible levels / categories, summarised in the table below.

| Risk Categories used in the Tabulated CSM |                                                                                                                                                                               |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Low Risk</b>                           | Regarding this potential SPR linkage, the site is considered suitable for the proposed end-use and there is not considered to be an unacceptable risk to receptors.           |
| <b>Moderate Risk</b>                      | Regarding this potential SPR linkage, the site is suitable for the proposed end-use however remediation and/or further investigation is required.                             |
| <b>High Risk</b>                          | Regarding this potential SPR linkage, the site is not suitable for proposed end-use and there is an unacceptable risk to receptors. Urgent action required in the short term. |



| Tabulated Conceptual Site Model – Pollutant Linkage Summary                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              | (On-Site Sources)   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Potential Sources                                                                                                                                                                                                                                                                                | Potential Absorption Pathways                                                                                                                                                                                                                                                                                                                                                                                             | Potential Receptors                                                                                                                                                                                                                                                                                          | Risk Classification |
| <ul style="list-style-type: none"> <li>No potential sources for contamination identified.</li> </ul> <p>No elevated levels noted during investigation.</p>                                                                                                                                       | <ul style="list-style-type: none"> <li>Direct ingestion of soil and soil derived dust</li> <li>Dermal contact of soil and soil derived dust</li> <li>Inhalation of dust (indoors and outdoors) with elevated concentration of determinands</li> <li>Ingestion of home-grown produce, and soils attached</li> <li>Direct ingestion of groundwater</li> <li>Inhalation of volatile vapour (indoors and outdoors)</li> </ul> | <p><b>Human Health</b></p> <ul style="list-style-type: none"> <li>End Users (Residents/Future site visitors)</li> <li>Construction workers during development</li> <li>Site operatives during maintenance works</li> <li>Neighbours and public</li> </ul>                                                    | Low                 |
|                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Direct uptake of groundwater</li> <li>Direct uptake of determinands in the soil</li> </ul>                                                                                                                                                                                                                                                                                         | <p><b>Flora and Fauna</b></p> <ul style="list-style-type: none"> <li>Vegetation within soft landscaped areas</li> <li>Ecological Receptor (Clapham Common)</li> </ul>                                                                                                                                        | Low                 |
|                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Anthropogenic (man-made) pathways</li> <li>Vertical and lateral migration in permeable strata</li> <li>Surface water runoff</li> </ul>                                                                                                                                                                                                                                             | <p><b>Controlled Waters</b></p> <ul style="list-style-type: none"> <li>Secondary A Aquifer (Head Deposits and Lambeth Group)</li> </ul>                                                                                                                                                                      | Low                 |
| <p>Aggressive ground conditions with Made Ground and natural ground, including groundwater:</p> <ul style="list-style-type: none"> <li>Sulphates,</li> <li>PAH/TPH.</li> </ul> <p>The sulphates fell into Class DS-1 and AC-1</p>                                                                | <ul style="list-style-type: none"> <li>Direct contact with aggressive ground conditions</li> </ul>                                                                                                                                                                                                                                                                                                                        | <p><b>Building Materials and Services</b></p> <ul style="list-style-type: none"> <li>Buried Concrete</li> <li>Underground services (water pipes)</li> </ul>                                                                                                                                                  | Low                 |
| <p>Ground gases generated by Made Ground:</p> <ul style="list-style-type: none"> <li>Methane,</li> <li>Carbon Dioxide,</li> <li>Hydrogen Sulphide, and</li> <li>Carbon Monoxide.</li> </ul> <p>Based on soil analysis and ground-gas monitoring, the site falls into the CS1 classification.</p> | <ul style="list-style-type: none"> <li>Migration through anthropogenic &amp; natural pathways</li> <li>Inhalation of Asphyxiating gases</li> <li>Explosion (methane only)</li> </ul>                                                                                                                                                                                                                                      | <p><b>Human Health</b></p> <ul style="list-style-type: none"> <li>End Users (Residents/Future site visitors)</li> <li>Construction workers during development (especially in confined spaces)</li> <li>Site operatives during maintenance works in confined spaces</li> <li>Neighbours and public</li> </ul> | Low                 |
|                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Migration through anthropogenic &amp; natural pathways</li> <li>Explosion (methane only)</li> </ul>                                                                                                                                                                                                                                                                                | <p><b>Building Materials and Services</b></p> <ul style="list-style-type: none"> <li>Buildings</li> <li>Confined spaces</li> <li>Underground services</li> </ul>                                                                                                                                             | Low                 |



| Tabulated Conceptual Site Model – Pollutant Linkage Summary                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                              | (Off-Site Sources)  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Potential Sources                                                                                                                                                                                                                                                      | Potential Absorption Pathways                                                                                                                                                                                                                                                                                                                                | Potential Receptors                                                                                                                                                                                                                                                                                          | Risk Classification |
| <p>Made Ground from nearby works:</p> <ul style="list-style-type: none"> <li>Asbestos,</li> <li>PAHs,</li> <li>TPHs,</li> <li>VOCs,</li> <li>Sulphates, and</li> <li>Metals.</li> </ul> <p>No elevated levels noted during investigation.</p>                          | <ul style="list-style-type: none"> <li>Direct ingestion of soil and soil derived dust</li> <li>Dermal contact of soil and soil derived dust</li> <li>Inhalation of dust (indoors and outdoors) with elevated concentration of determinands</li> <li>Direct ingestion of groundwater</li> <li>Inhalation of volatile vapour (indoors and outdoors)</li> </ul> | <p><b>Human Health</b></p> <ul style="list-style-type: none"> <li>End Users (Residents/Future site visitors)</li> <li>Construction workers during development</li> <li>Site operatives during maintenance works</li> <li>Neighbours and public</li> </ul>                                                    | Low                 |
|                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Direct uptake of groundwater</li> </ul>                                                                                                                                                                                                                                                                               | <p><b>Flora and Fauna</b></p> <ul style="list-style-type: none"> <li>Vegetation within soft landscaped areas</li> </ul>                                                                                                                                                                                      | Low                 |
|                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                              | <p><b>Controlled Waters</b></p> <ul style="list-style-type: none"> <li>Secondary A Aquifer (Head Deposits and Lambeth Group)</li> </ul>                                                                                                                                                                      | Low                 |
| <p>Aggressive ground conditions associated with impacted groundwater;</p> <ul style="list-style-type: none"> <li>Sulphates,</li> <li>PAH/TPH.</li> </ul> <p>The sulphates fell into Class DS-1 and AC-1</p>                                                            | <ul style="list-style-type: none"> <li>Direct contact with aggressive ground conditions</li> </ul>                                                                                                                                                                                                                                                           | <p><b>Building Materials and Services</b></p> <ul style="list-style-type: none"> <li>Buried Concrete</li> <li>Underground services (water pipes)</li> </ul>                                                                                                                                                  | Low                 |
| <p>Ground gases generated by infilled ground excavations and Historical Landfill Sites 9m north and 214m south-east:</p> <ul style="list-style-type: none"> <li>Methane,</li> <li>Carbon Dioxide,</li> <li>Hydrogen Sulphide, and</li> <li>Carbon Monoxide.</li> </ul> | <ul style="list-style-type: none"> <li>Migration through anthropogenic &amp; natural pathways</li> <li>Inhalation of Asphyxiating gases</li> <li>Explosion (methane only)</li> </ul>                                                                                                                                                                         | <p><b>Human Health</b></p> <ul style="list-style-type: none"> <li>End Users (Residents/Future site visitors)</li> <li>Construction workers during development (especially in confined spaces)</li> <li>Site operatives during maintenance works in confined spaces</li> <li>Neighbours and public</li> </ul> | Low                 |
|                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Migration through anthropogenic &amp; natural pathways</li> <li>Explosion (methane only)</li> </ul>                                                                                                                                                                                                                   | <p><b>Building Materials and Services</b></p> <ul style="list-style-type: none"> <li>Buildings</li> <li>Confined spaces</li> <li>Underground services</li> </ul>                                                                                                                                             | Low                 |

| Tabulated Conceptual Site Model – Pollutant Linkage Summary                                   |                               |                     | (Off-Site Sources)  |
|-----------------------------------------------------------------------------------------------|-------------------------------|---------------------|---------------------|
| Potential Sources                                                                             | Potential Absorption Pathways | Potential Receptors | Risk Classification |
| Based on soil analysis and ground-gas monitoring, the site falls into the CS1 classification. |                               |                     |                     |

## 8. CONTAMINATION RECOMMENDATIONS AND REMEDIATION STRATEGY

Based on the results of the intrusive works, chemical analyses and risk assessments undertaken, the following has been identified that requires further action:

Based on the results of the intrusive works, chemical analyses and risk assessments undertaken, no remediation is required. Soft landscaped areas and gardens will need a 100-150mm nominal capping to act as a growing medium. The potential for Topsoil re-use can be explored by further testing, as the site is considered greenfield and the proposed development is quite large.

Two methods of ground gas risk assessment have been applied to the site following site investigation, comprising a review of organic content of soils and ground gas monitoring. Based on the investigation, the risk assessment for the site indicates that the site should be classified as **Characteristic Situation CS1** and no protective measures are required with respect to ground-gas. Additionally, no protective measures are required with respect to vapours.

An Asbestos Management Strategy should be put in place so that any potentially asbestos containing materials are identified and removed from site in a suitable manner to prevent cross-contamination.

### 8.1. Water Supply Pipes

The Water Supply pipe risk assessment indicated that the use of PE pipes is appropriate at the site and no further measures are required.

### 8.2. Groundwater

No risk to controlled waters was considered to be present from the site.

The findings of this risk assessment should be agreed with the Environment Agency.

### 8.3. Ground Gas and Vapours

Based on the investigation, the risk assessment for the site indicates that the site should be classified as **Characteristic Situation CS1** and no protective measures are required with respect to ground-gas. Additionally, no protective measures are required with respect to vapours. With regards to the risk from vapours, PIOD readings and BTEX-MTBE analysis did not show elevated levels that may indicate further testing may be needed.

### 8.4. Discovery Strategy

There may be areas of contamination that have not been identified during the course of the intrusive investigation (e.g. underground storage tanks). Such occurrences may be discovered during the construction phases for the redevelopment of the site.

Groundworkers should be instructed to report to the Site Manager any evidence for such contamination; this may comprise visual indicators, such as fibrous materials within the soil, discolouration, or odours and emission. Upon discovery advice must be taken from a suitably qualified person and then the Local Authority will need to be informed.



### **8.5. Imported Material**

It is not envisaged that soils will be brought onto site as part of the development works, however, any soil which is to be imported onto the site must undergo chemical analysis to prove that it is suitable for the purpose for which it is intended.

The soil must be fit for purpose and must either be supplied with traceable chemical laboratory test certificates or be tested, prior to placing (ideally) and after placing, to ensure that the future receptors (human health and vegetation) cannot come into contact with compounds that could be detrimental to their health. The compounds that are to be tested for are those given in the Generic Assessment Criteria, which can be viewed in Appendix G of this report.

### **8.6. Waste Disposal**

The excavation of foundations and other soils is likely to produce waste which will require classification and then recycling or removal from site.

Under the Landfill (England and Wales) Regulations 2002 (as amended), prior to disposal, all waste must be classified as either: Inert; Non-hazardous; or Hazardous.

The Environment Agency's Hazardous Waste Technical Guidance (WM3) document outlines the methodology for classifying wastes. Once classified the waste can be removed to the appropriately licensed facilities, with some waste requiring pre-treatments prior to disposal.

Following the investigation, 3No. samples of Topsoil were submitted to the analytical laboratory to undergo a suite of testing for contamination testing, as discussed in the previous sections. Sampling depths were chosen to reflect the receptor of concern, human health, and typically comprised a surface or near surface sample and periodically to 1.00m bgl. Any horizon where olfactory or visual evidence of contamination was present was also sampled.

Based on a risk phase analysis of the chemical laboratory test results, in accordance with EC Hazardous Waste Directive and undertaken by Ground and Water Limited, all of the Topsoil samples encountered on-site were NON-HAZARDOUS. The results of the assessment are given within Appendix I.

It is important to note that whilst we consider our in-house assessment tool to be an accurate interpretation of the requirements of WM3, therefore producing an initial classification in accordance with the guidance, this method classifies soils as either non-hazardous or hazardous and landfill operators have their own assessment tools and can often come to different conclusions. As a result, some landfill operators could refuse to take apparently suitable waste. It is recommended that the receiving landfill views the results of this assessment and the chemical laboratory results to determine their own classification.

In addition to the samples described above, 1No. sample of Topsoil was scheduled to undergo Waste Acceptance Criteria (WAC) testing with single batch leachate from samples with a range of depths. The results indicate that the sample conformed to the Inert Waste Classification.

### **8.7. Duty of Care**

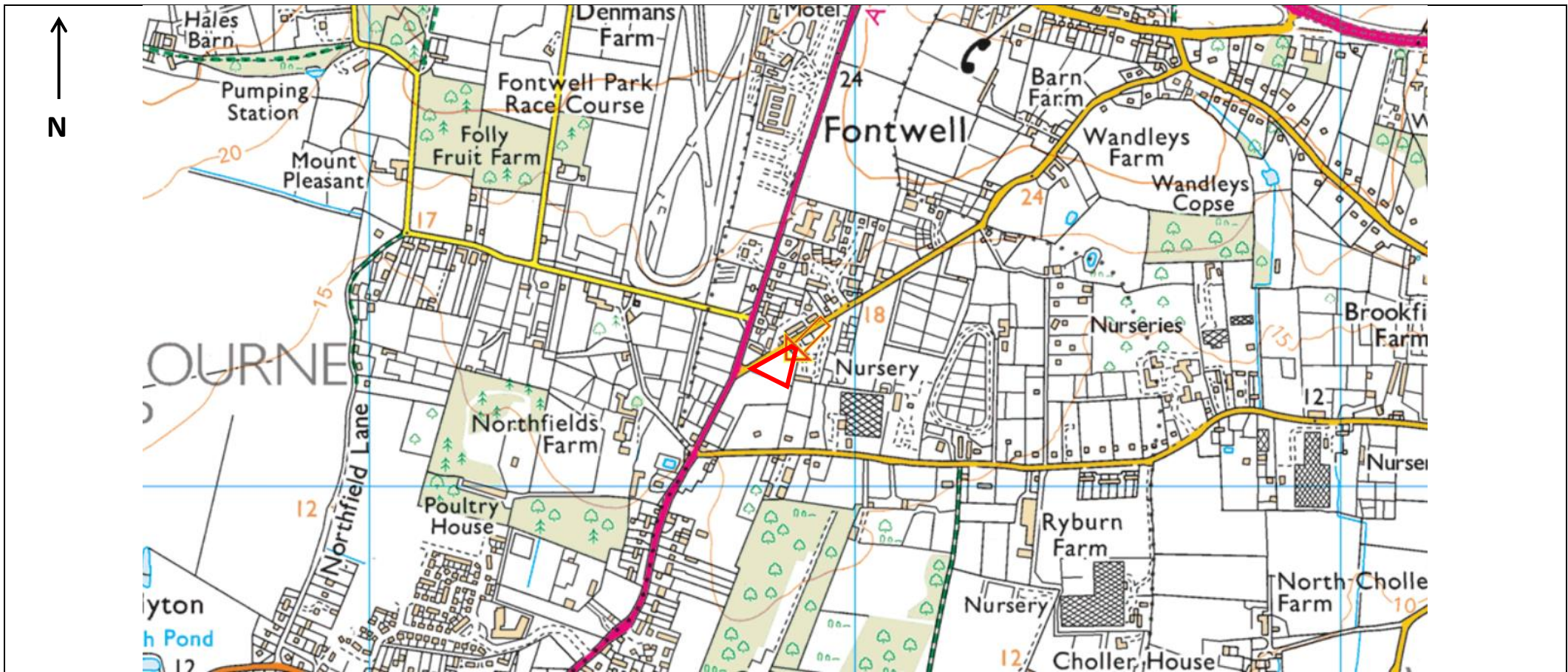
Groundworkers must maintain a good standard of personal hygiene including the wearing of overalls, boots, gloves and eye protectors and the use of dust masks during periods of dry weather.

To prevent exposure to airborne dust by both the general public and construction personnel the site should be kept damp during dry weather and at other times when dust would be generated as a result of construction activities.

The site should be securely fenced at all times to prevent unauthorised access. Washing facilities should be provided and eating restricted to mess huts.

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# FIGURES



— APPROXIMATE SITE BOUNDARY

NOTE: NOT TO SCALE

Project:

Land South of Wandleys Lane, Fontwell, Eastergate, West Sussex PO20 3SE

Client:

Landquest UK (Southern) Limited

Date:

January 2026

Site Location Plan

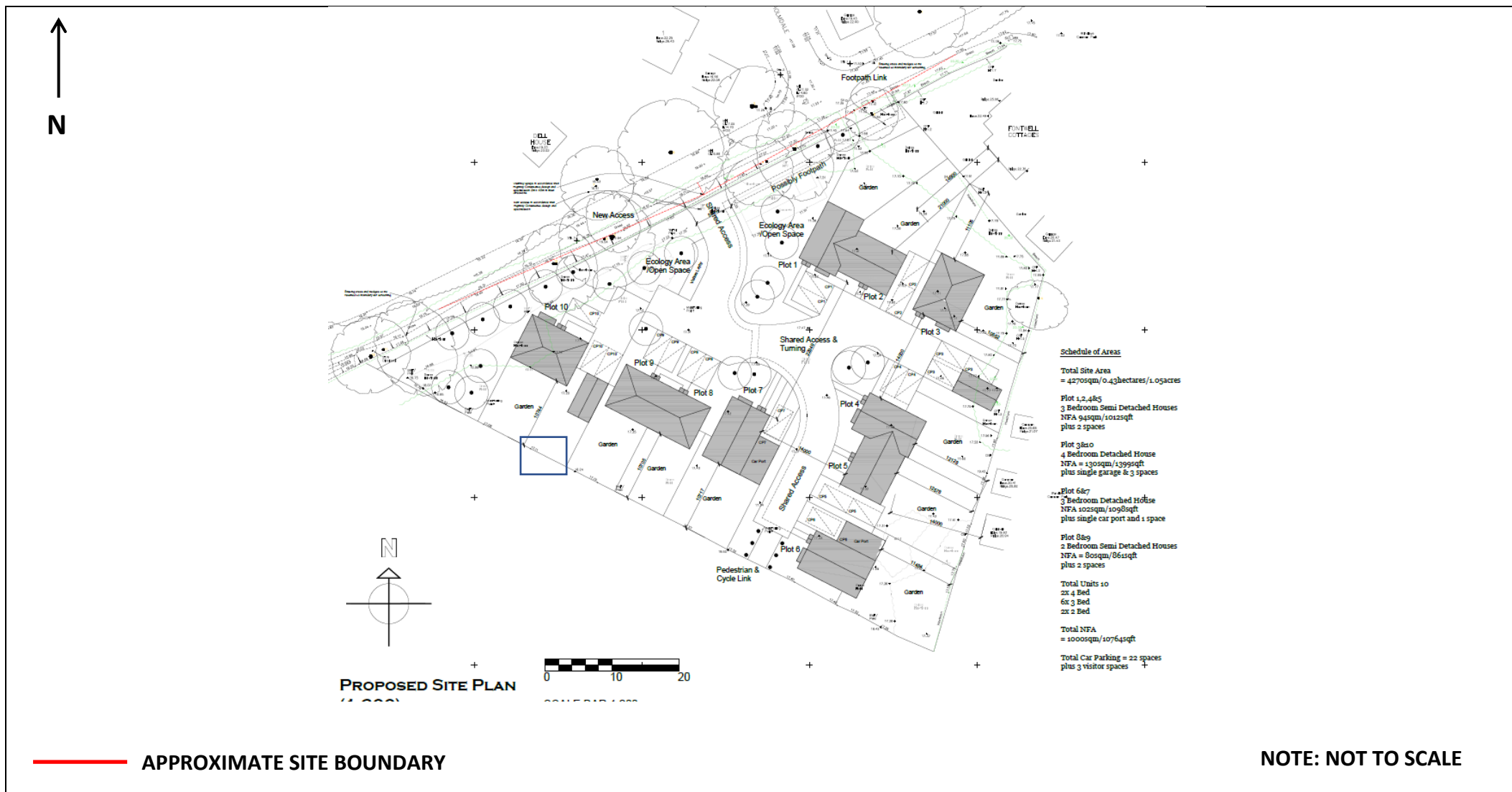
Ref:

GWPR6869

Figure 1







Project:

Land South of Wandleys Lane, Fontwell, Eastergate, West Sussex PO20 3SE

Client:

Landquest UK (Southern) Limited

Date:

January 2026

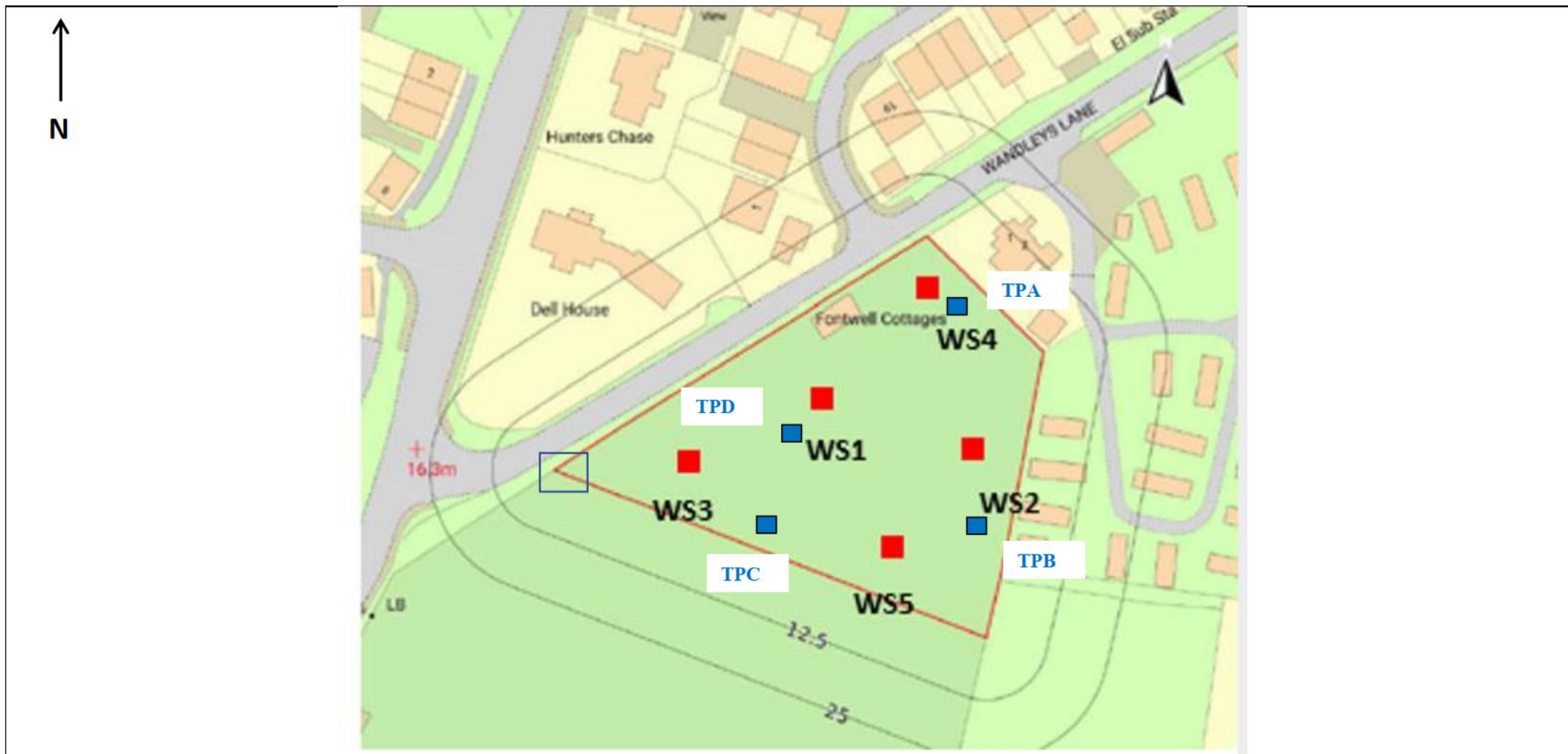
Proposed Development Plan

Ref:

GWPR6869

Figure 2





— APPROXIMATE SITE BOUNDARY

NOTE: NOT TO SCALE

Project: Land South of Wandleys Lane, Fontwell, Eastergate, West Sussex PO20 3SE

Client: Landquest UK (Southern) Limited

Date: January 2026

Trial Hole Location Plan

Ref: GWPR6869

Figure 3



# APPENDIX A: Conditions and Limitations



The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The report has been prepared on the basis of information, data and materials which were available at the time of writing. Accordingly, any conclusions, opinions or judgements made in the report should not be regarded as definitive or relied upon to the exclusion of other information, opinions and judgements.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief; as such these do not necessarily address all aspects of ground behaviour at the site. No liability is accepted for any reliance placed on it by others unless specifically agreed in writing.

Any decisions made by you, or by any organisation, agency or person who has read, received or been provided with information contained in the report ("you" or "the Recipient") are decisions of the Recipient and we will not make, or be deemed to make, any decisions on behalf of any Recipient. We will not be liable for the consequences of any such decisions.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

Any Recipient must take into account any other factors apart from the Report of which they and their experts and advisers are or should be aware. The information, data, conclusions, opinions and judgements set out in the report may relate to certain contexts and may not be suitable in other contexts. It is your responsibility to ensure that you do not use the information we provide in the wrong context.

This report is based on readily available geological records, the recorded physical investigation, the strata observed in the works, together with the results of completed site and laboratory tests. Whilst skill and care has been taken to interpret these conditions likely between or below investigation points, the possibility of other characteristics not revealed cannot be discounted, for which no liability can be accepted. The impact of our assessment on other aspects of the development required evaluation by other involved parties.



The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous in ground activities. The ground conditions have been sampled or monitored in recorded locations and tests for some of the more common chemicals generally expected. Other concentrations of types of chemicals may exist.

The conclusions and recommendations relate to land South of Wandleys Lane, Fontwell, Eastergate, West Sussex PO20 3SE.

Trial hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sampler borehole implies the specific technique used to produce a trial hole.

The depth to roots and/or of desiccation may vary from that found during the investigation. The client is responsible for establishing the depth to roots and/or of desiccation on a plot-by-plot basis prior to the construction of foundations. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

Ownership of copyright of all printed material including reports, laboratory test results, trial pit and borehole log sheets, including drillers log sheets, remain with Ground and Water Limited. Licence is for the sole use of the client and may not be assigned, transferred or given to a third party.

Only our client may rely on this report and should this report or any information contained in it be provided to any third party we accept no responsibility to the third party for the contents of this report save to the extent expressly outlined by us in writing in a reliance letter addressed from us to the third party.

Recipients are not permitted to publish this report outside of their organisation without our express written consent.

# APPENDIX B:

## Technical Glossary

## TECHNICAL GLOSSARY

The list of possible definitions within the report may be seen below. Please note that some definitions may not be relevant to this report.

### HYDROGEOLOGY:

A **Principal Aquifer** is a layer of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

**Secondary aquifers** include a wide range of drift deposits with an equally wide range of water permeability and storage capacities.

**Secondary (A) Aquifers** consist of deposits with 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.

**Secondary (B) Aquifers** consist of deposits with predominantly lower permeability layers with may stoke and yield limited amounts of groundwater due to localised features such as fissures, think permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

**Secondary Aquifers (Undifferentiated)** are assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both a minor aquifer and non-aquifer in different locations due to the variable characteristics of the rock type.

**Unproductive Strata** are rock layers with low permeability that have negligible significance for water supply or river base flow. These were formerly classified as non-aquifers.

### FLOOD ZONES:

**Environment Agency Flood Zone 2**, defined as; land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.

**Environment Agency Flood Zone 3** shows the extent of a river flood with a 1 in 100 (1%0 or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year.

**Environment Agency Flood Zone 3 area that benefits from flood defences**, defined as; land and property in this flood zone would have a high probability of flooding without the local flood defences. These protect the area against a river flood with a 1% chance of happening each year, or a flood from the sea with a 0.5% chance of happening each year.

### GROUNDWATER SOURCE PROTECTION ZONES (SPZS):

**Inner zone (SPZ1):** This zone is 50 day travel time of pollutant to source with a 50 metres default minimum radius.

**Outer zone (SPZ2):** This zone is 400 day travel time of pollutant to source. This has a 250 or 500 metres minimum radius around the source depending on the amount of water taken.



**Total catchment (SPZ3):** This is the area around a supply source within which all the groundwater ends up at the abstraction point. This is the point from where the water is taken. This could extend some distance from the source point.

**Zone of special interest (SPZ4):** This zone is where local conditions require additional protection.

**IN-SITU STRENGTH GEOTECHNICAL TESTING:**

**Windowless Sample and/or Cable Percussion and/or Rotary Boreholes** provide samples of the ground for assessment but they do not give any engineering data. The standard penetration test (SPT) is an in-situ dynamic penetration test designed to provide information on the geotechnical engineering properties of soil. The test uses a thick-walled sample tube, with an outside diameter of 50mm and an inside diameter of 35mm, and a length of around 650mm. This is driven into the ground at the bottom of a borehole by blows from a slide hammer with a weight of 63.5kg falling through a distance of 760mm. The sample tube is driven 150mm into the ground and then the number of blows needed for the tube to penetrate each 75mm up to a depth of 450mm is recorded. The sum of the number of blows is termed the "standard penetration resistance" or the "N-value".

**Dynamic Probing** involves the driving of a metal cone into the ground via a series of steel rods. These rods are driven from the surface by a hammer system that lifts and drops a 63.5kg (SHDP) hammer onto the top of the rods through a set height, thus ensuring a consistent energy input. The number of hammer blows that are required to drive the cone down by each 100mm increment are recorded. These blow counts then provide a comparative assessment from which correlations have been published, based on dynamic energy, which permits engineering parameters to be generated. (The Dynamic Probe 'Super Heavy' (SHDP) Tests were conducted in accordance with BS 1377; 1990; Part 9, Clause 3.2).



# APPENDIX C: BGS Radon Report

DIPALEE JUKES  
GROUND AND WATER LIMITED  
234 IVYDALE ROAD  
LONDON  
SE15 3BU

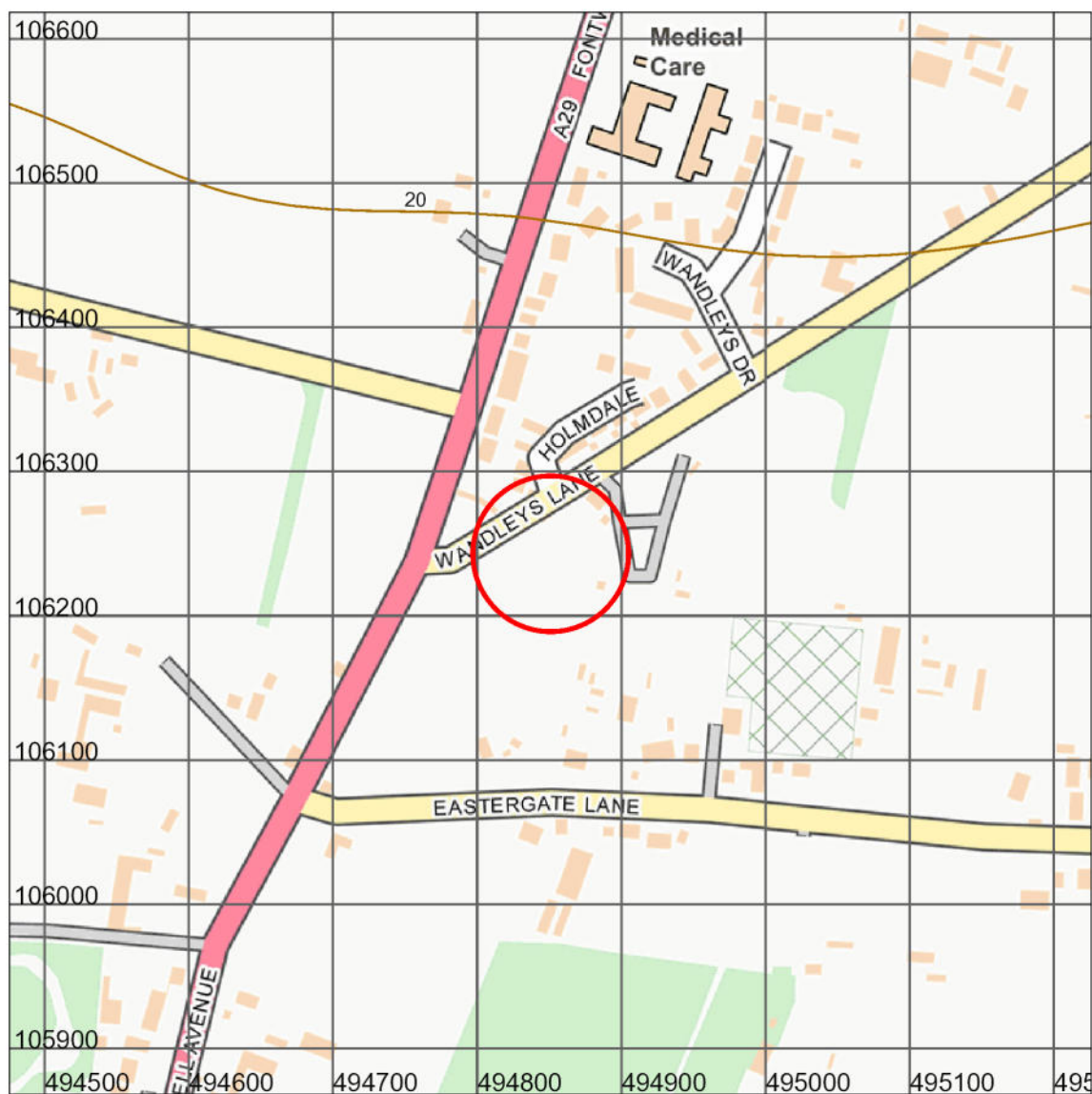
## Radon Report

Advisory report on the requirement for radon protective measures in new buildings, conversions and extensions to existing buildings. The report also indicates whether a site is located within a radon Affected Area

Report Id: **BGS\_334964/48686**

Client reference:

## Search location



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**Search location indicated in red**

*Area centred at: 494851,106243*

*Radius of site area: 54 metres*

## Radon Report: UK

When extensions are made to existing buildings in high radon areas, or new buildings are constructed in these areas, the Building Regulations for England, Wales, Scotland and Northern Ireland require that protective measures are taken against radon entering the building.

This report provides information on whether radon protective measures are required. Depending on the probability of buildings having high radon levels, the Regulations may require either:

1. No protective measures
2. Basic protective measures
3. Full protective measures

This is an advisory report on the requirement for radon protective measures in new buildings, conversions and extensions. The report also indicates whether a site is located within a radon Affected Area

### Requirement for radon protective measures

The determination below follows advice in *BR211 Radon: Guidance on protective measures for new buildings (2023 edition)*, which also provides guidance on what to do if the result indicates that protective measures are required.

**Is the property in an area where radon protective measures are required for new buildings or extensions to existing ones as described in publication BR211 (2023 edition) Radon: Guidance on protective measures for new buildings?**

**NO RADON PROTECTIVE MEASURES ARE REQUIRED FOR THE REPORT AREA.**

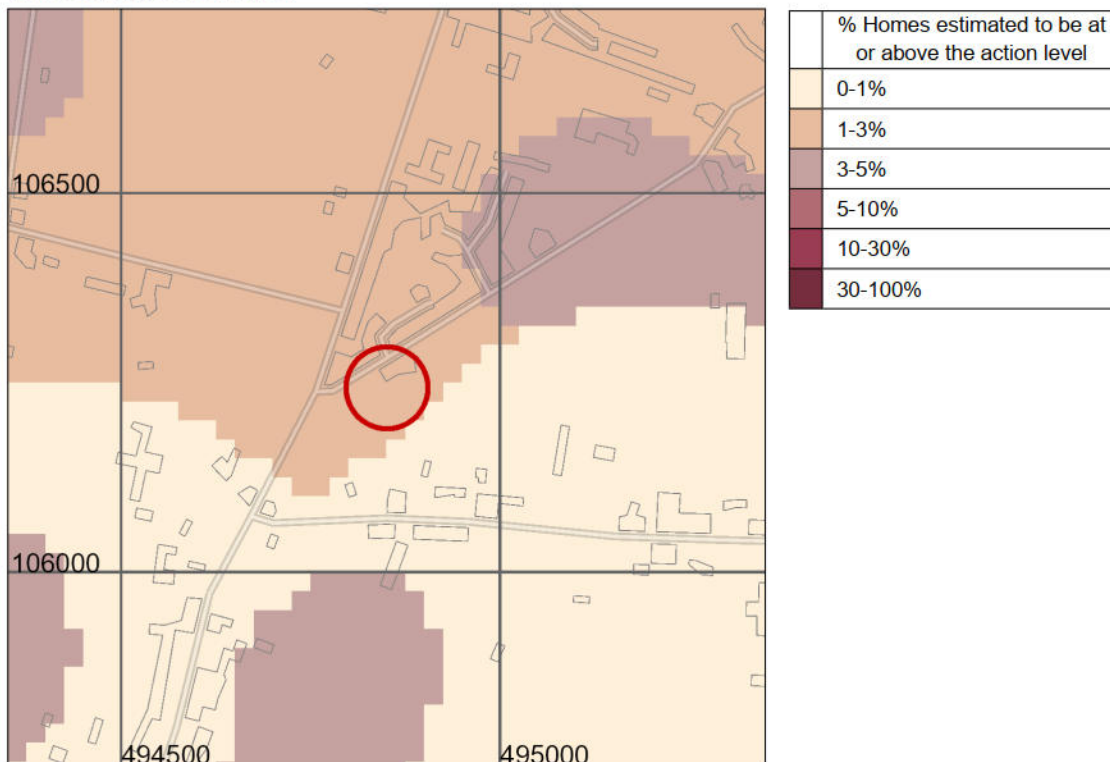
More details of the protective measures required are available in *BR211 Radon: Guidance on protective measures for new buildings (2023 Edition)*. Additional information and guidance is available from the Building Research Establishment website (<http://www.bre.co.uk/radon/>).

Whether or not the radon level in a building is above or below the radon Action Level can only be established by having the building tested. The UKHSA provides a radon testing service which can be accessed at [www.ukradon.org](http://www.ukradon.org) or by telephone (01235 822622).

If you require further information or guidance, you should contact your local authority building control officer or approved inspector.



## Radon Affected Area



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Scale: 1:10 000 (1cm = 100 m)

Search area indicated in red

**Is the property in a radon Affected Area as defined by the UK Health Security Agency (UKHSA) and if so what percentage of homes are estimated to be at or above the Action Level? YES**

### Additional Information

**THE PROPERTY IS IN A RADON AFFECTED AREAS WHERE 1 TO 3% OF HOMES ARE ESTIMATED TO BE AT OR ABOVE THE ACTION LEVEL.**

The UKHSA recommends a radon 'Action Level' of 200 Becquerels per cubic metre of air ( $\text{Bq m}^{-3}$ ) for the annual average of the radon gas concentration in a home. Where 1% or more of homes are estimated to be at or above the Action Level the area should be regarded as a radon Affected Area.

This report informs you whether the property is in a radon Affected Area and the percentage of homes that are estimated to be at or above the radon Action Level at this location. Being in an Affected Area does not necessarily mean there is a high radon level within the property; the only way to determine the radon level is to carry out a radon measurement.

The UKHSA advises that radon gas should be measured in all properties within radon Affected Areas and that homes with radon levels at or above the Action Level (200 Bq m<sup>-3</sup>) should be remediated. Householders with levels between the Target Level (100 Bq m<sup>-3</sup>) and Action Level should seriously consider reducing their radon level, especially if they are at greater risk, such as if they are current or ex smokers. Whether or not a home is in fact above or below the Action Level or Target Level can only be established by having the building tested. The UKHSA provides a validated radon testing service which can be accessed at [www.ukradon.org](http://www.ukradon.org).

The information in this report provides an answer to one of the standard legal enquiries on house purchase in England and Wales, known as Law Society CON29 Enquiries of the Local Authority (2016); 3.14 Radon Gas: Do records indicate that the property is in a “Radon Affected Area” as identified by the UKHSA. The data can also be used to advise house buyers and sellers in Scotland and Northern Ireland.

If you are buying a new build property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

If you are buying a currently occupied property in a radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were at or above the radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and if the results of re-testing confirmed the effectiveness of the measures.

Further information on radon is available from the UKHSA at [www.ukradon.org](http://www.ukradon.org).



## What is radon?

Radon is a naturally occurring radioactive gas, which is produced by the radioactive decay of radium which, in turn, is derived from the radioactive decay of uranium. Uranium is found in small quantities in all soils and rocks, although the amount varies from place to place. Radon released from rocks and soils is quickly diluted in the atmosphere. Concentrations in the open air are normally very low and do not present a hazard. Radon that enters enclosed spaces such as some buildings (particularly basements), caves, mines, and tunnels may reach high concentrations in some circumstances. The construction method and degree of ventilation will influence radon levels in individual buildings. A person's exposure to radon will also vary according to how particular buildings and spaces are used.

Inhalation of the radioactive decay products of radon gas increases the chance of developing lung cancer. If individuals are exposed to high concentrations for significant periods of time, there may be cause for concern. In order to limit the risk to individuals, the Government has adopted an Action Level for radon in homes of 200 becquerels per cubic metre ( $\text{Bq m}^{-3}$ ). The Government advises householders that, where the radon level is at or above the Action Level, measures should be taken to reduce the concentration.

## Radon in workplaces

The Ionising Radiation Regulations 2017 require employers to take action when radon is present above a defined level in the workplace. Advice may be obtained from your local Health and Safety Executive Area Office or the Environmental Health Department of your local authority. The BRE publishes a guide (BR293): **Radon in the workplace**. BRE publications may be obtained from the BRE Bookshop, Tel: [REDACTED] email: [REDACTED] [www.brebookshop.com](http://www.brebookshop.com)

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Edinburgh  
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[REDACTED]



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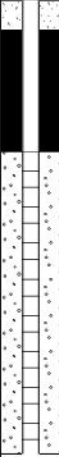
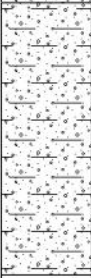
**Report issued by  
BGS Enquiry Service**

# APPENDIX D: Trial Hole Logs



# Percussion Drilling Log

|                                            |                  |                                         |                 |                     |                             |
|--------------------------------------------|------------------|-----------------------------------------|-----------------|---------------------|-----------------------------|
| Project Name: Land South of Wandleys Lane, |                  | Client: LandQuest UK (Southern) Limited |                 | Date: 26/09/2023    |                             |
| Location: Eastergate, West Sussex          |                  | Contractor: ABSI                        |                 |                     |                             |
| Project No. : GWPR5571                     |                  | Crew Name:                              |                 | Drilling Equipment: |                             |
| Borehole Number<br>WS1                     | Hole Type<br>WLS | Level                                   | Logged By<br>RF | Scale<br>1:50       | Page Number<br>Sheet 1 of 1 |

| Well                                                                              | Water Strikes | Sample and In Situ Testing |      |                           | Depth (m) | Level (m) | Legend                                                                            | Stratum Description                                                                                                                                       |    |
|-----------------------------------------------------------------------------------|---------------|----------------------------|------|---------------------------|-----------|-----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----|
|                                                                                   |               | Depth (m)                  | Type | Results                   |           |           |                                                                                   |                                                                                                                                                           |    |
|  |               | 0.20                       | D    | N=16 (2,4/3,4,4,5)        | 0.60      |           |  | Dark brown slightly gravelly SAND. The sand was fine and the gravel was fine, sub-angular flint (TOPSOIL).                                                | 1  |
|                                                                                   |               | 0.50                       | D    |                           |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 0.80                       | D    |                           |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 1.00                       | D    |                           |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 1.00                       | SPT  | N=33 (7,10/7,8,8,10)      | 1.20      |           |  | Dark brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). | 2  |
|                                                                                   |               | 1.50                       | D    |                           |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 2.00                       | D    |                           |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 2.00                       | SPT  |                           |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 2.50                       | D    |                           |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 3.00                       | D    | 106 (12,15/106 for 165mm) | 3.00      |           |  | Pale brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). | 3  |
|                                                                                   |               | 3.00                       | SPT  |                           |           |           |                                                                                   | End of Borehole at 3.000m                                                                                                                                 |    |
|                                                                                   |               |                            |      |                           |           |           |                                                                                   |                                                                                                                                                           | 4  |
|                                                                                   |               |                            |      |                           |           |           |                                                                                   |                                                                                                                                                           | 5  |
|                                                                                   |               |                            |      |                           |           |           |                                                                                   |                                                                                                                                                           | 6  |
|                                                                                   |               |                            |      |                           |           |           |                                                                                   |                                                                                                                                                           | 7  |
|                                                                                   |               |                            |      |                           |           |           |                                                                                   |                                                                                                                                                           | 8  |
|                                                                                   |               |                            |      |                           |           |           |                                                                                   |                                                                                                                                                           | 9  |
|                                                                                   |               |                            |      |                           |           |           |                                                                                   |                                                                                                                                                           | 10 |

| Hole Diameter |          | Casing Diameter |          | Chiselling |            |          |      | Inclination and Orientation |            |             |             |
|---------------|----------|-----------------|----------|------------|------------|----------|------|-----------------------------|------------|-------------|-------------|
| Depth Base    | Diameter | Depth Base      | Diameter | Depth Top  | Depth Base | Duration | Tool | Depth Top                   | Depth Base | Inclination | Orientation |
|               |          |                 |          |            |            |          |      |                             |            |             |             |

## Remarks

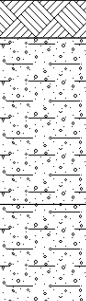
Roots were noted to 0.50m bgl. Groundwater not encountered. Borehole refused at 3.00m bgl due to the density of the soils.





# Percussion Drilling Log

|                                            |                  |                                         |           |                     |                             |
|--------------------------------------------|------------------|-----------------------------------------|-----------|---------------------|-----------------------------|
| Project Name: Land South of Wandleys Lane, |                  | Client: LandQuest UK (Southern) Limited |           | Date: 26/09/2023    |                             |
| Location: Eastergate, West Sussex          |                  | Contractor: ABSI                        |           |                     |                             |
| Project No. : GWPR5571                     |                  | Crew Name:                              |           | Drilling Equipment: |                             |
| Borehole Number<br>WS2                     | Hole Type<br>WLS | Level                                   | Logged By | Scale<br>1:50       | Page Number<br>Sheet 1 of 1 |

| Well                                                                              | Water Strikes | Sample and In Situ Testing |      |                         | Depth (m) | Level (m) | Legend                                                                            | Stratum Description                                                                                                                                       |    |
|-----------------------------------------------------------------------------------|---------------|----------------------------|------|-------------------------|-----------|-----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----|
|                                                                                   |               | Depth (m)                  | Type | Results                 |           |           |                                                                                   |                                                                                                                                                           |    |
|  |               | 0.20                       | D    | N=12 (3,2/2,3,3,4)      | 0.25      |           |  | Dark brown slightly gravelly SAND. The sand was fine and the gravel was fine, sub-angular flint (TOPSOIL).                                                | 1  |
|                                                                                   |               | 0.50                       | D    |                         |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 0.80                       | D    |                         |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 1.00                       | D    |                         |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 1.00                       | SPT  |                         |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 1.50                       | D    |                         | 1.35      |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | 2.00                       | D    | 65 (10,16/65 for 225mm) | 2.00      |           |  | Pale brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). | 2  |
|                                                                                   |               | 2.00                       | SPT  |                         |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               | End of Borehole at 2.000m  |      |                         |           |           |                                                                                   |                                                                                                                                                           |    |
|                                                                                   |               |                            |      |                         |           |           |                                                                                   |                                                                                                                                                           | 3  |
|                                                                                   |               |                            |      |                         |           |           |                                                                                   |                                                                                                                                                           | 4  |
|                                                                                   |               |                            |      |                         |           |           |                                                                                   |                                                                                                                                                           | 5  |
|                                                                                   |               |                            |      |                         |           |           |                                                                                   |                                                                                                                                                           | 6  |
|                                                                                   |               |                            |      |                         |           |           |                                                                                   |                                                                                                                                                           | 7  |
|                                                                                   |               |                            |      |                         |           |           |                                                                                   |                                                                                                                                                           | 8  |
|                                                                                   |               |                            |      |                         |           |           |                                                                                   |                                                                                                                                                           | 9  |
|                                                                                   |               |                            |      |                         |           |           |                                                                                   |                                                                                                                                                           | 10 |

| Hole Diameter |          | Casing Diameter |          | Chiselling |            |          |      | Inclination and Orientation |            |             |             |
|---------------|----------|-----------------|----------|------------|------------|----------|------|-----------------------------|------------|-------------|-------------|
| Depth Base    | Diameter | Depth Base      | Diameter | Depth Top  | Depth Base | Duration | Tool | Depth Top                   | Depth Base | Inclination | Orientation |
|               |          |                 |          |            |            |          |      |                             |            |             |             |

## Remarks

Roots were noted to 030m bgl. Groundwater not encountered. Borehole refused at 2.00m bgl due to the density of the soils.







# Percussion Drilling Log

|                                                                                                                            |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
|----------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------|-------------------------|---------------------|--------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------|-------------|-------------|
| Project Name: Land South of Wandleys Lane,                                                                                 |                  | Client: LandQuest UK (Southern) Limited |                         | Date: 26/09/2023    |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
| Location: Eastergate, West Sussex                                                                                          |                  | Contractor: ABSI                        |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
| Project No. : GWPR5571                                                                                                     |                  | Crew Name:                              |                         | Drilling Equipment: |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
| Borehole Number<br>WS3                                                                                                     |                  | Hole Type<br>WLS                        |                         | Level<br>RF         |              | Scale<br>1:50 |                                                                                                                                                           | Page Number<br>Sheet 1 of 1                                                                                |            |             |             |
| Well                                                                                                                       | Water<br>Strikes | Sample and In Situ Testing              |                         |                     | Depth<br>(m) | Level<br>(m)  | Legend                                                                                                                                                    | Stratum Description                                                                                        |            |             |             |
|                                                                                                                            |                  | Depth (m)                               | Type                    | Results             |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
|                                                                                                                            |                  | 0.20                                    | D                       | N=8 (1,0/1,4,2,1)   | 0.30         |               |                                                                                                                                                           | Dark brown slightly gravelly SAND. The sand was fine and the gravel was fine, sub-angular flint (TOPSOIL). |            | 1           |             |
|                                                                                                                            | 0.50             | D                                       |                         |                     |              |               | Dark brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). |                                                                                                            |            |             |             |
|                                                                                                                            | 0.80             | D                                       |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
|                                                                                                                            | 1.00             | D                                       |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
|                                                                                                                            | 1.00             | SPT                                     |                         | 1.60                |              |               | Pale brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). |                                                                                                            | 2          |             |             |
|                                                                                                                            | 1.50             | D                                       |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
|                                                                                                                            | 2.00             | D                                       |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
|                                                                                                                            | 2.00             | SPT                                     | N=33 (7,11/10,8,8,7)    |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
|                                                                                                                            | 2.50             | D                                       |                         | 2.50                |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
|                                                                                                                            | 2.50             | SPT                                     | 56 (12,15/56 for 150mm) |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
| End of Borehole at 2.500m                                                                                                  |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            | 3           |             |
|                                                                                                                            |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            | 4           |             |
|                                                                                                                            |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            | 5           |             |
|                                                                                                                            |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            | 6           |             |
|                                                                                                                            |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            | 7           |             |
|                                                                                                                            |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            | 8           |             |
|                                                                                                                            |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            | 9           |             |
|                                                                                                                            |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            | 10          |             |
| Hole Diameter                                                                                                              |                  | Casing Diameter                         |                         | Chiselling          |              |               |                                                                                                                                                           | Inclination and Orientation                                                                                |            |             |             |
| Depth Base                                                                                                                 | Diameter         | Depth Base                              | Diameter                | Depth Top           | Depth Base   | Duration      | Tool                                                                                                                                                      | Depth Top                                                                                                  | Depth Base | Inclination | Orientation |
|                                                                                                                            |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
| Remarks                                                                                                                    |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |
| Roots were noted to 0.25m bgl. Groundwater not encountered. Borehole refused at 2.50m bgl due to the density of the soils. |                  |                                         |                         |                     |              |               |                                                                                                                                                           |                                                                                                            |            |             |             |



# Percussion Drilling Log

|                                            |                  |                                         |                 |                     |                             |
|--------------------------------------------|------------------|-----------------------------------------|-----------------|---------------------|-----------------------------|
| Project Name: Land South of Wandleys Lane, |                  | Client: LandQuest UK (Southern) Limited |                 | Date: 26/09/2023    |                             |
| Location: Eastergate, West Sussex          |                  | Contractor: ABSI                        |                 |                     |                             |
| Project No. : GWPR5571                     |                  | Crew Name:                              |                 | Drilling Equipment: |                             |
| Borehole Number<br>WS4                     | Hole Type<br>WLS | Level                                   | Logged By<br>RF | Scale<br>1:50       | Page Number<br>Sheet 1 of 1 |

| Well | Water Strikes | Sample and In Situ Testing |      |         | Depth (m) | Level (m) | Legend | Stratum Description                                                                                                                                       |    |
|------|---------------|----------------------------|------|---------|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----|
|      |               | Depth (m)                  | Type | Results |           |           |        |                                                                                                                                                           |    |
|      |               | 0.20                       | D    |         | 0.25      |           |        | Dark brown slightly gravelly SAND. The sand was fine and the gravel was fine, sub-angular flint (TOPSOIL).                                                |    |
|      |               | 0.50                       | D    |         |           |           |        | Dark brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). |    |
|      |               | 0.80                       | D    |         | 0.75      |           |        | Pale brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). | 1  |
|      |               | 1.00                       | D    |         | 1.00      |           |        | End of Borehole at 1.000m                                                                                                                                 |    |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 2  |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 3  |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 4  |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 5  |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 6  |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 7  |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 8  |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 9  |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 10 |

| Hole Diameter |          | Casing Diameter |          | Chiselling |            |          |      | Inclination and Orientation |            |             |             |
|---------------|----------|-----------------|----------|------------|------------|----------|------|-----------------------------|------------|-------------|-------------|
| Depth Base    | Diameter | Depth Base      | Diameter | Depth Top  | Depth Base | Duration | Tool | Depth Top                   | Depth Base | Inclination | Orientation |
|               |          |                 |          |            |            |          |      |                             |            |             |             |

Remarks

Roots were noted to 0.20m bgl. Groundwater not encountered. Borehole refused at 1.00m bgl due to the density of the soils.





# Percussion Drilling Log

|                                            |                  |                                         |                 |                     |                             |
|--------------------------------------------|------------------|-----------------------------------------|-----------------|---------------------|-----------------------------|
| Project Name: Land South of Wandleys Lane, |                  | Client: LandQuest UK (Southern) Limited |                 | Date: 26/09/2023    |                             |
| Location: Eastergate, West Sussex          |                  | Contractor: ABSI                        |                 |                     |                             |
| Project No. : GWPR5571                     |                  | Crew Name:                              |                 | Drilling Equipment: |                             |
| Borehole Number<br>WS5                     | Hole Type<br>WLS | Level                                   | Logged By<br>RF | Scale<br>1:50       | Page Number<br>Sheet 1 of 1 |

| Well                                                                              | Water Strikes | Sample and In Situ Testing |      |                             | Depth (m) | Level (m)                                                                         | Legend                                                                                                     | Stratum Description       |                                                                                                                                                           |
|-----------------------------------------------------------------------------------|---------------|----------------------------|------|-----------------------------|-----------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                   |               | Depth (m)                  | Type | Results                     |           |                                                                                   |                                                                                                            |                           |                                                                                                                                                           |
|  |               | 0.20                       | D    | N=13 (3,3/2,2,4,5)          | 0.55      |  | Dark brown slightly gravelly SAND. The sand was fine and the gravel was fine, sub-angular flint (TOPSOIL). | 1                         |                                                                                                                                                           |
|                                                                                   |               | 0.50                       | D    |                             |           |                                                                                   |                           |                           | Dark brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). |
|                                                                                   |               | 0.80                       | D    |                             |           |                                                                                   |                                                                                                            |                           |                                                                          |
|                                                                                   |               | 1.00                       | D    |                             | 1.20      |                                                                                   |                                                                                                            |                           |                                                                                                                                                           |
|                                                                                   |               | 1.00                       | SPT  | N=56<br>(12,15/12,12,15,17) |           |                                                                                   |                                                                                                            | End of Borehole at 2.000m |                                                                                                                                                           |
|                                                                                   |               | 1.50                       | D    | 2.00                        |           |                                                                                   |                                                                                                            | 3                         |                                                                                                                                                           |
|                                                                                   |               | 2.00                       | D    |                             |           |                                                                                   |                                                                                                            |                           |                                                                                                                                                           |
|                                                                                   |               | 2.00                       | SPT  |                             |           |                                                                                   |                                                                                                            |                           |                                                                                                                                                           |
|                                                                                   |               |                            |      |                             |           |                                                                                   |                                                                                                            |                           | 5                                                                                                                                                         |
|                                                                                   |               |                            |      |                             |           |                                                                                   |                                                                                                            |                           | 6                                                                                                                                                         |
|                                                                                   |               |                            |      |                             |           |                                                                                   |                                                                                                            |                           | 7                                                                                                                                                         |
|                                                                                   |               |                            |      |                             |           |                                                                                   |                                                                                                            |                           | 8                                                                                                                                                         |
|                                                                                   |               |                            |      |                             |           |                                                                                   |                                                                                                            |                           | 9                                                                                                                                                         |
|                                                                                   |               |                            |      |                             |           |                                                                                   |                                                                                                            |                           | 10                                                                                                                                                        |

| Hole Diameter |          | Casing Diameter |          | Chiselling |            |          |      | Inclination and Orientation |            |             |             |
|---------------|----------|-----------------|----------|------------|------------|----------|------|-----------------------------|------------|-------------|-------------|
| Depth Base    | Diameter | Depth Base      | Diameter | Depth Top  | Depth Base | Duration | Tool | Depth Top                   | Depth Base | Inclination | Orientation |
|               |          |                 |          |            |            |          |      |                             |            |             |             |

Remarks  
Roots were noted to 0.50m bgl. Groundwater not encountered. Borehole refused at 2.00m bgl due to the density of the soils.



# Probe Log

Probe No  
DP1  
Sheet 1 of 1

Project Name: Land South of Wandleys Lane,

Project No.  
GWPR5571

Co-ords:

Hole Type  
DP

Location: Eastergate, West Sussex

Level:

Scale  
1:25

Client: LandQuest UK (Southern) Limited

Dates: 26/09/2023

Logged By

| Depth<br>(m) | Blows/100mm |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Torque<br>(Nm) |
|--------------|-------------|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------------|
|              | 2           | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 |                |
| 1            | 3           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 10             |
|              | 3           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 4           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 5           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 5           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 4           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 3           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 4           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 4           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 3           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
| 2            | 3           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 0              |
|              | 4           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 5           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 3           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 6           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 9           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 9           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 9           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 11          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 8           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
| 3            | 13          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 70             |
|              | 12          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 12          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 13          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 12          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 11          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 13          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
| 4            | 19          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 40             |
|              | 17          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 18          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 15          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 17          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 17          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 14          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
| 4            | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 30             |
|              | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 17          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 17          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 20          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 18          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
| 4            | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 30             |
|              | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 16          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |
|              | 13          |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |

Remarks:

Fall Height 750

Cone Base Diameter

Hammer Wt 64

Final Depth 5.00

Probe Type DPSH-B







# Probe Log

Probe No  
DP3  
Sheet 1 of 1

Project Name: Land South of Wandleys Lane,

Project No.  
GWPR5571

Co-ords:

Hole Type  
DP

Location: Eastergate, West Sussex

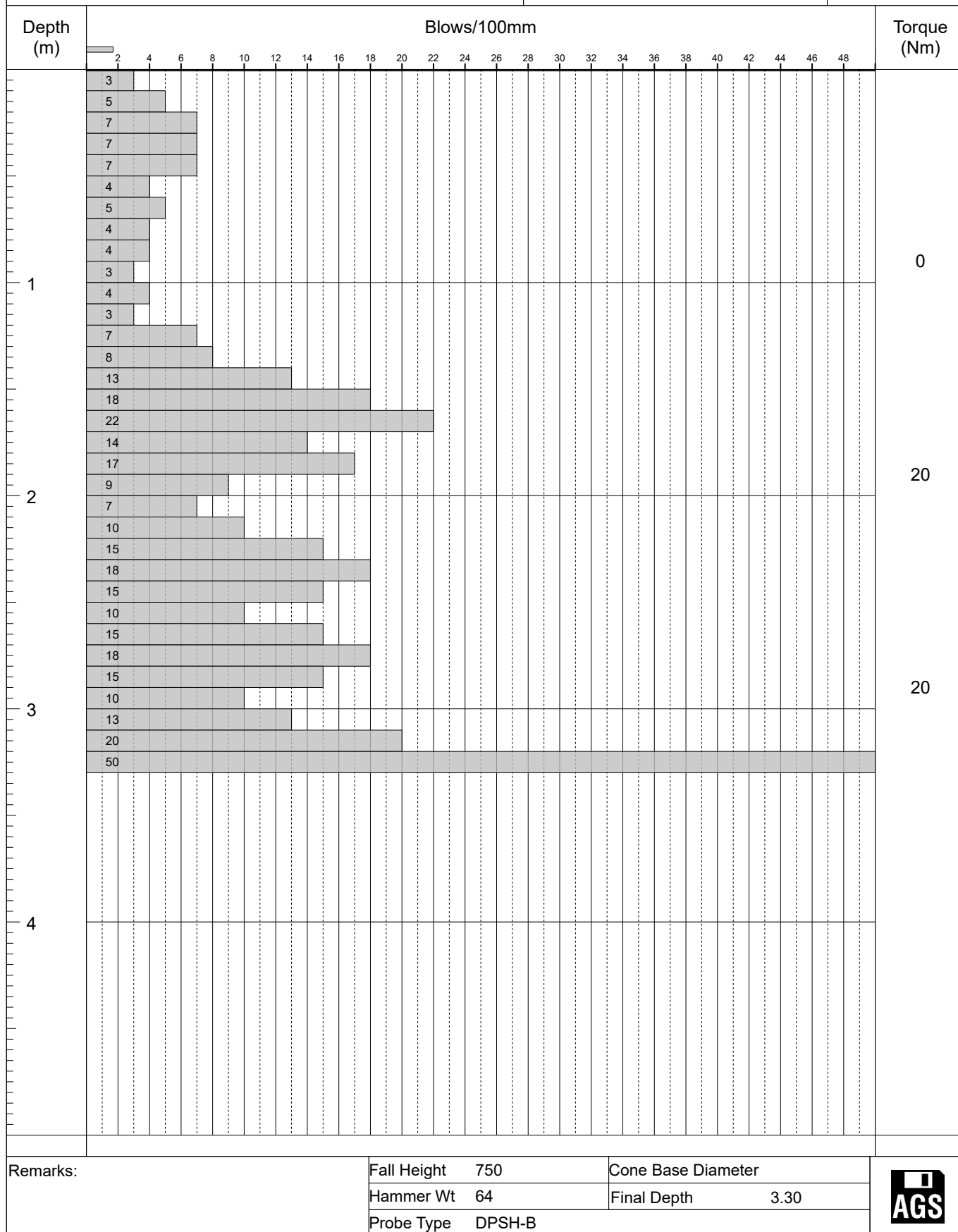
Level:

Scale  
1:25

Client: LandQuest UK (Southern) Limited

Dates: 26/09/2023

Logged By





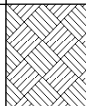
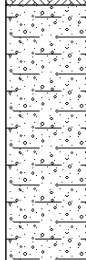






# Trial Pit Log

|                                            |                     |                                         |           |                  |                             |
|--------------------------------------------|---------------------|-----------------------------------------|-----------|------------------|-----------------------------|
| Project Name: Land South of Wandleys Lane, |                     | Client: LandQuest UK (Southern) Limited |           | Date: 22/01/2025 |                             |
| Location: Eastergate, West Sussex          |                     | Contractor: ABSI                        |           |                  |                             |
| Project No. : GWPR5571                     |                     | Crew Name:                              |           | Equipment:       |                             |
| Location Number<br>TPA                     | Location Type<br>TP | Level                                   | Logged By | Scale<br>1:25    | Page Number<br>Sheet 1 of 1 |

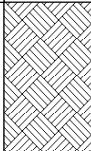
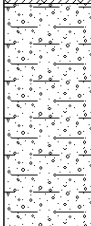
| Well                                                                               | Water Strikes | Sample and In Situ Testing |      |         | Depth (m)                                                                         | Level (m) | Legend                                                                            | Stratum Description                                                                                                                                       |   |
|------------------------------------------------------------------------------------|---------------|----------------------------|------|---------|-----------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|                                                                                    |               | Depth (m)                  | Type | Results |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|   |               | 0.20                       | D    |         | 0.35                                                                              |           |  | Dark brown slightly gravelly SAND. The sand was fine and the gravel was fine, sub-angular flint (TOPSOIL).                                                | 1 |
|                                                                                    |               | 0.50                       | D    |         |                                                                                   |           |  | Dark brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). |   |
|                                                                                    |               | 1.00                       | D    |         |  | 1.20      |                                                                                   | Pale brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). |   |
|                                                                                    |               | 1.50                       | D    |         |                                                                                   | 1.50      |                                                                                   | End of Borehole at 1.500m                                                                                                                                 |   |
|  |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           | 2 |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   | 3                                                                                                                                                         |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |
|                                                                                    |               |                            |      |         |                                                                                   |           |                                                                                   |                                                                                                                                                           |   |

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

|                                                             |  |
|-------------------------------------------------------------|--|
| Remarks                                                     |  |
| Roots were noted to 0.40m bgl. Groundwater not encountered. |  |

# Trial Pit Log

|                                            |                     |                                         |           |                  |                             |
|--------------------------------------------|---------------------|-----------------------------------------|-----------|------------------|-----------------------------|
| Project Name: Land South of Wandleys Lane, |                     | Client: LandQuest UK (Southern) Limited |           | Date: 22/01/2025 |                             |
| Location: Eastergate, West Sussex          |                     | Contractor: ABSI                        |           |                  |                             |
| Project No. : GWPR5571                     |                     | Crew Name:                              |           | Equipment:       |                             |
| Location Number<br>TPB                     | Location Type<br>TP | Level                                   | Logged By | Scale<br>1:25    | Page Number<br>Sheet 1 of 1 |

| Well                                                                              | Water Strikes | Sample and In Situ Testing |      |         | Depth (m) | Level (m) | Legend                                                                            | Stratum Description                                                                                                                                       |   |
|-----------------------------------------------------------------------------------|---------------|----------------------------|------|---------|-----------|-----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|                                                                                   |               | Depth (m)                  | Type | Results |           |           |                                                                                   |                                                                                                                                                           |   |
|  |               | 0.20                       | D    |         | 0.50      |           |  | Dark brown slightly gravelly SAND. The sand was fine and the gravel was fine, sub-angular flint (TOPSOIL).                                                | 1 |
|                                                                                   |               | 0.50                       | D    |         |           |           |  | Dark brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). |   |
|                                                                                   |               | 1.00                       | D    |         | 1.25      |           |  | Pale brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). |   |
|                                                                                   |               | 1.50                       | D    |         | 1.50      |           | End of Borehole at 1.500m                                                         |                                                                                                                                                           |   |
|                                                                                   |               |                            |      |         |           |           |                                                                                   |                                                                                                                                                           | 2 |
|                                                                                   |               |                            |      |         |           |           |                                                                                   |                                                                                                                                                           | 3 |
|                                                                                   |               |                            |      |         |           |           |                                                                                   |                                                                                                                                                           | 4 |
|                                                                                   |               |                            |      |         |           |           |                                                                                   |                                                                                                                                                           | 5 |

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

|                                                                               |  |  |  |  |  |  |                                                                                       |
|-------------------------------------------------------------------------------|--|--|--|--|--|--|---------------------------------------------------------------------------------------|
| <b>Remarks</b><br>Roots were noted to 0.40m bgl. Groundwater not encountered. |  |  |  |  |  |  |  |
|-------------------------------------------------------------------------------|--|--|--|--|--|--|---------------------------------------------------------------------------------------|



Date: 22/01/2025

Contractor: ABSI

Equipment:

Page Number  
Sheet 1 of 14



# Trial Pit Log

|                                            |                     |                                         |           |                  |                             |
|--------------------------------------------|---------------------|-----------------------------------------|-----------|------------------|-----------------------------|
| Project Name: Land South of Wandleys Lane, |                     | Client: LandQuest UK (Southern) Limited |           | Date: 22/01/2025 |                             |
| Location: Eastergate, West Sussex          |                     | Contractor: ABSI                        |           |                  |                             |
| Project No. : GWPR5571                     |                     | Crew Name:                              |           | Equipment:       |                             |
| Location Number<br>TPD                     | Location Type<br>TP | Level                                   | Logged By | Scale<br>1:25    | Page Number<br>Sheet 1 of 1 |

| Well | Water Strikes | Sample and In Situ Testing |      |         | Depth (m) | Level (m) | Legend | Stratum Description                                                                                                                                       |   |
|------|---------------|----------------------------|------|---------|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|      |               | Depth (m)                  | Type | Results |           |           |        |                                                                                                                                                           |   |
|      |               | 0.20                       | D    |         | 0.40      |           |        | Dark brown slightly gravelly SAND. The sand was fine and the gravel was fine, sub-angular flint (TOPSOIL).                                                | 1 |
|      |               | 0.50                       | D    |         |           |           |        | Dark brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). |   |
|      |               | 1.00                       | D    |         | 1.10      |           |        | Pale brown slightly clayey sandy GRAVEL. The sand was fine to medium and the gravel was fine to medium sub-angular to sub-rounded flint. (HEAD DEPOSITS). |   |
|      |               | 1.50                       | D    |         | 1.50      |           |        | End of Borehole at 1.500m                                                                                                                                 |   |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 2 |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 3 |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 4 |
|      |               |                            |      |         |           |           |        |                                                                                                                                                           | 5 |

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

|                                                             |  |
|-------------------------------------------------------------|--|
| Remarks                                                     |  |
| Roots were noted to 0.40m bgl. Groundwater not encountered. |  |



# APPENDIX E: Geotechnical Laboratory Testing



# Laboratory Report



## Contract Number: 68983

Client Ref: **GWPR5571**

Date Received: **06-10-2023**

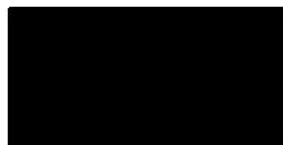
Client PO: **GWPR5571**

Date Completed: **11-10-2023**

Report Date: **11-10-2023**

Client: **Ground and Water Limited**  
**Unit 2, The Long Barn,**  
**Norton Farm,**  
**Selbourne Road,**  
**Alton,**  
**Hampshire**  
**GU34 3NB**

This report has been checked and approved by:



**Brendan Evans**  
Office Administrator

Contract Title: **Land South of Wandleys Lane, Eastergate, West Sussex**  
For the attention of: **Roger Foord**

| Test Description                     | Qty      |
|--------------------------------------|----------|
| <b>PSD Wet Sieve method</b>          | <b>5</b> |
| BS 1377:1990 - Part 2 : 9.2 - * UKAS |          |
| <b>Disposal of samples for job</b>   | <b>1</b> |

**Notes:** Observations and Interpretations are outside the UKAS Accreditation

\* - denotes test included in laboratory scope of accreditation

# - denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

**Approved Signatories:**

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (Human Resources/ Health and Safety Manager)

**PARTICLE SIZE DISTRIBUTION**  
**BS 1377 Part 2:1990**  
**Wet Sieve, Clause 9.2**

Contract Number 68983

Borehole/Pit No. WS1

Project Name Land South of Wandleys Lane, Eastergate, West Sussex

Sample No.

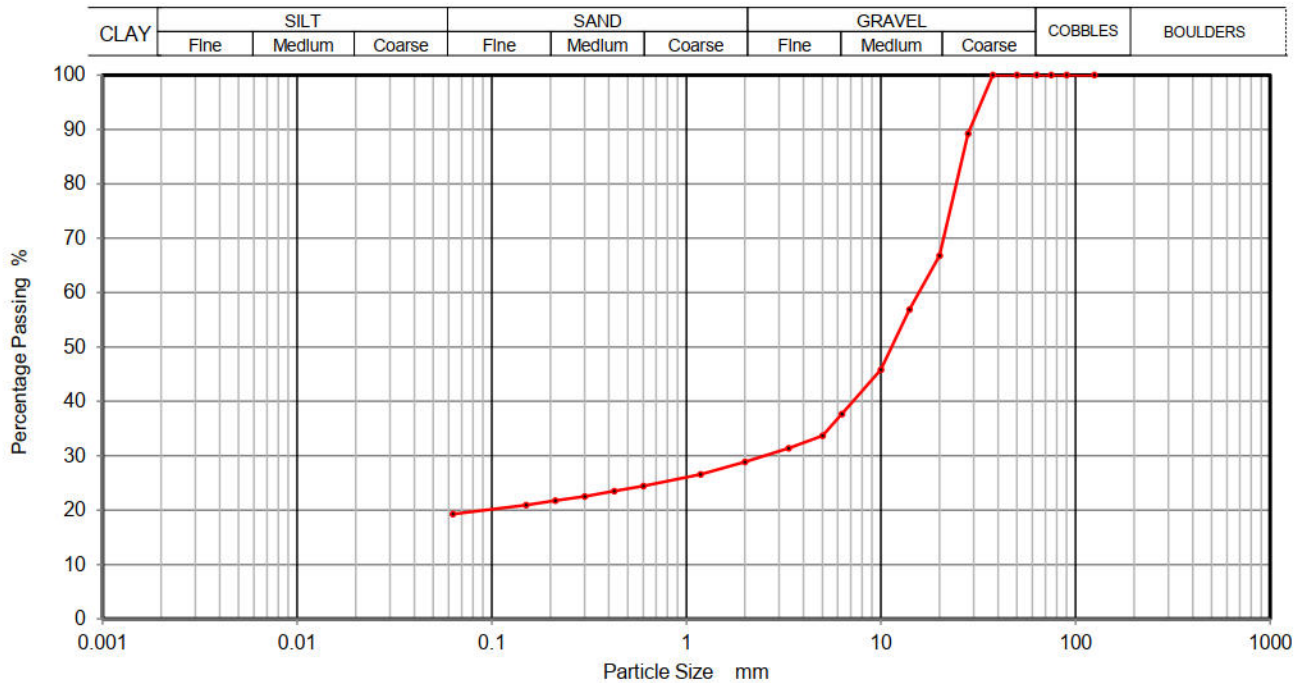
Soil Description Brown fine to coarse sandy silty/ claye fine to coarse GRAVEL

Depth Top 1.00

Depth Base

Date Tested 09/10/2023

Sample Type D



| Sieving          |           | Sedimentation    |           |
|------------------|-----------|------------------|-----------|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125              | 100       |                  |           |
| 90               | 100       |                  |           |
| 75               | 100       |                  |           |
| 63               | 100       |                  |           |
| 50               | 100       |                  |           |
| 37.5             | 100       |                  |           |
| 28               | 89        |                  |           |
| 20               | 67        |                  |           |
| 14               | 57        |                  |           |
| 10               | 46        |                  |           |
| 6.3              | 38        |                  |           |
| 5                | 34        |                  |           |
| 3.35             | 31        |                  |           |
| 2                | 29        |                  |           |
| 1.18             | 27        |                  |           |
| 0.6              | 24        |                  |           |
| 0.425            | 23        |                  |           |
| 0.3              | 23        |                  |           |
| 0.212            | 22        |                  |           |
| 0.15             | 21        |                  |           |
| 0.063            | 19        |                  |           |

| Sample Proportions | % dry mass |
|--------------------|------------|
| Cobbles            | 0          |
| Gravel             | 71         |
| Sand               | 10         |
| Silt and Clay      | 19         |
|                    |            |
|                    |            |

**Remarks**

Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards

**PARTICLE SIZE DISTRIBUTION**  
**BS 1377 Part 2:1990**  
**Wet Sieve, Clause 9.2**

Contract Number 68983

Borehole/Pit No. WS2

Project Name Land South of Wandleys Lane, Eastergate, West Sussex

Sample No.

Soil Description

Brown/ off white fine to coarse sandy silty/ claye fine to coarse  
GRAVEL

Depth Top

1.50

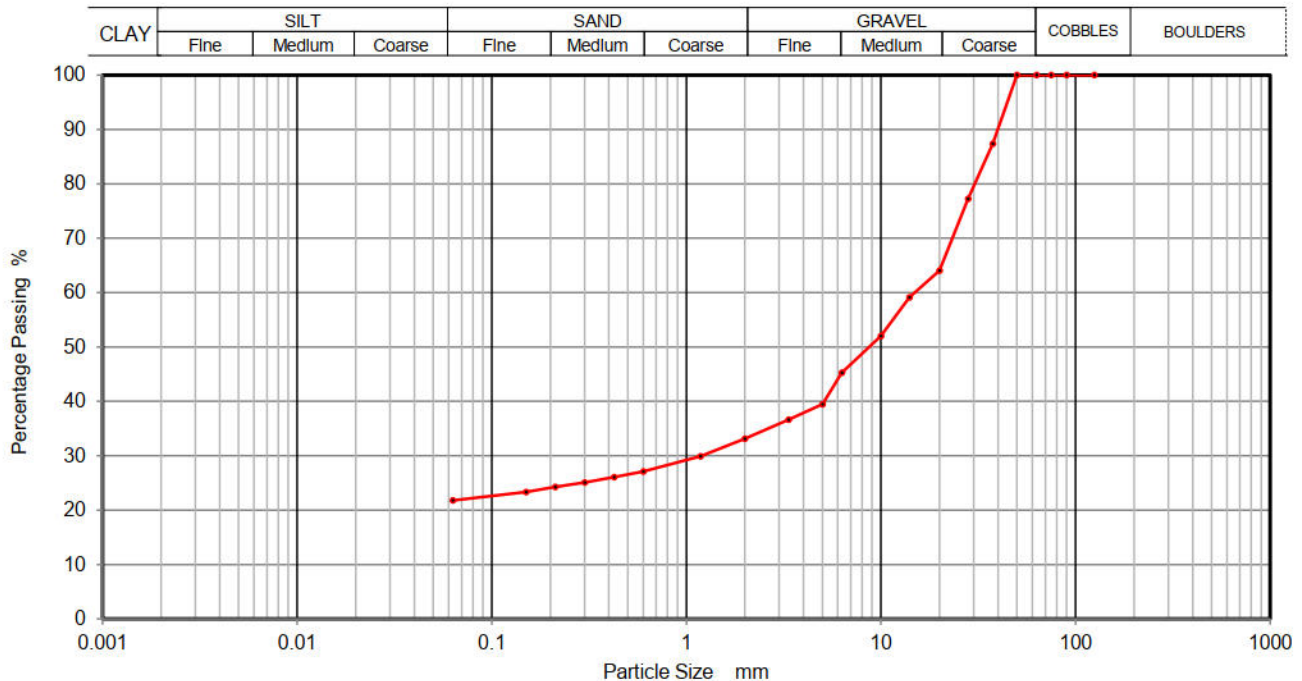
Depth Base

Date Tested

09/10/2023

Sample Type

U



| Sieving          |           | Sedimentation    |           |
|------------------|-----------|------------------|-----------|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125              | 100       |                  |           |
| 90               | 100       |                  |           |
| 75               | 100       |                  |           |
| 63               | 100       |                  |           |
| 50               | 100       |                  |           |
| 37.5             | 87        |                  |           |
| 28               | 77        |                  |           |
| 20               | 64        |                  |           |
| 14               | 59        |                  |           |
| 10               | 52        |                  |           |
| 6.3              | 45        |                  |           |
| 5                | 39        |                  |           |
| 3.35             | 37        |                  |           |
| 2                | 33        |                  |           |
| 1.18             | 30        |                  |           |
| 0.6              | 27        |                  |           |
| 0.425            | 26        |                  |           |
| 0.3              | 25        |                  |           |
| 0.212            | 24        |                  |           |
| 0.15             | 23        |                  |           |
| 0.063            | 22        |                  |           |

| Sample Proportions | % dry mass |
|--------------------|------------|
| Cobbles            | 0          |
| Gravel             | 67         |
| Sand               | 11         |
| Silt and Clay      | 22         |
|                    |            |
|                    |            |

**Remarks**

Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards



**PARTICLE SIZE DISTRIBUTION  
BS 1377 Part 2:1990  
Wet Sieve, Clause 9.2**

Contract Number 68983

Borehole/Pit No. WS3

Project Name Land South of Wandleys Lane, Eastergate, West Sussex

Sample No.

Soil Description

Brown/ off white fine to coarse sandy silty/ claye fine to coarse  
GRAVEL

Depth Top

2.00

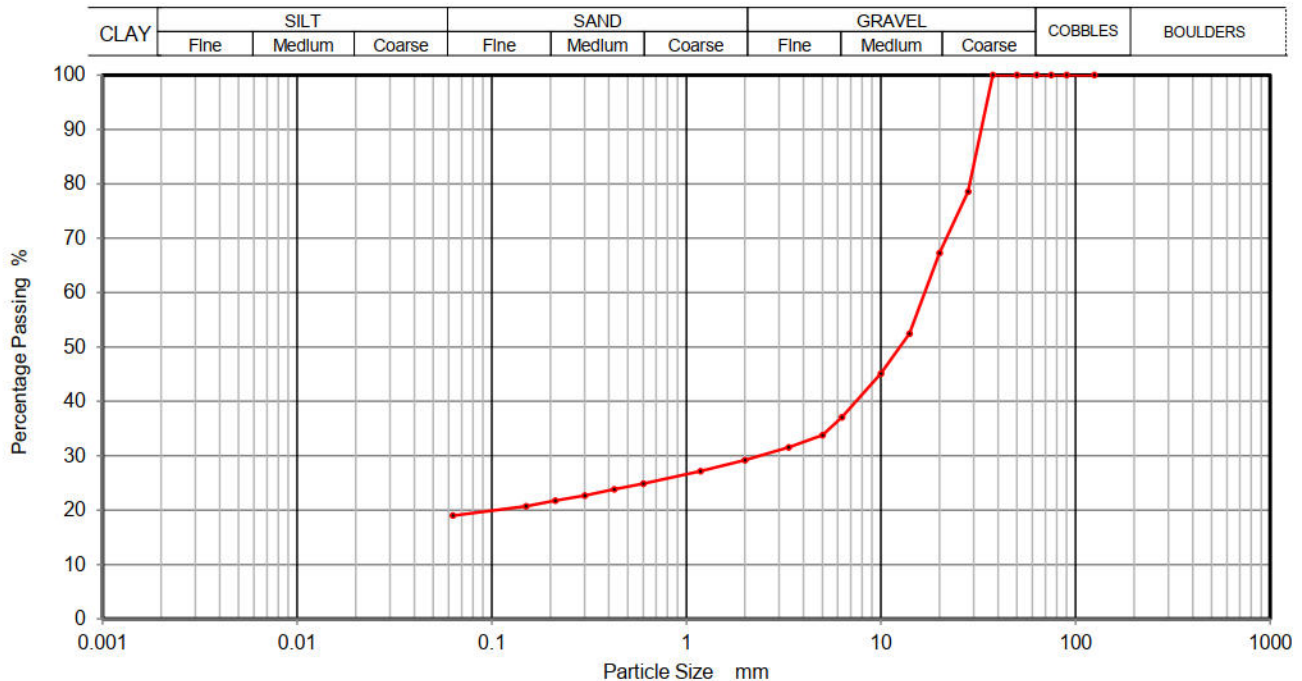
Depth Base

Date Tested

09/10/2023

Sample Type

D



| Sieving          |           | Sedimentation    |           |
|------------------|-----------|------------------|-----------|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125              | 100       |                  |           |
| 90               | 100       |                  |           |
| 75               | 100       |                  |           |
| 63               | 100       |                  |           |
| 50               | 100       |                  |           |
| 37.5             | 100       |                  |           |
| 28               | 79        |                  |           |
| 20               | 67        |                  |           |
| 14               | 52        |                  |           |
| 10               | 45        |                  |           |
| 6.3              | 37        |                  |           |
| 5                | 34        |                  |           |
| 3.35             | 32        |                  |           |
| 2                | 29        |                  |           |
| 1.18             | 27        |                  |           |
| 0.6              | 25        |                  |           |
| 0.425            | 24        |                  |           |
| 0.3              | 23        |                  |           |
| 0.212            | 22        |                  |           |
| 0.15             | 21        |                  |           |
| 0.063            | 19        |                  |           |

| Sample Proportions | % dry mass |
|--------------------|------------|
| Cobbles            | 0          |
| Gravel             | 71         |
| Sand               | 10         |
| Silt and Clay      | 19         |
|                    |            |
|                    |            |

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards

**PARTICLE SIZE DISTRIBUTION  
BS 1377 Part 2:1990  
Wet Sieve, Clause 9.2**

Contract Number 68983

Borehole/Pit No. WS4

Project Name Land South of Wandleys Lane, Eastergate, West Sussex

Sample No.

Soil Description

Brown/ off white fine to coarse sandy silty/ claye fine to coarse  
GRAVEL

Depth Top

1.00

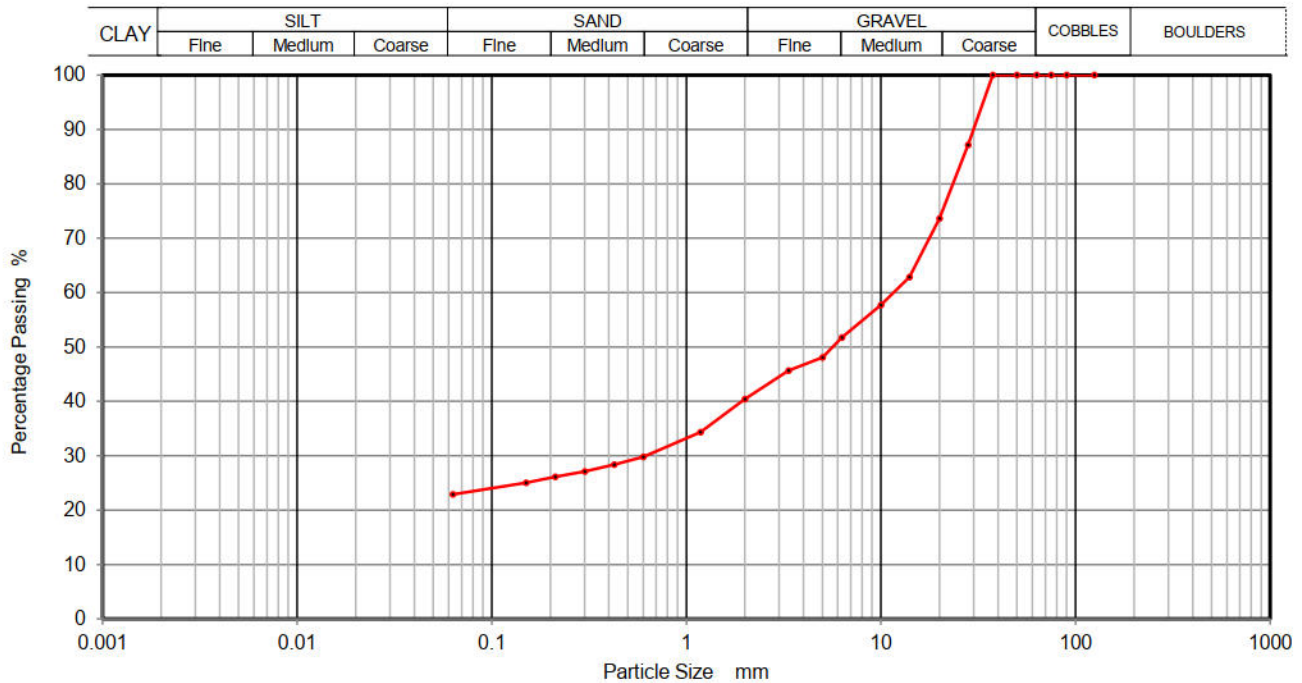
Depth Base

Date Tested

09/10/2023

Sample Type

D



| Sieving          |           | Sedimentation    |           |
|------------------|-----------|------------------|-----------|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125              | 100       |                  |           |
| 90               | 100       |                  |           |
| 75               | 100       |                  |           |
| 63               | 100       |                  |           |
| 50               | 100       |                  |           |
| 37.5             | 100       |                  |           |
| 28               | 87        |                  |           |
| 20               | 74        |                  |           |
| 14               | 63        |                  |           |
| 10               | 58        |                  |           |
| 6.3              | 52        |                  |           |
| 5                | 48        |                  |           |
| 3.35             | 46        |                  |           |
| 2                | 40        |                  |           |
| 1.18             | 34        |                  |           |
| 0.6              | 30        |                  |           |
| 0.425            | 28        |                  |           |
| 0.3              | 27        |                  |           |
| 0.212            | 26        |                  |           |
| 0.15             | 25        |                  |           |
| 0.063            | 23        |                  |           |

| Sample Proportions | % dry mass |
|--------------------|------------|
| Cobbles            | 0          |
| Gravel             | 60         |
| Sand               | 17         |
| Silt and Clay      | 23         |
|                    |            |
|                    |            |

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards

**PARTICLE SIZE DISTRIBUTION  
BS 1377 Part 2:1990  
Wet Sieve, Clause 9.2**

Contract Number 68983

Borehole/Pit No. WS5

Project Name Land South of Wandleys Lane, Eastergate, West Sussex

Sample No.

Soil Description

Brown/ off white fine to coarse sandy silty/ claye fine to coarse  
GRAVEL

Depth Top

1.50

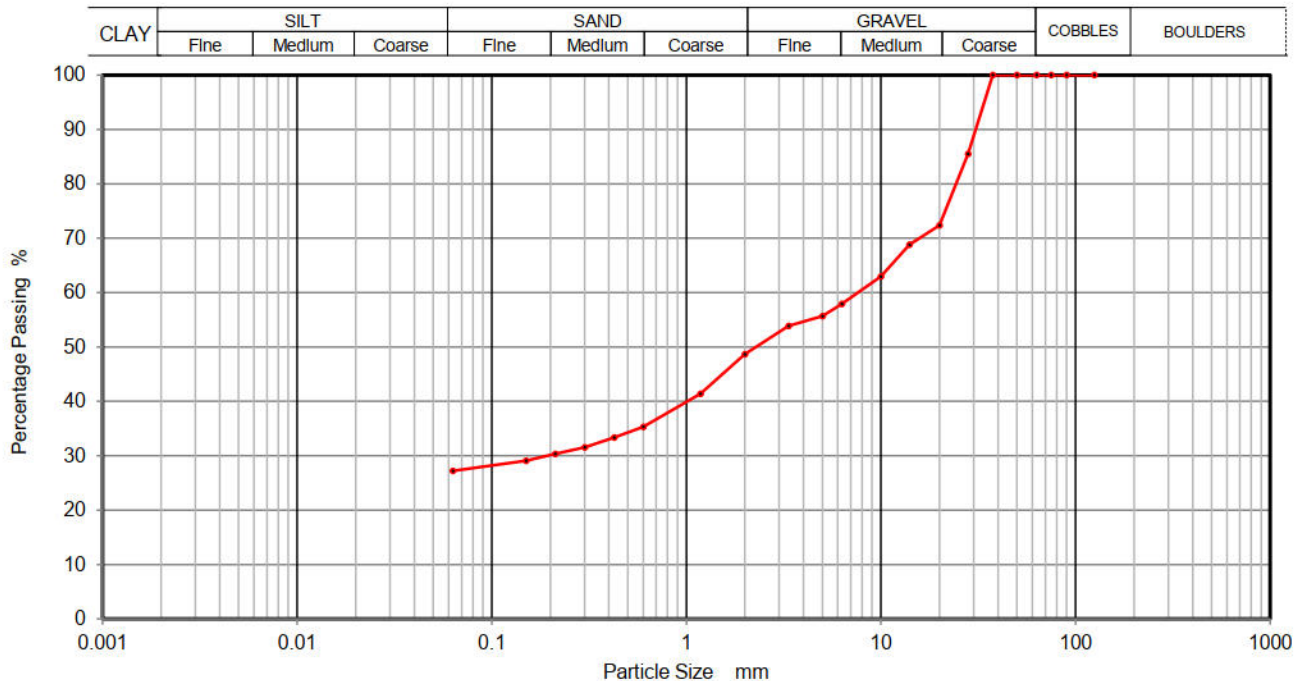
Depth Base

Date Tested

09/10/2023

Sample Type

D



| Sieving          |           | Sedimentation    |           |
|------------------|-----------|------------------|-----------|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125              | 100       |                  |           |
| 90               | 100       |                  |           |
| 75               | 100       |                  |           |
| 63               | 100       |                  |           |
| 50               | 100       |                  |           |
| 37.5             | 100       |                  |           |
| 28               | 86        |                  |           |
| 20               | 72        |                  |           |
| 14               | 69        |                  |           |
| 10               | 63        |                  |           |
| 6.3              | 58        |                  |           |
| 5                | 56        |                  |           |
| 3.35             | 54        |                  |           |
| 2                | 49        |                  |           |
| 1.18             | 41        |                  |           |
| 0.6              | 35        |                  |           |
| 0.425            | 33        |                  |           |
| 0.3              | 32        |                  |           |
| 0.212            | 30        |                  |           |
| 0.15             | 29        |                  |           |
| 0.063            | 27        |                  |           |

| Sample Proportions | % dry mass |
|--------------------|------------|
| Cobbles            | 0          |
| Gravel             | 51         |
| Sand               | 22         |
| Silt and Clay      | 27         |
|                    |            |
|                    |            |

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards

# APPENDIX F:

## Chemical Laboratory Testing





Units 7-8 Hawarden Business Park  
Manor Road (off Manor Lane)  
Hawarden  
Deeside  
CH5 3US

Website: [www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

Ground and Water Ltd  
Head Office  
2 The Long Barn  
Norton Farm, Selborne Road  
Alton  
Hampshire  
GU34 3NB

**Attention:** Roger Foord

## CERTIFICATE OF ANALYSIS

|                                     |                                             |
|-------------------------------------|---------------------------------------------|
| <b>Date of report Generation:</b>   | 15 October 2023                             |
| <b>Customer:</b>                    | Ground and Water Ltd                        |
| <b>Sample Delivery Group (SDG):</b> | 231006-62                                   |
| <b>Your Reference:</b>              | GWPR5571                                    |
| <b>Location:</b>                    | Land South of Wandleys Lane, Eastergate, We |
| <b>Report No:</b>                   | 707404                                      |
| <b>Order Number:</b>                | GWPR5571                                    |

We received 7 samples on Friday October 06, 2023 and 7 of these samples were scheduled for analysis which was completed on Sunday October 15, 2023. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



**Sonia McWhan**

Operations Manager



1291



# CERTIFICATE OF ANALYSIS

Validated

SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

## Received Sample Overview

| Lab Sample No(s) | Customer Sample Ref. | AGS Ref. | Depth (m) | Sampled Date |
|------------------|----------------------|----------|-----------|--------------|
| 28738930         | WS1                  |          | 0.20      | 26/09/2023   |
| 28738955         | WS2                  |          | 1.00      | 26/09/2023   |
| 28738935         | WS3                  |          | 0.20      | 26/09/2023   |
| 28738959         | WS3                  |          | 1.50      | 26/09/2023   |
| 28738950         | W4S                  |          | 0.20      | 26/09/2023   |
| 28738942         | WS4                  |          | 0.20      | 26/09/2023   |
| 28738964         | WS5                  |          | 2.00      | 26/09/2023   |

Only received samples which have had analysis scheduled will be shown on the following pages.



# CERTIFICATE OF ANALYSIS

Validated

SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

| <b>Results Legend</b><br><br><div> <div>X</div> Test                 <div>N</div> No Determination Possible             </div><br><br>Sample Types -<br>S - Soil/Solid<br>UNS - Unspecified Solid<br>GW - Ground Water<br>SW - Surface Water<br>LE - Land Leachate<br>PL - Prepared Leachate<br>PR - Process Water<br>SA - Saline Water<br>TE - Trade Effluent<br>TS - Treated Sewage<br>US - Untreated Sewage<br>RE - Recreational Water<br>DW - Drinking Water<br>Non-regulatory<br>UNL - Unspecified Liquid<br>SL - Sludge<br>G - Gas<br>OTH - Other | Lab Sample No(s) | Customer Sample Reference | AGS Reference | Depth (m) | Container               | Sample Type |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------|---------------|-----------|-------------------------|-------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 28738964         | WS5                       |               | 2.00      | 250g Amber Jar (ALE210) | S           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 28738942         | WS4                       |               | 0.20      | 250g Amber Jar (ALE210) | S           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 28738950         | WS4S                      |               | 0.20      | 60g VOC (ALE215)        | S           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 28738959         | WS3                       |               | 1.50      | 250g Amber Jar (ALE210) | S           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 28738935         | WS3                       |               | 0.20      | 60g VOC (ALE215)        | S           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 28738930         | WS1                       |               | 0.20      | 250g Amber Jar (ALE210) | S           |
| Ammoniacal N as NH <sub>4</sub> in 2:1 extract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | All              | NDPs: 0<br>Tests: 2       |               |           |                         |             |
| Anions by Kone (soil)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | All              | NDPs: 0<br>Tests: 6       |               |           |                         |             |
| Anions by Kone (w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | All              | NDPs: 0<br>Tests: 1       |               |           |                         |             |
| Asbestos ID in Solid Samples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | All              | NDPs: 0<br>Tests: 3       |               |           |                         |             |
| Boron Water Soluble                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | All              | NDPs: 0<br>Tests: 3       |               |           |                         |             |
| CEN Readings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | All              | NDPs: 0<br>Tests: 1       |               |           |                         |             |
| Coronene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | All              | NDPs: 0<br>Tests: 1       |               |           |                         |             |
| Cyanide Comp/Free/Total/Thiocyanate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | All              | NDPs: 0<br>Tests: 3       |               |           |                         |             |
| Dissolved Metals by ICP-MS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | All              | NDPs: 0<br>Tests: 1       |               |           |                         |             |
| Dissolved Organic/Inorganic Carbon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | All              | NDPs: 0<br>Tests: 1       |               |           |                         |             |
| EPH by GCxGC-FID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | All              | NDPs: 0<br>Tests: 1       |               |           |                         |             |
| EPH CWG GC (S)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | All              | NDPs: 0<br>Tests: 2       |               |           |                         |             |
| Fluoride                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | All              | NDPs: 0<br>Tests: 1       |               |           |                         |             |
| GRO by GC-FID (S)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | All              | NDPs: 0<br>Tests: 2       |               |           |                         |             |
| Hexavalent Chromium (s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | All              | NDPs: 0<br>Tests: 3       |               |           |                         |             |



# CERTIFICATE OF ANALYSIS

Validated

SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

| <b>Results Legend</b><br><br><div> <div>X</div> Test                 <div>N</div> No Determination Possible             </div><br><br>Sample Types -<br>S - Soil/Solid<br>UNS - Unspecified Solid<br>GW - Ground Water<br>SW - Surface Water<br>LE - Land Leachate<br>PL - Prepared Leachate<br>PR - Process Water<br>SA - Saline Water<br>TE - Trade Effluent<br>TS - Treated Sewage<br>US - Untreated Sewage<br>RE - Recreational Water<br>DW - Drinking Water<br>Non-regulatory<br>UNL - Unspecified Liquid<br>SL - Sludge<br>G - Gas<br>OTH - Other | Lab Sample No(s)          |                     | 28738964                | 28738942                | 28738950         | 28738959                | 28738935         | 28738955                | 28738930         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------|-------------------------|-------------------------|------------------|-------------------------|------------------|-------------------------|------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Customer Sample Reference |                     | WS5                     | WS4                     | WS4S             | WS3                     | WS3              | WS2                     | WS1              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | AGS Reference             |                     |                         |                         |                  |                         |                  |                         |                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Depth (m)                 |                     | 2.00                    | 0.20                    | 0.20             | 1.50                    | 0.20             | 1.00                    | 0.20             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Container                 |                     | 250g Amber Jar (ALE210) | 250g Amber Jar (ALE210) | 60g VOC (ALE215) | 250g Amber Jar (ALE210) | 60g VOC (ALE215) | 250g Amber Jar (ALE210) | 60g VOC (ALE215) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Sample Type               |                     | S                       | S                       | S                | S                       | S                | S                       | S                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                           |                     |                         |                         |                  |                         |                  |                         |                  |
| Magnesium (BRE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | All                       | NDPs: 0<br>Tests: 2 |                         |                         |                  |                         |                  | X                       |                  |
| Mercury Dissolved                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | All                       | NDPs: 0<br>Tests: 1 |                         |                         |                  |                         |                  |                         | X                |
| Metals in solid samples by OES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | All                       | NDPs: 0<br>Tests: 3 |                         |                         |                  | X                       |                  | X                       |                  |
| NO3, NO2 and TON by KONE (s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | All                       | NDPs: 0<br>Tests: 2 |                         |                         |                  |                         |                  | X                       |                  |
| PAH 16 & 17 Calc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | All                       | NDPs: 0<br>Tests: 1 |                         |                         |                  |                         |                  |                         | X                |
| PAH by GCMS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | All                       | NDPs: 0<br>Tests: 4 |                         |                         |                  | X                       |                  | X                       |                  |
| PCBs by GCMS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | All                       | NDPs: 0<br>Tests: 1 |                         |                         |                  |                         |                  |                         | X                |
| pH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | All                       | NDPs: 0<br>Tests: 5 |                         |                         |                  | X                       |                  | X                       |                  |
| pH Value of Filtered Water                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | All                       | NDPs: 0<br>Tests: 1 |                         |                         |                  |                         |                  |                         | X                |
| Phenols by HPLC (S)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | All                       | NDPs: 0<br>Tests: 3 |                         |                         |                  | X                       |                  | X                       |                  |
| Phenols by HPLC (W)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | All                       | NDPs: 0<br>Tests: 1 |                         |                         |                  |                         |                  |                         | X                |
| Sample description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | All                       | NDPs: 0<br>Tests: 6 |                         |                         |                  | X                       | X                | X                       | X                |
| Total Organic Carbon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | All                       | NDPs: 0<br>Tests: 4 |                         |                         |                  | X                       |                  | X                       |                  |
| Total Sulphate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | All                       | NDPs: 0<br>Tests: 2 |                         |                         |                  |                         |                  |                         | X                |
| Total Sulphur                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | All                       | NDPs: 0<br>Tests: 2 |                         |                         |                  |                         |                  | X                       |                  |







# CERTIFICATE OF ANALYSIS

Validated

SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

## Sample Descriptions

### Grain Sizes

|           |          |      |                 |        |             |        |            |             |       |
|-----------|----------|------|-----------------|--------|-------------|--------|------------|-------------|-------|
| very fine | <0.063mm | fine | 0.063mm - 0.1mm | medium | 0.1mm - 2mm | coarse | 2mm - 10mm | very coarse | >10mm |
|-----------|----------|------|-----------------|--------|-------------|--------|------------|-------------|-------|

| Lab Sample No(s) | Customer Sample Ref. | Depth (m) | Colour      | Description     | Inclusions | Inclusions 2          |
|------------------|----------------------|-----------|-------------|-----------------|------------|-----------------------|
| 28738930         | WS1                  | 0.20      | Dark Brown  | Sandy Silt Loam | Stones     | Vegetation            |
| 28738955         | WS2                  | 1.00      | Dark Brown  | Loamy Sand      | Stones     | N/A                   |
| 28738935         | WS3                  | 0.20      | Dark Brown  | Silt Loam       | Stones     | Tile/Insulation Board |
| 28738959         | WS3                  | 1.50      | Dark Brown  | Sandy Clay      | Stones     | None                  |
| 28738942         | WS4                  | 0.20      | Dark Brown  | Loamy Sand      | Stones     | Tile/Insulation Board |
| 28738950         | WS4                  | 0.20      | Dark Brown  | Sandy Silt Loam | Stones     | Vegetation            |
| 28738964         | WS5                  | 2.00      | Light Brown | Loamy Sand      | Stones     | Tile/Insulation Board |

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



## CERTIFICATE OF ANALYSIS

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SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

| Results Legend                                   |                                                                                                                                                                  |           | Customer Sample Ref.                                                                                                       | WS1            | WS2            | WS3            | WS3            | WS4S           | WS4            |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| #                                                | ISO17025 accredited.                                                                                                                                             |           | Depth (m)<br>Sample Type<br>Date Sampled<br>Sampled Time<br>Date Received<br>SDG Ref<br>Lab Sample No.(s)<br>AGS Reference | 0.20           | 1.00           | 0.20           | 1.50           | 0.20           | 0.20           |
| M                                                | mCERTS accredited.                                                                                                                                               |           |                                                                                                                            | Soil/Solid (S) | Soil/Solid (S) | Soil/Solid (S) | Soil/Solid (S) | Soil/Solid (S) | Soil/Solid (S) |
| aq                                               | Aqueous / settled sample.                                                                                                                                        |           |                                                                                                                            | 26/09/2023     | 26/09/2023     | 26/09/2023     | 26/09/2023     | 26/09/2023     | 26/09/2023     |
| diss.filt                                        | Dissolved / filtered sample.                                                                                                                                     |           |                                                                                                                            | 00:00          | 00:00          | 00:00          | 00:00          | 00:00          | 00:00          |
| tot.unfilt                                       | Total / unfiltered sample.                                                                                                                                       |           |                                                                                                                            | 06/10/2023     | 06/10/2023     | 06/10/2023     | 06/10/2023     | 06/10/2023     | 06/10/2023     |
| -                                                | Subcontracted - refer to subcontractor report for accreditation status.                                                                                          |           |                                                                                                                            | 231006-62      | 231006-62      | 231006-62      | 231006-62      | 231006-62      | 231006-62      |
| ..                                               | % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery |           |                                                                                                                            | 28738930       | 28738955       | 28738935       | 28738959       | 28738950       | 28738942       |
| (F)                                              | Trigger breach confirmed                                                                                                                                         |           |                                                                                                                            |                |                |                |                |                |                |
| 1-4+5@                                           | Sample deviation (see appendix)                                                                                                                                  |           |                                                                                                                            |                |                |                |                |                |                |
| Component                                        | LOD/Units                                                                                                                                                        | Method    |                                                                                                                            |                |                |                |                |                |                |
| Moisture Content Ratio (% of as received sample) | %                                                                                                                                                                | PM024     |                                                                                                                            | 8.4            | 7.2            | 12             | 8.7            | 8.1            | 9.1            |
| Phenol                                           | <0.01 mg/kg                                                                                                                                                      | TM062 (S) |                                                                                                                            |                |                | <0.01 @ M      |                | <0.01 @ M      | <0.01 @ M      |
| Cresols                                          | <0.01 mg/kg                                                                                                                                                      | TM062 (S) |                                                                                                                            |                |                | <0.01 @ M      |                | <0.01 @ M      | 0.011 @ M      |
| Xylenols                                         | <0.015 mg/kg                                                                                                                                                     | TM062 (S) |                                                                                                                            |                |                | <0.015 @ M     |                | <0.015 @ M     | <0.015 @ M     |
| Phenols, Total Detected monohydric               | <0.035 mg/kg                                                                                                                                                     | TM062 (S) |                                                                                                                            |                |                | <0.035 @ M     |                | <0.035 @ M     | <0.035 @ M     |
| Organic Carbon, Total                            | <0.2 %                                                                                                                                                           | TM132     |                                                                                                                            | 1.26 M         |                | 1.55 M         |                | 1.96 M         | 1.88 M         |
| Sulphur, Total                                   | <0.02 %                                                                                                                                                          | TM132     |                                                                                                                            |                | <0.02 #        |                |                |                |                |
| Soil Organic Matter (SOM)                        | <0.35 %                                                                                                                                                          | TM132     |                                                                                                                            |                |                | 2.67 #         |                | 3.38 #         | 3.24 #         |
| pH                                               | 1 pH Units                                                                                                                                                       | TM133     |                                                                                                                            |                | 8.25 M         | 5.65 M         |                | 6.13 M         | 6.41 M         |
| Chromium, Hexavalent                             | <0.6 mg/kg                                                                                                                                                       | TM151     |                                                                                                                            |                |                | <0.6 M         |                | <0.6 M         | <0.6 M         |
| Cyanide, Total                                   | <1 mg/kg                                                                                                                                                         | TM153     |                                                                                                                            |                |                | <1 @ M         |                | <1 @ M         | <1 @ M         |
| PCB congener 28                                  | <0.003 mg/kg                                                                                                                                                     | TM168     |                                                                                                                            | <0.003 M       |                |                |                |                |                |
| PCB congener 52                                  | <0.003 mg/kg                                                                                                                                                     | TM168     |                                                                                                                            | <0.003 M       |                |                |                |                |                |
| PCB congener 101                                 | <0.003 mg/kg                                                                                                                                                     | TM168     |                                                                                                                            | <0.003 M       |                |                |                |                |                |
| PCB congener 118                                 | <0.003 mg/kg                                                                                                                                                     | TM168     |                                                                                                                            | <0.003 M       |                |                |                |                |                |
| PCB congener 138                                 | <0.003 mg/kg                                                                                                                                                     | TM168     |                                                                                                                            | <0.003 M       |                |                |                |                |                |
| PCB congener 153                                 | <0.003 mg/kg                                                                                                                                                     | TM168     |                                                                                                                            | <0.003 M       |                |                |                |                |                |
| PCB congener 180                                 | <0.003 mg/kg                                                                                                                                                     | TM168     |                                                                                                                            | <0.003 M       |                |                |                |                |                |
| Sum of detected PCB 7 Congeners                  | <0.021 mg/kg                                                                                                                                                     | TM168     |                                                                                                                            | <0.021         |                |                |                |                |                |
| Arsenic                                          | <0.6 mg/kg                                                                                                                                                       | TM181     |                                                                                                                            |                |                | 6.76 M         |                | 7.35 M         | 9.78 M         |
| Cadmium                                          | <0.02 mg/kg                                                                                                                                                      | TM181     |                                                                                                                            |                |                | 0.167 M        |                | <0.02 M        | 0.287 M        |
| Chromium                                         | <0.9 mg/kg                                                                                                                                                       | TM181     |                                                                                                                            |                |                | 17.1 M         |                | 13.3 M         | 12.2 M         |
| Copper                                           | <1.4 mg/kg                                                                                                                                                       | TM181     |                                                                                                                            |                |                | 14 M           |                | 27.4 M         | 10.6 M         |
| Lead                                             | <0.7 mg/kg                                                                                                                                                       | TM181     |                                                                                                                            |                |                | 36.2 M         |                | 28.6 M         | 36.2 M         |
| Mercury                                          | <0.1 mg/kg                                                                                                                                                       | TM181     |                                                                                                                            |                |                | <0.1 M         |                | <0.1 M         | <0.1 M         |
| Nickel                                           | <0.2 mg/kg                                                                                                                                                       | TM181     |                                                                                                                            |                |                | 10.5 M         |                | 10.4 M         | 16.6 M         |
| Selenium                                         | <1 mg/kg                                                                                                                                                         | TM181     |                                                                                                                            |                |                | <1 #           |                | <1 #           | 1.54 #         |
| Vanadium                                         | <0.2 mg/kg                                                                                                                                                       | TM181     |                                                                                                                            |                |                | 26.8 #         |                | 26.8 #         | 24.7 #         |
| Zinc                                             | <1.9 mg/kg                                                                                                                                                       | TM181     |                                                                                                                            |                |                | 65.3 M         |                | 47.5 M         | 66.1 M         |
| Sulphate, acid soluble (total)                   | <0.0048 %                                                                                                                                                        | TM221     |                                                                                                                            |                | 0.0129 M       |                |                |                |                |
| Boron, water soluble                             | <1 mg/kg                                                                                                                                                         | TM222     |                                                                                                                            |                |                | <1 M           |                | <1 M           | <1 M           |
| Water Soluble Sulphate as SO4 2:1 Extract        | <0.004 g/l                                                                                                                                                       | TM243     |                                                                                                                            |                |                | 0.007 M        | <0.004 M       | 0.0109 M       | <0.004 M       |



**Location:** Land South of Wandleys Lane, Eastergate, West Suss

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SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

**Superseded Report:**

**Location:** Land South of Wandleys Lane, Eastergate, West Sussex

[illegible]

SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

**Superseded Report:**

**Location:** Land South of Wandleys Lane, Eastergate, West Sussex

## PAH by GCMS

[illegible]

SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

**Superseded Report:**

**Location:** Land South of Wandleys Lane, Eastergate, West Sussex

**TPH CWG (S)**[illegible]



SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

**Superseded Report:**

**Location:** Land South of Wandleys Lane, Eastergate, West Sussex

## VOC MS (S)

[illegible]





# CERTIFICATE OF ANALYSIS

Validated

SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404  
Location: Land South of Wandleys Lane, Eastergate, West Suss

Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

## Asbestos Identification - Solid Samples

### Results Legend

# ISO17025 accredited.  
M mCERTS accredited.  
\* Subcontracted test.  
(F) Trigger breach confirmed  
1-5&+S@ Sample deviation (see appendix)

|                                                                                                                           |                                                                                                      | Date of Analysis | Analysed By    | Comments | Amosite (Brown) Asbestos | Asbestos Actinolite | Asbestos Anthophyllite | Asbestos Tremolite | Chrysotile (White) Asbestos | Crocidolite (Blue) Asbestos | Non-Asbestos Fibre |
|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------|----------------|----------|--------------------------|---------------------|------------------------|--------------------|-----------------------------|-----------------------------|--------------------|
| Cust. Sample Ref.<br>Depth (m)<br>Sample Type<br>Date Sampled<br>Date Received<br>SDG<br>Original Sample<br>Method Number | WS3<br>0.20<br>SOLID<br>26/09/2023 00:00:00<br>06/10/2023 05:00:00<br>231006-62<br>28738935<br>TM048 | 12/10/2023       | Alex Horner    | -        | Not Detected (#)         | Not Detected (#)    | Not Detected (#)       | Not Detected (#)   | Not Detected (#)            | Not Detected (#)            | Not Detected       |
| Cust. Sample Ref.<br>Depth (m)<br>Sample Type<br>Date Sampled<br>Date Received<br>SDG<br>Original Sample<br>Method Number | W4S<br>0.20<br>SOLID<br>26/09/2023 00:00:00<br>06/10/2023 05:00:00<br>231006-62<br>28738950<br>TM048 | 11/10/2023       | Alex Horner    | -        | Not Detected (#)         | Not Detected (#)    | Not Detected (#)       | Not Detected (#)   | Not Detected (#)            | Not Detected (#)            | Not Detected       |
| Cust. Sample Ref.<br>Depth (m)<br>Sample Type<br>Date Sampled<br>Date Received<br>SDG<br>Original Sample<br>Method Number | WS4<br>0.20<br>SOLID<br>26/09/2023 00:00:00<br>06/10/2023 05:00:00<br>231006-62<br>28738942<br>TM048 | 12/10/2023       | Renata Bozhkov | N/A      | Not Detected (#)         | Not Detected (#)    | Not Detected (#)       | Not Detected (#)   | Not Detected (#)            | Not Detected (#)            | Detected           |



## CERTIFICATE OF ANALYSIS

Validated

SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

## CEN 10:1 SINGLE STAGE LEACHATE TEST

## CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

## Client Reference

Mass Sample taken (kg) 0.097

Mass of dry sample (kg) 0.090

Particle Size &lt;4mm &gt;95%

## Site Location

Land South of Wandleys Lane, I

Natural Moisture Content (%) 8.08

Dry Matter Content (%) 92.5

## Case

SDG 231006-62

Lab Sample Number(s) 28738930

Sampled Date 26-Sep-2023

Customer Sample Ref. WS1

Depth (m) 0.20

Landfill Waste Acceptance  
Criteria Limits

## Solid Waste Analysis

## Result

Total Organic Carbon (%) 1.26

Loss on Ignition (%) -

Sum of BTEX (mg/kg) -

Sum of 7 PCBs (mg/kg) &lt;0.021

Mineral Oil (mg/kg) (EH\_2D\_AL) &lt;5

PAH Sum of 17 (mg/kg) &lt;10

pH (pH Units) -

ANC to pH 6 (mol/kg) -

ANC to pH 4 (mol/kg) -

| Inert Waste<br>Landfill | Stable<br>Non-reactive<br>Hazardous Waste<br>in Non-<br>Hazardous<br>Landfill | Hazardous<br>Waste Landfill |
|-------------------------|-------------------------------------------------------------------------------|-----------------------------|
| 3                       | 5                                                                             | 6                           |
| -                       | -                                                                             | -                           |
| -                       | -                                                                             | -                           |
| 1                       | -                                                                             | -                           |
| 500                     | -                                                                             | -                           |
| 100                     | -                                                                             | -                           |
| -                       | -                                                                             | -                           |
| -                       | -                                                                             | -                           |
| -                       | -                                                                             | -                           |

## Eluate Analysis

C<sub>2</sub> Conc<sup>n</sup> in 10:1 eluate (mg/l)A<sub>2</sub> 10:1 conc<sup>n</sup> leached (mg/kg)Limit values for compliance leaching test  
using BS EN 12457-3 at L/S 10 l/kg

|                              | Result    | Limit of Detection | Result   | Limit of Detection |      |       |        |
|------------------------------|-----------|--------------------|----------|--------------------|------|-------|--------|
| Arsenic                      | 0.000813  | <0.0005            | 0.00813  | <0.005             | 0.5  | 2     | 25     |
| Barium                       | 0.00192   | <0.0002            | 0.0192   | <0.002             | 20   | 100   | 300    |
| Cadmium                      | <0.00008  | <0.00008           | <0.0008  | <0.0008            | 0.04 | 1     | 5      |
| Chromium                     | 0.00103   | <0.001             | 0.0103   | <0.01              | 0.5  | 10    | 70     |
| Copper                       | 0.00628   | <0.0003            | 0.0628   | <0.003             | 2    | 50    | 100    |
| Mercury Dissolved (CVAf)     | 0.0000174 | <0.00001           | 0.000174 | <0.0001            | 0.01 | 0.2   | 2      |
| Molybdenum                   | <0.003    | <0.003             | <0.03    | <0.03              | 0.5  | 10    | 30     |
| Nickel                       | 0.00153   | <0.0004            | 0.0153   | <0.004             | 0.4  | 10    | 40     |
| Lead                         | 0.000666  | <0.0002            | 0.00666  | <0.002             | 0.5  | 10    | 50     |
| Antimony                     | <0.001    | <0.001             | <0.01    | <0.01              | 0.06 | 0.7   | 5      |
| Selenium                     | <0.001    | <0.001             | <0.01    | <0.01              | 0.1  | 0.5   | 7      |
| Zinc                         | 0.00427   | <0.001             | 0.0427   | <0.01              | 4    | 50    | 200    |
| Chloride                     | <2        | <2                 | <20      | <20                | 800  | 15000 | 25000  |
| Fluoride                     | <0.5      | <0.5               | <5       | <5                 | 10   | 150   | 500    |
| Sulphate (soluble)           | <2        | <2                 | <20      | <20                | 1000 | 20000 | 50000  |
| Total Dissolved Solids       | 19.4      | <10                | 194      | <100               | 4000 | 60000 | 100000 |
| Total Monohydric Phenols (W) | <0.016    | <0.016             | <0.16    | <0.16              | 1    | -     | -      |
| Dissolved Organic Carbon     | 7.96      | <3                 | 79.6     | <30                | 500  | 800   | 1000   |

## Leach Test Information

Date Prepared 07-Oct-2023  
pH (pH Units) 6.86  
Conductivity (µS/cm) 25  
Volume Leachant (Litres) 0.893

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)

Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

15/10/2023 07:42:22



# CERTIFICATE OF ANALYSIS

Validated

SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404

Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

## Table of Results - Appendix

| Method No | Description                                                                                                                             |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------|
| PM024     | Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material                                   |
| TM089     | Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)                                                         |
| TM151     | Determination of Hexavalent Chromium using Kone analyser                                                                                |
| TM181     | Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES                                                                        |
| TM104     | Determination of Fluoride using the Kone Analyser                                                                                       |
| TM183     | Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry                        |
| TM184     | The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers                                             |
| TM414     | Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID                                                     |
| PM115     | Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step                                                                       |
| TM090     | Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water                                                   |
| TM116     | Determination of Volatile Organic Compounds by Headspace / GC-MS                                                                        |
| TM132     | ELTRA CS800 Operators Guide                                                                                                             |
| TM133     | Determination of pH in Soil and Water using the GLpH pH Meter                                                                           |
| TM221     | Determination of Acid Extractable Sulphate in Soils by ICP OES                                                                          |
| TM243     | Mixed Anions In Soils By Kone                                                                                                           |
| TM259     | Determination of Phenols in Waters and Leachates by HPLC                                                                                |
| TM410     | Determination of Coronene in soils by GCMS                                                                                              |
| TM048     | Identification of Asbestos in Bulk Material                                                                                             |
| TM062 (S) | Determination of Phenols in Soils by HPLC                                                                                               |
| TM152     | Analysis of Aqueous Samples by ICP-MS                                                                                                   |
| TM153     | Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser |
| TM168     | Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils                                                     |
| TM218     | The determination of PAH in soil samples by GC-MS                                                                                       |
| TM222     | Determination of Hot Water Soluble Boron in Soils (10:1 Water:Soil) by ICP OES.                                                         |
| TM248     | Determination of Ammonium BRE (2:1 Extract) on solids                                                                                   |
| TM256     | Determination of pH, EC, TDS and Alkalinity in Aqueous samples                                                                          |
| TM282     | Extraction of Magnesium by BRE Method                                                                                                   |
| TM415     | Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID                                                               |

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).



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Superseded Report:  
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## Test Completion Dates

| Lab Sample No(s)                    | 28738930       | 28738955       | 28738935       | 28738959       | 28738942       | 28738950       | 28738964       |
|-------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Customer Sample Ref.                | WS1            | WS2            | WS3            | WS3            | WS4            | WS5            | WS5            |
| AGS Ref.                            |                |                |                |                |                |                |                |
| Depth                               | 0.20           | 1.00           | 0.20           | 1.50           | 0.20           | 0.20           | 2.00           |
| Type                                | Soil/Solid (S) | Soil/Solid (S) | Soil/Solid (S) | Soil/Solid (S) | Soil/Solid (S) | Soil/Solid (S) | Soil/Solid (S) |
| Ammoniacal N as NH4 in 2:1 extract  |                | 10-Oct-2023    |                |                |                |                | 10-Oct-2023    |
| Anions by Kone (soil)               |                | 12-Oct-2023    | 12-Oct-2023    | 12-Oct-2023    | 12-Oct-2023    | 13-Oct-2023    | 11-Oct-2023    |
| Anions by Kone (w)                  | 11-Oct-2023    |                |                |                |                |                |                |
| Asbestos ID in Solid Samples        |                |                | 13-Oct-2023    |                | 12-Oct-2023    | 12-Oct-2023    |                |
| Boron Water Soluble                 |                |                | 10-Oct-2023    |                | 10-Oct-2023    | 13-Oct-2023    |                |
| CEN 10:1 Leachate (1 Stage)         | 07-Oct-2023    |                |                |                |                |                |                |
| CEN Readings                        | 11-Oct-2023    |                |                |                |                |                |                |
| Coronene                            | 11-Oct-2023    |                |                |                |                |                |                |
| Cyanide Comp/Free/Total/Thiocyanate |                |                | 13-Oct-2023    |                | 13-Oct-2023    | 13-Oct-2023    |                |
| Dissolved Metals by ICP-MS          | 12-Oct-2023    |                |                |                |                |                |                |
| Dissolved Organic/Inorganic Carbon  | 15-Oct-2023    |                |                |                |                |                |                |
| EPH by GCxGC-FID                    | 12-Oct-2023    |                |                |                |                |                |                |
| EPH CWG GC (S)                      |                |                | 10-Oct-2023    |                |                | 12-Oct-2023    |                |
| Fluoride                            | 11-Oct-2023    |                |                |                |                |                |                |
| GRO by GC-FID (S)                   |                |                | 11-Oct-2023    |                |                | 11-Oct-2023    |                |
| Hexavalent Chromium (s)             |                |                | 11-Oct-2023    |                | 11-Oct-2023    | 13-Oct-2023    |                |
| Magnesium (BRE)                     |                | 12-Oct-2023    |                |                |                |                | 11-Oct-2023    |
| Mercury Dissolved                   | 13-Oct-2023    |                |                |                |                |                |                |
| Metals in solid samples by OES      |                |                | 10-Oct-2023    |                | 12-Oct-2023    | 12-Oct-2023    |                |
| Moisture at 105C                    | 07-Oct-2023    |                |                |                |                |                |                |
| NO3, NO2 and TON by KONE (s)        |                | 12-Oct-2023    |                |                |                |                | 10-Oct-2023    |
| PAH 16 & 17 Calc                    | 11-Oct-2023    |                |                |                |                |                |                |
| PAH by GCMS                         | 12-Oct-2023    |                | 11-Oct-2023    |                | 11-Oct-2023    | 11-Oct-2023    |                |
| PCBs by GCMS                        | 11-Oct-2023    |                |                |                |                |                |                |
| pH                                  |                | 11-Oct-2023    | 12-Oct-2023    |                | 12-Oct-2023    | 11-Oct-2023    | 12-Oct-2023    |
| pH Value of Filtered Water          | 11-Oct-2023    |                |                |                |                |                |                |
| Phenols by HPLC (S)                 |                |                | 11-Oct-2023    |                | 11-Oct-2023    | 13-Oct-2023    |                |
| Phenols by HPLC (W)                 | 12-Oct-2023    |                |                |                |                |                |                |
| Sample description                  | 07-Oct-2023    | 07-Oct-2023    | 06-Oct-2023    | 07-Oct-2023    | 06-Oct-2023    | 07-Oct-2023    | 06-Oct-2023    |
| Total Organic Carbon                | 13-Oct-2023    |                | 12-Oct-2023    |                | 12-Oct-2023    | 13-Oct-2023    |                |
| Total Sulphate                      |                | 12-Oct-2023    |                |                |                |                | 10-Oct-2023    |
| Total Sulphur                       |                | 12-Oct-2023    |                |                |                |                | 11-Oct-2023    |
| TPH CWG GC (S)                      |                |                | 11-Oct-2023    |                |                | 12-Oct-2023    |                |
| VOC MS (S)                          | 11-Oct-2023    |                | 11-Oct-2023    |                |                | 11-Oct-2023    |                |





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Validated

SDG: 231006-62  
Client Ref.: GWPR5571

Report Number: 707404  
Location: Land South of Wandleys Lane, Eastergate, West Suss

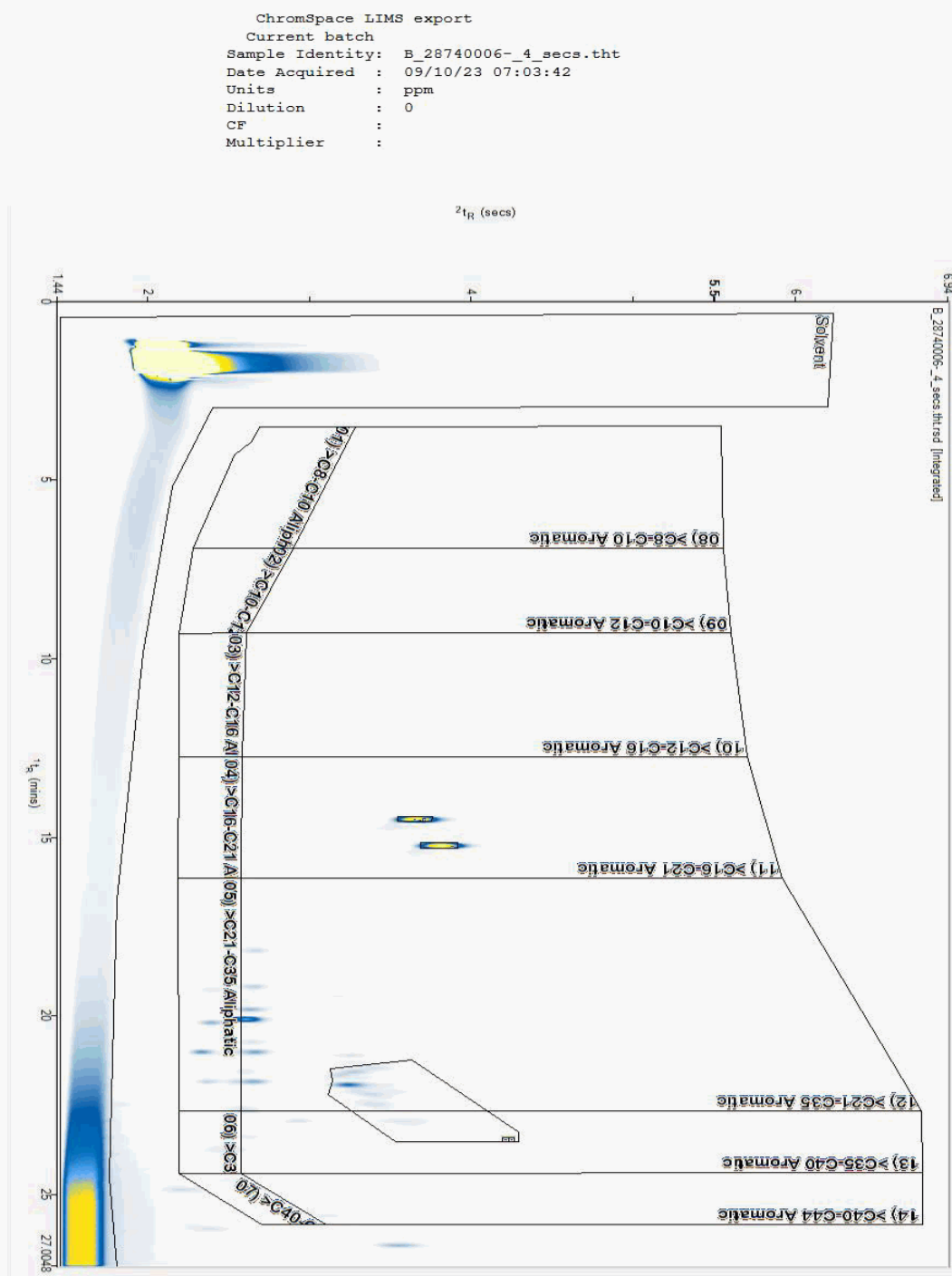
Superseded Report:  
Depth: 0.20

## Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28740006  
Sample ID : WS3

Depth : 0.20





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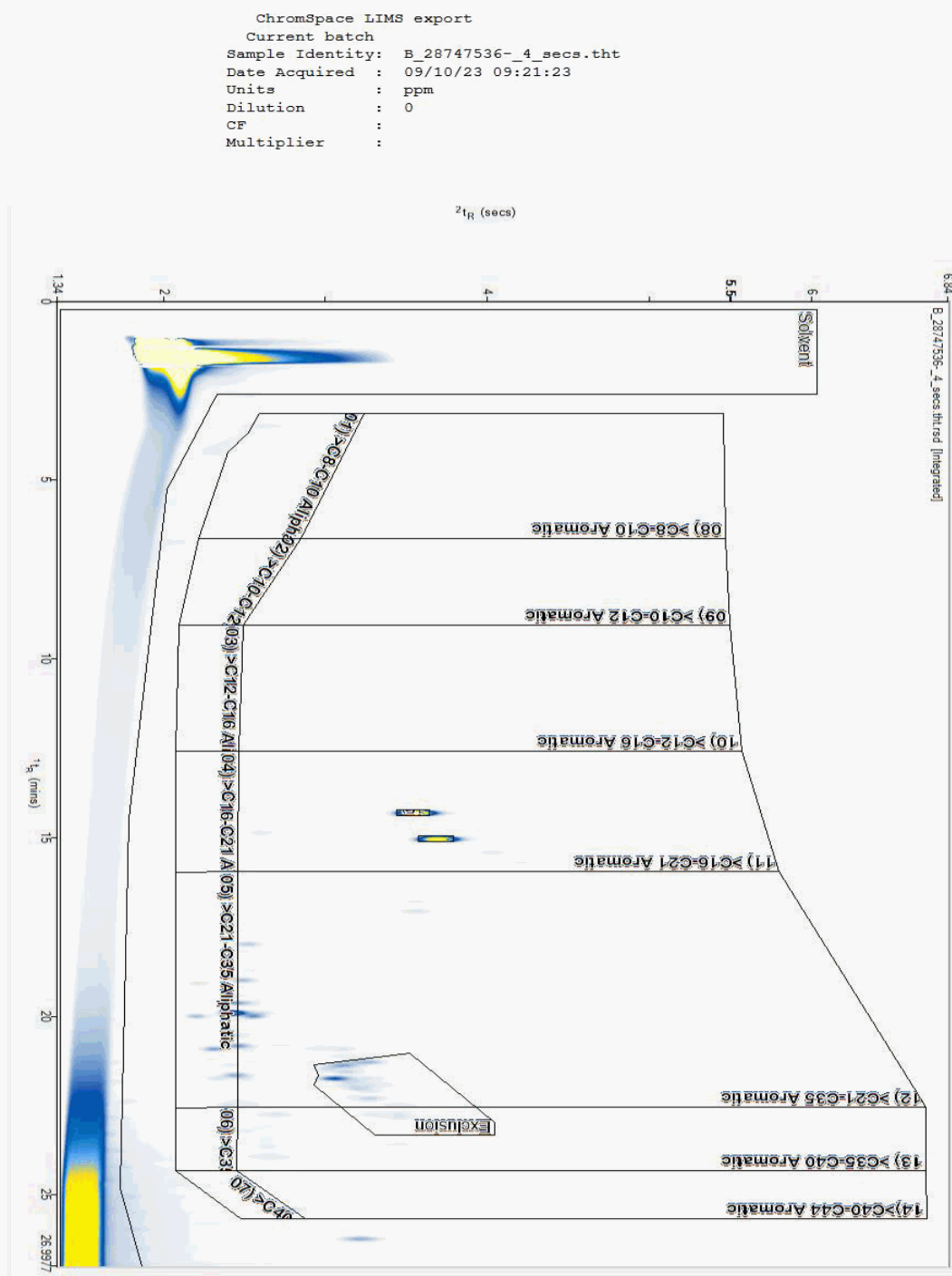
Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

## Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 28747536  
Sample ID : W4S

Depth : 0.20





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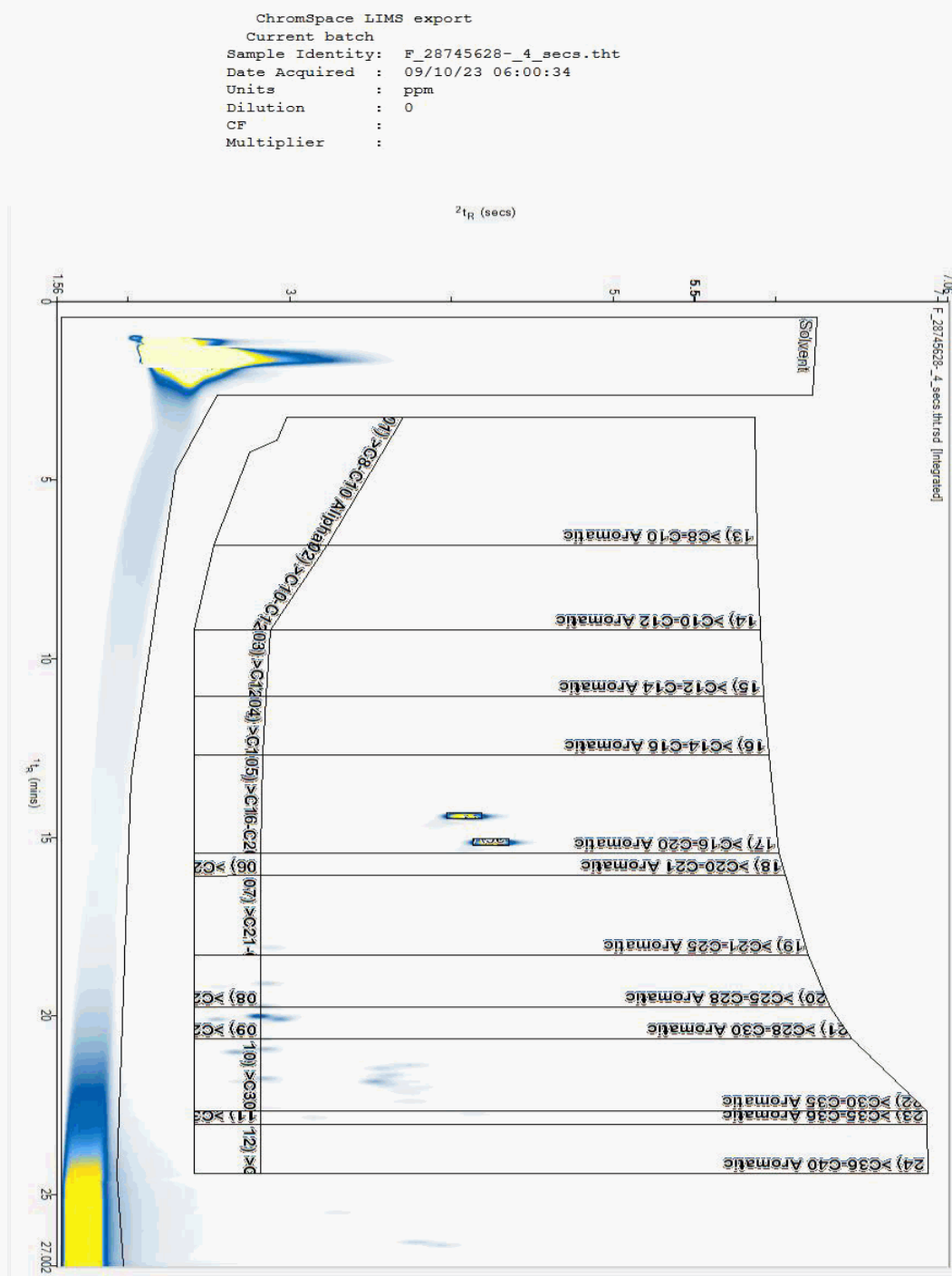
Superseded Report:  
Depth : 0.20

## Chromatogram

Analysis: EPH by GCxGC-FID

Sample No : 28745628  
Sample ID : WS1

Depth : 0.20





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Client Ref.: GWPR5571

Report Number: 707404

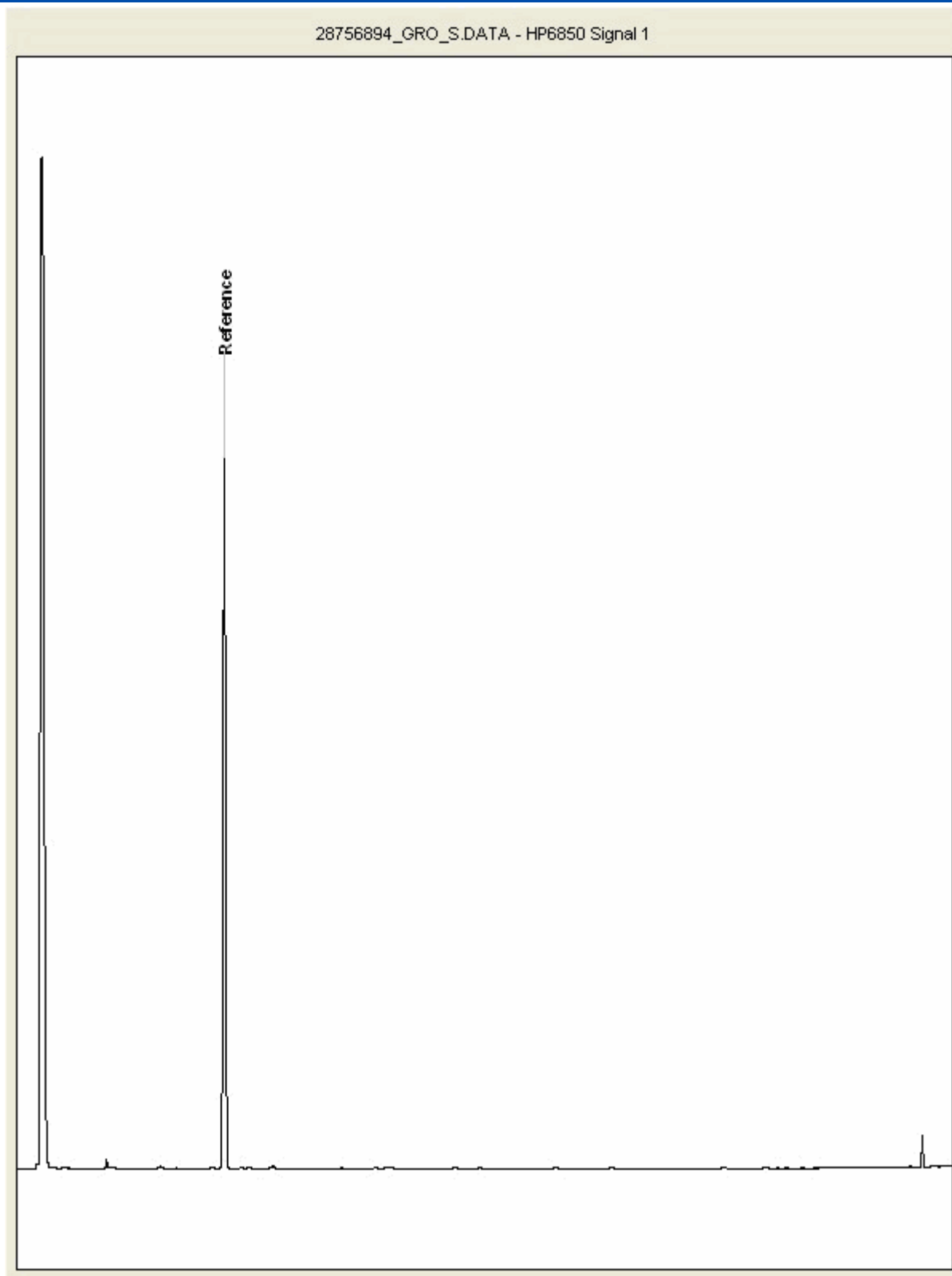
Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

## Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28756894  
Sample ID : WS3

Depth : 0.20







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Client Ref.: GWPR5571

Report Number: 707404

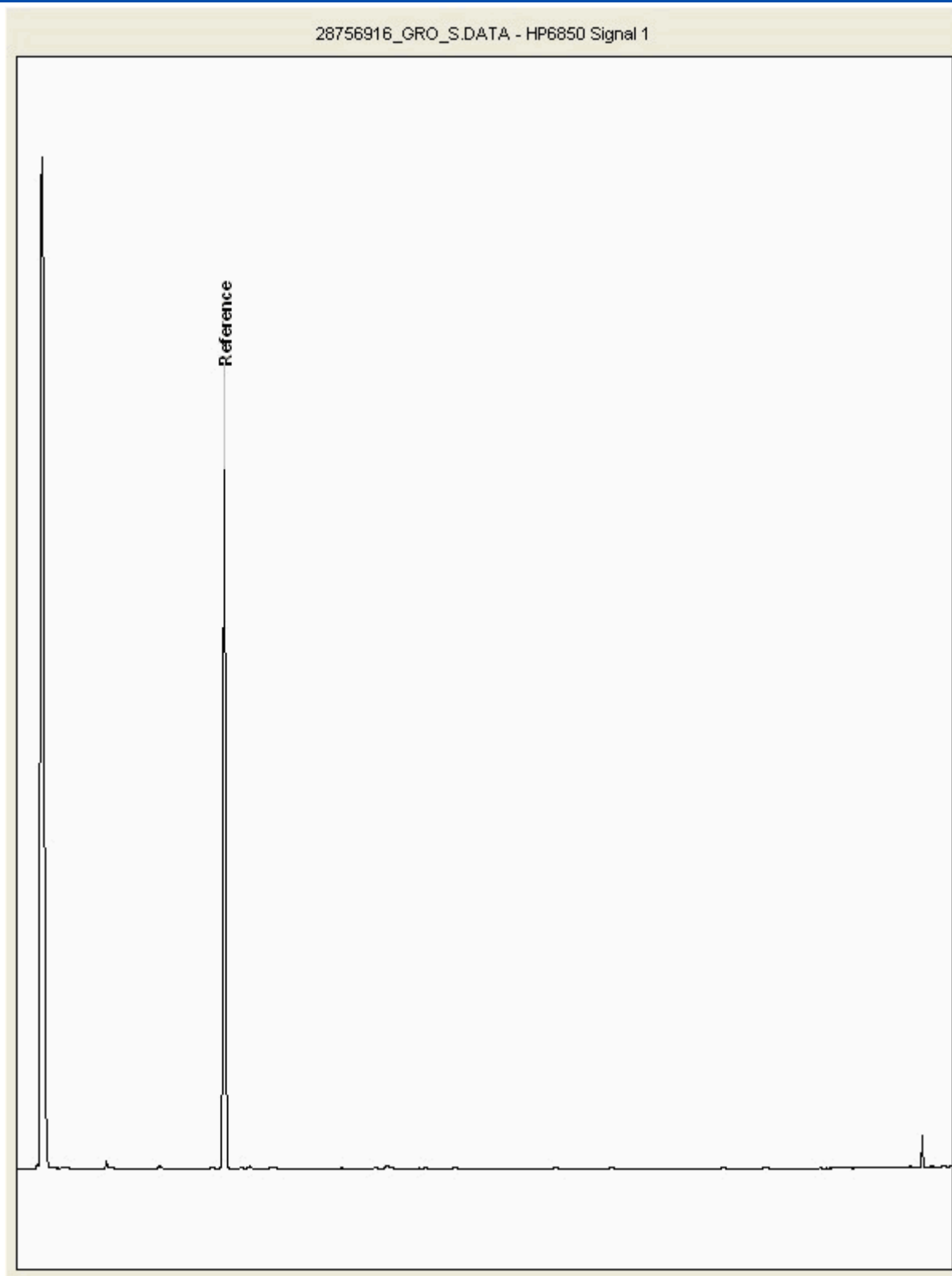
Superseded Report:  
Location: Land South of Wandleys Lane, Eastergate, West Suss

## Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 28756916  
Sample ID : W4S

Depth : 0.20





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Superseded Report:

## Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH<sub>4</sub> by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

## General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

### 19. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

|   |                                                                             |
|---|-----------------------------------------------------------------------------|
| 1 | Container with Headspace provided for volatiles analysis                    |
| 2 | Incorrect container received                                                |
| 3 | Deviation from method                                                       |
| 4 | Matrix interference                                                         |
| ♦ | Sample holding time exceeded in laboratory                                  |
| @ | Sample holding time exceeded due to late arrival of instructions or samples |
| § | Sampled on date not provided                                                |

### 20. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

#### Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials and soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

| Asbestos Type         | Common Name    |
|-----------------------|----------------|
| Chrysotile            | White Asbestos |
| Amosite               | Brown Asbestos |
| Crocidolite           | Blue Asbestos  |
| Fibrous Actinolite    | -              |
| Fibrous Anthophyllite | -              |
| Fibrous Tremolite     | -              |

#### Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

#### Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

# APPENDIX G: Soil Assessment Criteria

## Ground and Water Limited

### Soil Guideline Values and Generic Assessment Criteria

The Contaminated Land Regime reflects the UK Government's stated objectives of achieving sustainable development through the 'suitable for use approach'. At preliminary risk assessment stage, risks are evaluated qualitatively. As the site investigation progresses to a generic or detailed quantitative risk assessment, data is collected and assessment criteria are utilised to evaluate whether the contaminants represent an unacceptable risk to the identified receptors.

#### 1. Contaminated Land Exposure Assessment Model (CLEA)

Current United Kingdom risk assessment practice is based on the Contaminated Land Exposure Assessment Model (CLEA).

The CLEA Guidance comprises the following documents:

- 1) EA Science Report SC050021/SR2: Human health toxicological assessment of contaminants in soil.
- 2) EA Science Report SC050021/SR3: Updated technical background to the CLEA model.
- 3) EA CLEA Bulletin (2009).
- 4) CLEA software version 1.07 (2015)
- 5) Toxicological reports and SGV technical notes.

The CLEA guidance and tools:

- Do not cover other types of risk to humans, such as fire, suffocation or explosion, or short-term and acute exposures;
- Do not cover risks to the environment, such as groundwater, ecosystems or buildings;
- Do not provide a definitive test for telling when human health risks are significant; and
- Are not a legal requirement in assessing land contamination risks. They are not part of the legal regime for Part 2A of the Environmental Protection Act 1990.

The CLEA guidance derives soil concentrations of contaminants above which (in the opinion of the EA) there may be a concern that warrants further investigation. It does not provide a definitive test for establishing that the risk is significant.

##### 1.1. Land-use Scenarios

The CLEA model uses a range of standard land-use scenarios to develop conceptual exposure models outlined in the following sections.

##### 1.1.1. Residential (with home grown produce) (RwHP)

Generic scenario assumes a typical two-storey house built on a ground bearing slab with a private garden having a lawn, flowerbeds and a small fruit and vegetable patch.



- Critical receptor is a young female child (zero to six years old)
- Exposure duration is six years.
- Exposure pathways include direct soil and indoor dust ingestion, consumption of homegrown produce and any adhering soil, skin contact with soils and indoor dust and inhalation of indoor and outdoor dust and vapours.
- Building type is a two-storey small-terraced house.

A sub-set of this land-use is residential apartments with communal landscaped gardens where the consumption of home grown vegetables will not occur. (Residential without homegrown produce (RwoHP)).

### 1.1.2. Allotments

Provision of open space (about 250sq.m) commonly made available to tenants by the local authority to grow fruit and vegetable for their own consumption. Typically, there are a number of plots to a site which may have a total area of up to 1 hectare. The tenants are assumed to be adults and that young children make occasional accompanied visits.

Although some allotment holders may choose to keep animals including rabbits, hens, and ducks, potential exposure to contaminated meat and eggs is not considered.

- Critical receptor is a young female child (zero to six years old)
- Exposure duration is six years.
- Exposure pathways include direct soil ingestion, consumption of homegrown produce and any adhering soil, skin contact with soils and inhalation of outdoor dust and vapours.
- There is no building.

### 1.1.3. Commercial/Industrial

The generic scenario assumes a typical commercial or light industrial property comprising a three-storey building at which employees spend most time indoors and are involved in office-based or relatively light physical work.

- Critical receptor is a working female adult (aged 16 to 65 years old).
- Exposure duration is a working lifetime of 49 years.
- Exposure pathways include direct soil and indoor dust ingestion, skin contact with soils and dusts and inhalation of dust and vapours.
- Building type is a three-storey office (pre 1970).

## 2. LQM/CIEH Sutable 4 Use Levels (S4UL)

For derivation of these S4UL reference must be made to:

Nathanial, P., McCaffrey, C., Gillet, A., Ogden, R., Nathanial, J., *The LQM/CIEH S4UL's for Human Health Risk Assessment*. Land Quality Press. 2015

### 2.1. S4UL Background

The Land Quality Management/Chartered Institute of Environmental Health (LQM/CIEH) S4UL for a given land use is the concentration of the contaminant in soil at which the predicted daily exposure,

as calculated by the CLEA software, equals the Health Criteria Value. The S4ULs have been derived for substances based on various generic land use and soil organic matter contents.

The final output for each contaminant represents a synthesis of new toxicological (and fate and transport) reviews published since the preparation of the 2<sup>nd</sup> edition LQM/CIEH GAC's (Nathanial et al., 2009).

In the derivation of LQM/CIEH S4UL's the principles of 'minimal' or 'tolerable' risk enshrined in SR2, which has not been withdrawn, has been maintained.

## **2.2. S4UL Land-use**

S4UL's have been derived for the basic CLEA land-uses, as described in section 1.2, and for two new land uses:

- Public Open Spaces near Residential Housing (POSresi).
- Public Park (POSpark).

### **2.2.1. Public Open Spaces near Residential Housing (POSresi)**

Includes the predominantly grassed areas adjacent to high density housing, the central green area on many 1930's – 1970's housing estates, and smaller areas commonly incorporated in newer developments as informal grassed areas or more formal landscaped areas with a mixture of open space and covered soils with planting. It is assumed that the close proximity to the place of residence will allow tracking back of soil to occur.

### **2.2.2. Public Park (POSpark)**

An area of open space, usually owned and maintained by the local authority, provided for recreational uses including family visits and picnics, children's play area, informal sporting activities (not a dedicated sports pitch), and dog walking. It is assumed that tracking back of soils into places of residence will be negligible.

The following LQM/CIEH S4ULs (Copyright Land Quality Management Limited) have been reproduced with permission, to the publication number S4UL3072.

## **3. Category 4 Screening Levels (C4SLs)**

In the case of Lead, no SGV or GAC has been published to date. This is likely to be due to the toxicity review that is currently being undertaken by the Environment Agency. In the absence of updated toxicity information the SGV derived using CLEA 1.07 methodology and related toxicity will be used.

The overall objective of the C4SLs research project was to assist the provision of technical guidance in support of Defra's revised Statutory Guidance (SG) for Part 2A of the Environmental Protection Act 1990 (Part 2A) (Defra, 2012a). Specifically, the project aimed to deliver:

- A methodology for deriving C4SLs for four generic land-uses comprising residential, commercial, allotments and public open space; and
- A demonstration of the methodology, via the derivation of C4SLs for six substances – arsenic, benzene, benzo(a)pyrene, cadmium, chromium (VI) and lead.

To help achieve a more targeted approach to identifying and managing contaminated land in relation to the risk (or possibility) of harm to human health, the revised SG presented a new four category



system for considering land under Part 2A, ranging from Category 4, where there is no risk that land poses a significant possibility of significant harm (SPOSH), or the level of risk is low, to Category 1, where the risk that land poses a significant possibility of significant harm (SPOSH) is unacceptably high. More specific guidance on what type of land should be considered as Category 4 (Human Health) is provided in Paragraphs 4.21 and 4.22 of the revised SG, as follows:

*“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).*

*4.22 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.”*

The C4SLs are intended as “relevant technical tools” (in relation to Paragraph 4.21(c)) to help local authorities and others when deciding to stop further assessment of a site, on the grounds that it falls within Category 4 (Human Health).

The Impact Assessment (IA), which accompanied the revised SG (Defra, 2012b) provides further information on the nature and potential role of the C4SLs. Paragraph 47(h) of the IA states that:

*“The new statutory guidance will bring about a situation where the current SGVs/GACs are replaced with more pragmatic (but still strongly precautionary) Category 4 screening levels (C4SLs) which will provide a higher simple test for deciding that land is suitable for use and definitely not contaminated land.”*

A key distinction between the Soil Guideline Values (SGVs) and the C4SLs is the level of risk that they describe. As described by the Environment Agency (2009a):

*“SGVs are guidelines on the level of long-term human exposure to individual chemicals in soil that, unless stated otherwise, are tolerable or pose a minimal risk to human health.”*

The implication of Paragraph 47(h) of the IA is that minimal risk is well within Category 4 and that the C4SLs should describe a higher level of risk which, whilst not minimal, can still be considered low enough to allow a judgement to be made that land containing substances at, or below, the C4SLs would typically fall within Category 4. This reflects Paragraph 4.20 of the revised SG, which states:



*“4.20 The local authority should not assume that land poses a significant possibility of significant harm if it considers that there is no risk or that the level of risk posed is low. For the purposes of this Guidance, such land is referred to as a “Category 4: Human Health” case. The authority may decide that the land is a Category 4: Human Health case as soon as it considers it has evidence to this effect, and this may happen at any stage during risk assessment including the early stages.”*

C4SLs, therefore, should not be viewed as “SPOSH levels” and they should not be used as a legal trigger for the determination of land under Part 2A.

The generic screening values referred to before usually take the form of risk-based Soil Guideline Values (SGVs) or other Generic Assessment Criteria (GACs) that are most typically derived using the Environment Agency’s Contaminated Land Exposure Assessment (CLEA) model, as described in the Environment Agency’s SR2, SR3 and SR7 reports (EA, 2009b & c; EA, 2008). It is anticipated that C4SLs will be used in a similar manner; as generic screening criteria that can be used within a GQRA, albeit describing a higher level of risk than the SGVs.

The suggested approach to the development of C4SLs consists of the retention and use of the CLEA framework, modified according to considerations of the underlying science within the context of Defra’s policy objectives relating to the revised SG. Within this context, it is suggested that the development of C4SLs may be achieved in one of three ways, namely:

- By modifying the toxicological parameters used within CLEA (while maintaining current exposure parameters);
- By modifying the exposure parameters embedded within CLEA (while maintaining current toxicological “minimal risk” interpretations); and
- By modifying both toxicological and exposure parameters.

There is also a suggested check on “other considerations” (e.g., background levels, epidemiological data, sources of uncertainty) within the approach, applicable to all three options.

It is suggested that a new term is defined for the toxicological guidance values associated with the derivation of C4SLs – a Low Level of Toxicological Concern (LLTC). A LLTC should represent an intake of low concern that remains suitably protective of health, and definitely does not approach an intake level that could be defined as SPOSH.

#### **4. CL:AIRE Generic Assessment Criteria (GAC)**

For derivation of the CL:AIRE Generic Assessment Criteria (GAC) reference should be made to the following report:

**CL:AIRE, *The Soil Generic Assessment Criteria for Human Health Risk Assessment. Contaminated Land: Applications in the Real Environment*. 2009.**

Within this report, Contaminated Land: Applications in Real Environments (CL:AIRE) provided Generic Assessment Criteria (GAC) in accordance with the CLEA software and the principles outlined previously for a further 35 contaminants sometimes encountered on land affected by contamination.



## 5. SoBRA Acute GAC

The Society of Brownfield Risk Assessment (SoBRA) identified that most human health risk assessments focus on the chronic risks arising from long-term exposure to specific substances. As chronic risks often occur at lower doses than acute risks, they are often the key drivers, however, in some instances the acute dose may also be an important consideration within risk assessments.

The methodology for deriving the acute GAC were related to two distinct receptor groups:

- Members of the public, where the 'critical' receptor for this group will typically be a female child, which is consistent with CLEA residential and Public Open Space/allotments land-uses;
- Workers involved with excavations. The critical receptor for this group is assumed to be a female working adult, without the use of PPE.

The acute GACs relate to short term exposure of high concentrations of a substance that lead to acute effects. They are not considered to be average exposures across a specific / defined area. As a result, the GACs should be normally be compared with the maximum likely concentration that the individual may be exposed to, and not the average concentration within a specific area.

The SoBRA acute GAC will primarily be used for contaminants that do not currently have any GAC, most notably Cyanide.

## 6. Detailed Quantitative Risk Assessments (DQRA)

Where the adoption of a GAC is not appropriate, for instance when the intended land-use is at variance the CLEA standard land-uses, then a DQRA may be undertaken to develop site specific values for relevant soil contaminants.

- |                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>▪ Establishing the plausibility that generic exposure pathways exist in practice by measurement and observation.</li><li>▪ Developing more accurate parameters using site data.</li></ul> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 7. Phytotoxicity

CLEA guidance only addresses human health toxicity; assessment of plant toxicity (phytotoxicity) is based on threshold trigger values obtained from the following source:

- BS3882:2015 – *Specification for Topsoil*

The trigger values are relevant only to those contaminants, where present in excess, have the potential to inhibit plant growth, or kill plants (Cu, Ni and Zn). The criteria have been based on a wide range of planting that are common within a multi-purpose topsoil.

## 8. Statistical Tests

DEFRA R&D Publication CLR 7 (DOE 1994) addressed the statistical treatment of test results and their comparison to Soil Guideline Values.

Consideration must be given to the appropriate area of land to be considered termed the critical averaging area.

For a communal open space or commercial land-use, the critical averaging area will depend on the proposed layout. For a residential use with private gardens the averaging area is the individual plot.

It may be appropriate to compare the upper 95<sup>th</sup> percentile concentration with the Soil Guideline Value, subject to applying a statistical test to establish that the range of concentrations are reasonably consistent and belonging to the same underlying distribution of data.

CL:AIRE published guidance in 2020, *Guidance in comparing soil contamination data with a critical concentration*, superseding the CL:AIRE/CIEH 2008 report of the same name. The guidance provides ways to assist land contamination stakeholders to apply statistical methods to their data to enable decisions under the legislative framework; either planning system or Part 2A of the Environmental Protection Act 1990.

The use of the statistical tests should only be applied if the following statements are valid for the datasets:

- Averaging areas, as well as the smallest area of concern have been identified on the basis of the CSM, including the desk study and/or the site walkover;
- The sample locations were chosen using a simple random, stratified random or stratified systematic (square, herringbone or triangular grid) sampling pattern, rather than being targeted to locations suspected of being contaminated;
- The sample locations are relatively evenly spread across the area and are not clustered, to avoid giving undue weight to some parts of the site over others in the calculated statistics;
- The analyses do not suggest a hotspot or outlier of contamination that should be treated as a separate zone. This has been established by a histogram and/or a names statistical test;
- The sample locations are all taken from one population (i.e. the same material);
- Where an averaging zone encompasses several averaging areas, analyses do not show a spatial trend or other spatial pattern across that zone; and
- The number of samples has been shown to be sufficient for a statistical analysis.

Any included statistical spreadsheet is based on an in-house method of statistical analysis, in line with those outlined within the CL:AIRE guidance (2020).

**Treatment of Hot-Spots**

- A statistical test is applied to establish whether the data is a part of a single set, or whether data outliers are present.
- Provided that the data is based on random sampling and no distinct contamination source was present at the sampling location, the hot-spot(s) may be excluded and the mean of the remaining data assessed.

## 9. Ground and Water Limited Soil Assessment Criteria

The Soil Assessment Criteria used in the preparation of the Generic Quantitative Risk Assessment are tabulated in the following pages, where the source of each has been outlined in the previous sections.



## 9.1. Inorganics

| SoBRA – Acute Generic Assessment Criteria |              |               |                   |                    |                 |                 |
|-------------------------------------------|--------------|---------------|-------------------|--------------------|-----------------|-----------------|
| Determinand                               | RwHP (mg/kg) | RwoHP (mg/kg) | Allotment (mg/kg) | Commercial (mg/kg) | POSresi (mg/kg) | POSpark (mg/kg) |
| Cyanide                                   | 24           | 24            | 24                | 1400               | 24              | 24              |

## 9.2. Metals

| C4SL Low Level of Toxicological Concern |              |               |                   |                    |                 |                 |
|-----------------------------------------|--------------|---------------|-------------------|--------------------|-----------------|-----------------|
| Determinand                             | RwHP (mg/kg) | RwoHP (mg/kg) | Allotment (mg/kg) | Commercial (mg/kg) | POSresi (mg/kg) | POSpark (mg/kg) |
| Lead                                    | < 200        | < 310         | < 80              | < 2300             | < 630           | < 1300          |

| LQM/CIEH Suitable 4 Use Levels – Metals and Semi-metals |              |               |                   |                    |                 |                 |
|---------------------------------------------------------|--------------|---------------|-------------------|--------------------|-----------------|-----------------|
| Determinand                                             | RwHP (mg/kg) | RwoHP (mg/kg) | Allotment (mg/kg) | Commercial (mg/kg) | POSresi (mg/kg) | POSpark (mg/kg) |
| Arsenic                                                 | 37           | 40            | 43                | 640                | 79              | 170             |
| Beryllium                                               | 1.7          | 1.7           | 35                | 12                 | 2.2             | 63              |
| Boron                                                   | 290          | 11000         | 45                | 240000             | 21000           | 46000           |
| Cadmium                                                 | 11           | 85            | 1.9               | 190                | 120             | 532             |
| Chromium (III)                                          | 910          | 910           | 18000             | 8600               | 1500            | 33000           |
| Chromium (VI)                                           | 6            | 6             | 1.8               | 33                 | 7.7             | 220             |
| Copper                                                  | 2400         | 7100          | 520               | 68000              | 12000           | 44000           |
| Elemental Mercury                                       | 1.2          | 1.2           | 21                | 58                 | 16              | 30              |
| Inorganic Mercury                                       | 40           | 56            | 19                | 1100               | 120             | 240             |
| Methylmercury                                           | 11           | 15            | 6                 | 320                | 40              | 68              |
| Nickel                                                  | 130          | 180           | 53                | 980                | 230             | 800             |
| Selenium                                                | 250          | 430           | 88                | 12000              | 1100            | 1800            |
| Vanadium                                                | 410          | 1200          | 91                | 9000               | 2000            | 5000            |
| Zinc                                                    | 3700         | 40000         | 620               | 730000             | 81000           | 170000          |

| Phytotoxicity (Harmful to Plants) Threshold Trigger Values |                       |                           |                       |
|------------------------------------------------------------|-----------------------|---------------------------|-----------------------|
| Determinand                                                | Soil pH < 6.0 (mg/kg) | Soil pH 6.0 – 7.0 (mg/kg) | Soil pH > 7.0 (mg/kg) |
| Copper                                                     | 100                   | 135                       | 200                   |
| Nickel                                                     | 60                    | 75                        | 110                   |
| Zinc                                                       | 200                   | 200                       | 300                   |

**Notes:**  
 BS3882:2015 – *Specification for Topsoil*. Based on a wide range of common plants that will be exposed to multi-purpose topsoil. Toxicity of contaminant may also be impacted by pH of soils.  
 Site observation of plant vitality may give additional guidance.

| CL:AIRE Soil Generic Assessment Criteria |                     |                                          |                   |                    |
|------------------------------------------|---------------------|------------------------------------------|-------------------|--------------------|
| Determinand                              | Residential (mg/kg) | Residential without plant uptake (mg/kg) | Allotment (mg/kg) | Commercial (mg/kg) |
| Antimony                                 | ND                  | 550                                      | ND                | 7500               |
| Barium                                   | ND                  | 1300                                     | ND                | 22000              |
| Molybdenum                               | ND                  | 670                                      | ND                | 17000              |
| ND – Not derived                         |                     |                                          |                   |                    |

### 9.3. Total Petroleum Hydrocarbons (TPHs)

#### 9.3.1. BTEX Compounds

| LQM/CIEH Suitable 4 Use Levels – BTEX Compounds |                     |              |               |                   |                    |                 |                 |
|-------------------------------------------------|---------------------|--------------|---------------|-------------------|--------------------|-----------------|-----------------|
| Determinand                                     | Soil Organic Matter | RwHP (mg/kg) | RwoHP (mg/kg) | Allotment (mg/kg) | Commercial (mg/kg) | POSresi (mg/kg) | POSpark (mg/kg) |
| Benzene                                         | 1.0% SOM            | 0.087        | 0.38          | 0.017             | 27                 | 72              | 90              |
|                                                 | 2.5% SOM            | 0.170        | 0.70          | 0.034             | 47                 | 72              | 100             |
|                                                 | 6.0% SOM            | 0.370        | 1.40          | 0.075             | 90                 | 73              | 110             |
| Toluene                                         | 1.0% SOM            | 130          | 880           | 22                | 56000              | 56000           | 87000           |
|                                                 | 2.5% SOM            | 290          | 1900          | 51                | 110000             | 56000           | 95000           |
|                                                 | 6.0% SOM            | 660          | 3900          | 120               | 180000             | 56000           | 100000          |
| Ethylbenzene                                    | 1.0% SOM            | 47           | 83            | 16                | 5700               | 24000           | 17000           |
|                                                 | 2.5% SOM            | 110          | 190           | 39                | 13000              | 24000           | 22000           |
|                                                 | 6.0% SOM            | 260          | 440           | 91                | 27000              | 25000           | 27000           |
| o-Xylene                                        | 1.0% SOM            | 60           | 88            | 28                | 6600               | 41000           | 17000           |
|                                                 | 2.5% SOM            | 140          | 210           | 67                | 15000              | 42000           | 24000           |
|                                                 | 6.0% SOM            | 330          | 480           | 160               | 33000              | 43000           | 33000           |
| m-Xylene                                        | 1.0% SOM            | 59           | 82            | 31                | 6200               | 41000           | 17000           |
|                                                 | 2.5% SOM            | 140          | 190           | 74                | 14000              | 42000           | 24000           |
|                                                 | 6.0% SOM            | 320          | 450           | 170               | 31000              | 43000           | 33000           |
| p-Xylene                                        | 1.0% SOM            | 56           | 79            | 29                | 5900               | 41000           | 17000           |
|                                                 | 2.5% SOM            | 130          | 180           | 69                | 14000              | 42000           | 23000           |
|                                                 | 6.0% SOM            | 310          | 430           | 160               | 30000              | 43000           | 31000           |

SOM = Soil Organic Matter Content (%)

#### 9.3.2. Total Petroleum Hydrocarbons – Aliphatic

| LQM/CIEH Suitable 4 Use Levels For TPH |          |                   |                   |                   |                    |                    |                    |
|----------------------------------------|----------|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|
| Aliphatic                              |          | RwHP (mg/kg)      | RwoHP (mg/kg)     | Allotment (mg/kg) | Commercial (mg/kg) | POSresi (mg/kg)    | POSpark (mg/kg)    |
| EC 5-6                                 | 1.0% SOM | 42                | 42                | 730               | 3,200 (304) sol    | 570,000 (304) sol  | 95,000 (304) sol   |
|                                        | 2.5% SOM | 78                | 78                | 1,700             | 5,900 (558) sol    | 590,000            | 130,000 (558) sol  |
|                                        | 6.0% SOM | 160               | 160               | 3,900             | 12,000 (1150) sol  | 600,000 (1150) sol | 180,000 (1150) sol |
| EC >6-8                                | 1.0% SOM | 100               | 100               | 2,300             | 7,800 (144) sol    | 600,000            | 150,000 (144) sol  |
|                                        | 2.5% SOM | 230               | 230               | 5,600             | 17,000 (322) sol   | 610,000            | 220,000 (322) sol  |
|                                        | 6.0% SOM | 530               | 530               | 13,000            | 40,000 (736) sol   | 620,000            | 320,000 (736) sol  |
| EC >8-10                               | 1.0% SOM | 27                | 27                | 320               | 2,000 (78) sol     | 13,000             | 14,000 (78) sol    |
|                                        | 2.5% SOM | 65                | 65                | 770               | 4,800 (118) vap    | 13,000             | 18,000 (118) vap   |
|                                        | 6.0% SOM | 150               | 150               | 1,700             | 11,000 (451) vap   | 13,000             | 21,000 (451) vap   |
| EC >10-12                              | 1.0% SOM | 130 (48) vap      | 130 (48) vap      | 2,200             | 9,700 (48) sol     | 13,000             | 21,000 (48) sol    |
|                                        | 2.5% SOM | 330 (118) vap     | 330 (118) vap     | 4,400             | 23,000 (118) vap   | 13,000             | 23,000 (118) vap   |
|                                        | 6.0% SOM | 760 (283) vap     | 760 (283) vap     | 7,300             | 47,000 (283) vap   | 13,000             | 24,000 (283) vap   |
| EC >12-16                              | 1.0% SOM | 1,100 (24) sol    | 1,100 (24) sol    | 11,000            | 59,000 (24) sol    | 13,000             | 25,000 (24) sol    |
|                                        | 2.5% SOM | 2,400 (59) sol    | 2,400 (59) sol    | 13,000            | 82,000 (59) sol    | 13,000             | 25,000 (59) sol    |
|                                        | 6.0% SOM | 4,300 (142) sol   | 4,400 (142) sol   | 13,000            | 90,000 (142) sol   | 13,000             | 26,000 (142) sol   |
| EC >16-35                              | 1.0% SOM | 65,000 (8.48) sol | 65,000 (8.48) sol | 260,000           | 1,600,000          | 250,000            | 450,000            |
|                                        | 2.5% SOM | 92,000 (21) sol   | 92,000 (21) sol   | 270,000           | 1,700,000          | 250,000            | 480,000            |
|                                        | 6.0% SOM | 110,000           | 110,000           | 270,000           | 1,800,000          | 250,000            | 490,000            |
| EC >35-44                              | 1.0% SOM | 65,000 (8.48) sol | 65,000 (8.48) sol | 260,000           | 1,600,000          | 250,000            | 450,000            |
|                                        | 2.5% SOM | 92,000 (21) sol   | 92,000 (21) sol   | 270,000           | 1,700,000          | 250,000            | 480,000            |
|                                        | 6.0% SOM | 110,000           | 110,000           | 270,000           | 1,800,000          | 250,000            | 490,000            |

SOM = Soil Organic Matter Content (%)

vap – GAC presented exceeds the vapour saturation limit, which is presented in brackets.

sol – GAC presented exceeds the soil saturation limit, which is presented in brackets.



### 9.3.3. Total Petroleum Hydrocarbons – Aromatic

| LQM/CIEH Suitable 4 Use Levels For TPH                                                              |          |                 |                            |                      |                               |                    |                               |
|-----------------------------------------------------------------------------------------------------|----------|-----------------|----------------------------|----------------------|-------------------------------|--------------------|-------------------------------|
| Aromatic                                                                                            |          | RwHP<br>(mg/kg) | RwoHP<br>(mg/kg)           | Allotment<br>(mg/kg) | Commercial<br>(mg/kg)         | POSresi<br>(mg/kg) | POSpark<br>(mg/kg)            |
| <b>EC 5-7<br/>(Benzene)</b>                                                                         | 1.0% SOM | 70              | 370                        | 13                   | 26,000 (1220) <sup>sol</sup>  | 56,000             | 76,000 (1220) <sup>sol</sup>  |
|                                                                                                     | 2.5% SOM | 140             | 690                        | 27                   | 46,000 (2260) <sup>sol</sup>  | 56,000             | 84,000 (2260) <sup>sol</sup>  |
|                                                                                                     | 6.0% SOM | 300             | 1,400                      | 57                   | 86,000 (4710) <sup>sol</sup>  | 56,000             | 92,000 (4710) <sup>sol</sup>  |
| <b>EC &gt;7-8<br/>(Toluene)</b>                                                                     | 1.0% SOM | 130             | 860                        | 22                   | 56,000 (869) <sup>vap</sup>   | 56,000             | 87,000 (869) <sup>sol</sup>   |
|                                                                                                     | 2.5% SOM | 290             | 1,800                      | 51                   | 110,000 (1920) <sup>sol</sup> | 56,000             | 95,000 (1920) <sup>sol</sup>  |
|                                                                                                     | 6.0% SOM | 660             | 3,900                      | 120                  | 180,000 (4360) <sup>vap</sup> | 56,000             | 100,000 (4360) <sup>vap</sup> |
| <b>EC &gt;8-10</b>                                                                                  | 1.0% SOM | 34              | 47                         | 8.6                  | 3,500 (613) <sup>vap</sup>    | 5,000              | 7,200 (613) <sup>vap</sup>    |
|                                                                                                     | 2.5% SOM | 83              | 110                        | 21                   | 8,100 (1500) <sup>vap</sup>   | 5,000              | 8,500 (1500) <sup>vap</sup>   |
|                                                                                                     | 6.0% SOM | 190             | 270                        | 51                   | 17,000 (3850) <sup>vap</sup>  | 5,000              | 9,300 (3580) <sup>vap</sup>   |
| <b>EC &gt;10-12</b>                                                                                 | 1.0% SOM | 74              | 250                        | 13                   | 16,000 (364) <sup>sol</sup>   | 5,000              | 9,200 (364) <sup>sol</sup>    |
|                                                                                                     | 2.5% SOM | 180             | 590                        | 31                   | 28,000 (899) <sup>sol</sup>   | 5,000              | 9,700 (889) <sup>sol</sup>    |
|                                                                                                     | 6.0% SOM | 380             | 1,200                      | 74                   | 34,000 (2150) <sup>sol</sup>  | 5,000              | 10,000                        |
| <b>EC &gt;12-16</b>                                                                                 | 1.0% SOM | 140             | 1,800                      | 23                   | 36,000 (169) <sup>sol</sup>   | 5,100              | 10,000                        |
|                                                                                                     | 2.5% SOM | 330             | 2,300 (419) <sup>sol</sup> | 57                   | 37,000                        | 5,100              | 10,000                        |
|                                                                                                     | 6.0% SOM | 660             | 2,500                      | 130                  | 38,000                        | 5,000              | 10,000                        |
| <b>EC &gt;16-21</b>                                                                                 | 1.0% SOM | 260             | 1,900                      | 46                   | 28,000                        | 3,800              | 7,600                         |
|                                                                                                     | 2.5% SOM | 540             | 1,900                      | 110                  | 28,000                        | 3,800              | 7,700                         |
|                                                                                                     | 6.0% SOM | 930             | 1,900                      | 260                  | 28,000                        | 3,800              | 7,800                         |
| <b>EC &gt;21-35</b>                                                                                 | 1.0% SOM | 1,100           | 1,900                      | 370                  | 28,000                        | 3,800              | 7,800                         |
|                                                                                                     | 2.5% SOM | 1,500           | 1,900                      | 820                  | 28,000                        | 3,800              | 7,800                         |
|                                                                                                     | 6.0% SOM | 1,700           | 1,900                      | 1,600                | 28,000                        | 3,800              | 7,900                         |
| <b>EC &gt;35-44</b>                                                                                 | 1.0% SOM | 1,100           | 1,900                      | 370                  | 28,000                        | 3,800              | 7,800                         |
|                                                                                                     | 2.5% SOM | 1,500           | 1,900                      | 820                  | 28,000                        | 3,800              | 7,800                         |
|                                                                                                     | 6.0% SOM | 1,700           | 1,900                      | 1,600                | 28,000                        | 3,800              | 7,900                         |
| <b>EC &gt;44-70</b>                                                                                 | 1.0% SOM | 1,600           | 1,900                      | 1,200                | 28,000                        | 3,800              | 7,800                         |
|                                                                                                     | 2.5% SOM | 1,800           | 1,900                      | 2,100                | 28,000                        | 3,800              | 7,800                         |
|                                                                                                     | 6.0% SOM | 1,900           | 1,900                      | 3,000                | 28,000                        | 3,800              | 7,900                         |
| SOM = Soil Organic Matter Content (%)                                                               |          |                 |                            |                      |                               |                    |                               |
| <sup>vap</sup> – GAC presented exceeds the vapour saturation limit, which is presented in brackets. |          |                 |                            |                      |                               |                    |                               |
| <sup>sol</sup> – GAC presented exceeds the soil saturation limit, which is presented in brackets.   |          |                 |                            |                      |                               |                    |                               |

#### 9.4. Polycyclic Aromatic Hydrocarbons (PAHs)

| LQM/CIEH Suitable 4 Use Levels For Polycyclic Aromatic Hydrocarbons (PAHs) |          |                 |                             |                      |                             |                    |                    |
|----------------------------------------------------------------------------|----------|-----------------|-----------------------------|----------------------|-----------------------------|--------------------|--------------------|
| Determinands                                                               |          | RwHP<br>(mg/kg) | RwoHP<br>(mg/kg)            | Allotment<br>(mg/kg) | Commercial<br>(mg/kg)       | POSresi<br>(mg/kg) | POSpark<br>(mg/kg) |
| Acenaphthene                                                               | 1.0% SOM | 210             | 3,000 (57.0) <sup>sol</sup> | 34                   | 84,000(57.0) <sup>sol</sup> | 15,000             | 29,000             |
|                                                                            | 2.5% SOM | 510             | 4,700(141) <sup>sol</sup>   | 85                   | 97,000(141) <sup>sol</sup>  | 15,000             | 30,000             |
|                                                                            | 6.0% SOM | 1100            | 6,000(336) <sup>sol</sup>   | 200                  | 100,000                     | 15,000             | 30,000             |
| Acenaphthylene                                                             | 1.0% SOM | 170             | 2,900(86.1) <sup>sol</sup>  | 28                   | 83,000(86.1) <sup>sol</sup> | 15,000             | 29,000             |
|                                                                            | 2.5% SOM | 420             | 4,600(212) <sup>sol</sup>   | 69                   | 97,000(212) <sup>sol</sup>  | 15,000             | 30,000             |
|                                                                            | 6.0% SOM | 920             | 6,000(506) <sup>sol</sup>   | 160                  | 100,000                     | 15,000             | 30,000             |
| Anthracene                                                                 | 1.0% SOM | 2,400           | 31,000(1.17) <sup>vap</sup> | 380                  | 520,000                     | 74,000             | 150,000            |
|                                                                            | 2.5% SOM | 5,400           | 35,000                      | 950                  | 540,000                     | 74,000             | 150,000            |
|                                                                            | 6.0% SOM | 11,000          | 37,000                      | 2,200                | 540,000                     | 74,000             | 150,000            |
| Benzo(a)anthracene                                                         | 1.0% SOM | 7.20            | 11                          | 2.90                 | 170                         | 29                 | 49                 |
|                                                                            | 2.5% SOM | 11              | 14                          | 6.50                 | 170                         | 29                 | 56                 |
|                                                                            | 6.0% SOM | 13              | 15                          | 13                   | 180                         | 29                 | 62                 |
| Benzo(a)pyrene                                                             | 1.0% SOM | 2.20            | 3.20                        | 0.97                 | 35                          | 5.70               | 11                 |
|                                                                            | 2.5% SOM | 2.70            | 3.20                        | 2.00                 | 35                          | 5.70               | 12                 |
|                                                                            | 6.0% SOM | 3.00            | 3.20                        | 3.50                 | 36                          | 5.70               | 13                 |
| Benzo(b)flouranthene                                                       | 1.0% SOM | 2.60            | 3.90                        | 0.99                 | 44                          | 7.10               | 13                 |
|                                                                            | 2.5% SOM | 3.30            | 4.00                        | 2.10                 | 44                          | 7.20               | 15                 |
|                                                                            | 6.0% SOM | 3.70            | 4.00                        | 3.90                 | 45                          | 7.20               | 16                 |
| Benzo(ghi)perylene                                                         | 1.0% SOM | 320             | 360                         | 290                  | 3,900                       | 640                | 1,400              |
|                                                                            | 2.5% SOM | 340             | 360                         | 470                  | 4,000                       | 640                | 1,500              |
|                                                                            | 6.0% SOM | 350             | 360                         | 640                  | 4,000                       | 640                | 1,600              |
| Benzo(k)flouranthene                                                       | 1.0% SOM | 77              | 110                         | 37                   | 1,200                       | 190                | 370                |
|                                                                            | 2.5% SOM | 93              | 110                         | 75                   | 1,200                       | 190                | 410                |
|                                                                            | 6.0% SOM | 100             | 110                         | 130                  | 1,200                       | 190                | 440                |
| Chrysene                                                                   | 1.0% SOM | 15              | 30                          | 4.10                 | 350                         | 57                 | 93                 |
|                                                                            | 2.5% SOM | 22              | 31                          | 9.40                 | 350                         | 57                 | 110                |
|                                                                            | 6.0% SOM | 27              | 32                          | 19                   | 350                         | 57                 | 120                |
| Dibenzo(ah)anthracene                                                      | 1.0% SOM | 0.24            | 0.31                        | 0.14                 | 3.50                        | 0.57               | 1.10               |
|                                                                            | 2.5% SOM | 0.28            | 0.32                        | 0.27                 | 3.50                        | 0.57               | 1.30               |
|                                                                            | 6.0% SOM | 0.30            | 0.32                        | 0.43                 | 3.60                        | 0.58               | 1.40               |
| Flouranthene                                                               | 1.0% SOM | 280             | 1,500                       | 52                   | 23,000                      | 3,100              | 6,300              |
|                                                                            | 2.5% SOM | 560             | 1,600                       | 130                  | 23,000                      | 3,100              | 6,300              |
|                                                                            | 6.0% SOM | 890             | 1,600                       | 290                  | 23,000                      | 3,100              | 6,300              |
| Flourene                                                                   | 1.0% SOM | 170             | 2,800 (30.9) <sup>sol</sup> | 27                   | 63,000(30.9) <sup>sol</sup> | 9,900              | 20,000             |
|                                                                            | 2.5% SOM | 400             | 3,800(76.5) <sup>sol</sup>  | 67                   | 68,000                      | 9,900              | 20,000             |
|                                                                            | 6.0% SOM | 860             | 4,500(183) <sup>sol</sup>   | 160                  | 71,000                      | 9,900              | 20,000             |
| Indeno(123-cd)pyrene                                                       | 1.0% SOM | 27              | 45                          | 9.50                 | 500                         | 82                 | 150                |
|                                                                            | 2.5% SOM | 36              | 46                          | 21                   | 510                         | 82                 | 170                |
|                                                                            | 6.0% SOM | 41              | 46                          | 39                   | 510                         | 82                 | 180                |
| Napthalene                                                                 | 1.0% SOM | 15              | 36                          | 65                   | 1,600                       | 11,000             | 800                |
|                                                                            | 2.5% SOM | 36              | 36                          | 130                  | 3,700                       | 15,000             | 1,200              |
|                                                                            | 6.0% SOM | 85              | 85                          | 200                  | 8,400                       | 17,000             | 1,900              |
| Phenanthrene                                                               | 1.0% SOM | 95              | 1,300(183) <sup>sol</sup>   | 15                   | 22,000                      | 3,100              | 6,200              |
|                                                                            | 2.5% SOM | 220             | 1,500                       | 38                   | 22,000                      | 3,100              | 6,200              |
|                                                                            | 6.0% SOM | 440             | 1,500                       | 90                   | 23,000                      | 3,100              | 6,300              |
| Pyrene                                                                     | 1.0% SOM | 620             | 3,700                       | 110                  | 54,000                      | 7,400              | 15,000             |
|                                                                            | 2.5% SOM | 1200            | 3,800                       | 270                  | 54,000                      | 7,400              | 15,000             |
|                                                                            | 6.0% SOM | 2000            | 3,800                       | 620                  | 54,000                      | 7,400              | 15,000             |
| Coal Tar (Benzo(a)pyrene<br>used as marker<br>compound)                    | 1.0% SOM | 0.79            | 1.2                         | 0.32                 | 15                          | 2.20               | 4.40               |
|                                                                            | 2.5% SOM | 0.98            | 1.2                         | 0.67                 | 15                          | 2.20               | 4.70               |
|                                                                            | 6.0% SOM | 1.10            | 1.2                         | 1.20                 | 15                          | 2.20               | 4.80               |

SOM = Soil Organic Matter Content (%)

<sup>vap</sup> – GAC presented exceeds the vapour saturation limit, which is presented in brackets.

<sup>sol</sup> – GAC presented exceeds the soil saturation limit, which is presented in brackets.



## 9.5. Volatile and Semi-volatile Organic Compounds

| LQM CIEH General Assessment Criteria: Volatile and Semi-Volatile Organic Compounds |          |                 |                  |                      |                       |                    |                               |
|------------------------------------------------------------------------------------|----------|-----------------|------------------|----------------------|-----------------------|--------------------|-------------------------------|
| Determinands                                                                       |          | RwHP<br>(mg/kg) | RwoHP<br>(mg/kg) | Allotment<br>(mg/kg) | Commercial<br>(mg/kg) | POSresi<br>(mg/kg) | POSpark<br>(mg/kg)            |
| <i>Chloroalkanes &amp; alkenes</i>                                                 |          |                 |                  |                      |                       |                    |                               |
| 1,2 Dichloroethane                                                                 | 1.0% SOM | 0.0071          | 0.0092           | 0.0046               | 0.67                  | 29                 | 21                            |
|                                                                                    | 2.5% SOM | 0.011           | 0.013            | 0.0083               | 0.97                  | 29                 | 24                            |
|                                                                                    | 6.0% SOM | 0.019           | 0.023            | 0.016                | 1.70                  | 29                 | 28                            |
| 1,1,2,2 Tetrachloroethane                                                          | 1.0% SOM | 1.60            | 3.90             | 0.41                 | 270                   | 1,400              | 1,800                         |
|                                                                                    | 2.5% SOM | 3.40            | 8.00             | 0.89                 | 550                   | 1,400              | 2,100                         |
|                                                                                    | 6.0% SOM | 7.50            | 17               | 2.00                 | 1,100                 | 1,400              | 2,300                         |
| 1,1,1,2 Tetrachloroethane                                                          | 1.0% SOM | 1.20            | 1.50             | 0.79                 | 110                   | 1,400              | 1,500                         |
|                                                                                    | 2.5% SOM | 2.80            | 3.50             | 1.90                 | 250                   | 1,400              | 1,800                         |
|                                                                                    | 6.0% SOM | 6.40            | 8.20             | 4.40                 | 560                   | 1,400              | 2,100                         |
| Tetrachloroethene                                                                  | 1.0% SOM | 0.18            | 0.18             | 0.65                 | 19                    | 1,400              | 810 <sup>sol</sup> (424)      |
|                                                                                    | 2.5% SOM | 0.39            | 0.40             | 1.50                 | 42                    | 1,400              | 1,100 <sup>sol</sup> (951)    |
|                                                                                    | 6.0% SOM | 0.90            | 0.92             | 3.60                 | 95                    | 1,400              | 1,500                         |
| 1,1,1 Trichloroethane                                                              | 1.0% SOM | 8.80            | 9.00             | 48                   | 660                   | 140,000            | 57,000 <sup>vap</sup> (1425)  |
|                                                                                    | 2.5% SOM | 18              | 18               | 110                  | 1,300                 | 140,000            | 76,000 <sup>vap</sup> (2915)  |
|                                                                                    | 6.0% SOM | 39              | 40               | 240                  | 3,000                 | 140,000            | 100,000 <sup>vap</sup> (6392) |
| Tetrachloromethene                                                                 | 1.0% SOM | 0.026           | 0.026            | 0.45                 | 2.90                  | 890                | 190                           |
|                                                                                    | 2.5% SOM | 0.056           | 0.056            | 1.00                 | 6.30                  | 920                | 270                           |
|                                                                                    | 6.0% SOM | 0.130           | 0.130            | 2.40                 | 14                    | 950                | 400                           |
| Trichloroethene                                                                    | 1.0% SOM | 0.016           | 0.017            | 0.041                | 1.20                  | 120                | 70                            |
|                                                                                    | 2.5% SOM | 0.034           | 0.036            | 0.091                | 2.60                  | 120                | 91                            |
|                                                                                    | 6.0% SOM | 0.075           | 0.080            | 0.210                | 5.70                  | 120                | 120                           |
| Trichloromethane                                                                   | 1.0% SOM | 0.91            | 1.20             | 0.42                 | 99                    | 2,500              | 2,600                         |
|                                                                                    | 2.5% SOM | 1.70            | 2.10             | 0.83                 | 170                   | 2,500              | 2,800                         |
|                                                                                    | 6.0% SOM | 3.40            | 4.20             | 1.70                 | 350                   | 2,500              | 3,100                         |
| Vinyl Chloride                                                                     | 1.0% SOM | 0.00064         | 0.00077          | 0.00055              | 0.059                 | 3.50               | 4.80                          |
|                                                                                    | 2.5% SOM | 0.00087         | 0.00100          | 0.00100              | 0.077                 | 3.50               | 5.00                          |
|                                                                                    | 6.0% SOM | 0.00014         | 0.00150          | 0.00180              | 0.120                 | 3.50               | 5.40                          |
| <i>Explosives</i>                                                                  |          |                 |                  |                      |                       |                    |                               |
| 2,4,6 Trinitrotoluene                                                              | 1.0% SOM | 1.60            | 65               | 0.24                 | 1,000                 | 130                | 260                           |
|                                                                                    | 2.5% SOM | 3.70            | 66               | 0.58                 | 1,000                 | 130                | 270                           |
|                                                                                    | 6.0% SOM | 8.10            | 66               | 1.40                 | 1,000                 | 130                | 270                           |
| RDX<br>(Hexogen/Cyclonite/1,3,5-trinitro-1,3,5-triazacyclohexane)                  | 1.0% SOM | 120             | 13,000           | 17                   | 210,000               | 26,000             | 49,000(18.7) <sup>sol</sup>   |
|                                                                                    | 2.5% SOM | 250             | 13,000           | 38                   | 210,000               | 26,000             | 51,000                        |
|                                                                                    | 6.0% SOM | 540             | 13,000           | 85                   | 210,000               | 27,000             | 53,000                        |
| HMX (Octogen/1,3,5,7-tetrenitro-1,3,5,7-tetrazacyclo-octane)                       | 1.0% SOM | 5.70            | 67,00            | 0.86                 | 110,000               | 13,000             | 23,000(0.35) <sup>vap</sup>   |
|                                                                                    | 2.5% SOM | 13              | 67,00            | 1.90                 | 110,000               | 13,000             | 23,000(0.39) <sup>vap</sup>   |
|                                                                                    | 6.0% SOM | 26              | 67,00            | 3.90                 | 110,000               | 13,000             | 24,000(0.48) <sup>vap</sup>   |
| Atrazine                                                                           | 1.0% SOM | 3.30            | 610              | 0.50                 | 9,300                 | 1,200              | 2,300                         |
|                                                                                    | 2.5% SOM | 7.60            | 620              | 1.20                 | 9,400                 | 1,200              | 2,400                         |
|                                                                                    | 6.0% SOM | 17.40           | 620              | 2.70                 | 9,400                 | 1,200              | 2,400                         |

<sup>vap</sup> – GAC presented exceeds the vapour saturation limit, which is presented in brackets.  
<sup>sol</sup> – GAC presented exceeds the soil saturation limit, which is presented in brackets.

VOC and SVOC table continued overleaf

VOC and SVOC table continued from previous page

| LQM CIEH General Assessment Criteria: Volatile and Semi-Volatile Organic Compounds                                                                                                                       |          |                 |                             |                      |                               |                     |                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|-----------------------------|----------------------|-------------------------------|---------------------|------------------------------|
| Determinands                                                                                                                                                                                             |          | RwHP<br>(mg/kg) | RwoHP<br>(mg/kg)            | Allotment<br>(mg/kg) | Commercial<br>(mg/kg)         | POSresi<br>(mg/kg)  | POSpark<br>(mg/kg)           |
| <b>Pesticides</b>                                                                                                                                                                                        |          |                 |                             |                      |                               |                     |                              |
| Aldrin                                                                                                                                                                                                   | 1.0% SOM | 5.70            | 7.30                        | 3.20                 | 170                           | 18                  | 30                           |
|                                                                                                                                                                                                          | 2.5% SOM | 6.60            | 7.40                        | 6.10                 | 170                           | 18                  | 31                           |
|                                                                                                                                                                                                          | 6.0% SOM | 7.10            | 7.50                        | 9.60                 | 170                           | 18                  | 31                           |
| Dieldrin                                                                                                                                                                                                 | 1.0% SOM | 0.97            | 7.00                        | 0.17                 | 170                           | 18                  | 30                           |
|                                                                                                                                                                                                          | 2.5% SOM | 2.00            | 7.30                        | 0.41                 | 170                           | 18                  | 30                           |
|                                                                                                                                                                                                          | 6.0% SOM | 3.50            | 7.40                        | 0.96                 | 170                           | 18                  | 31                           |
| Dichlorvos                                                                                                                                                                                               | 1.0% SOM | 0.032           | 6.40                        | 0.0049               | 140                           | 16                  | 26                           |
|                                                                                                                                                                                                          | 2.5% SOM | 0.066           | 6.50                        | 0.0100               | 140                           | 16                  | 26                           |
|                                                                                                                                                                                                          | 6.0% SOM | 0.140           | 6.60                        | 0.0220               | 140                           | 16                  | 27                           |
| Alpha - Endosulfan                                                                                                                                                                                       | 1.0% SOM | 7.40            | 160(0.003) <sup>vap</sup>   | 1.20                 | 5,600(0.003) <sup>vap</sup>   | 1,200               | 2,400                        |
|                                                                                                                                                                                                          | 2.5% SOM | 18              | 280(0.007) <sup>vap</sup>   | 2.90                 | 7,400(0.007) <sup>vap</sup>   | 1,200               | 2,400                        |
|                                                                                                                                                                                                          | 6.0% SOM | 41              | 410(0.016) <sup>vap</sup>   | 6.80                 | 8,400(0.016) <sup>vap</sup>   | 1,200               | 2,400                        |
| Beta - Endosulfan                                                                                                                                                                                        | 1.0% SOM | 7.00            | 190(0.00007) <sup>vap</sup> | 1.10                 | 6,300(0.00007) <sup>vap</sup> | 1,200               | 2,400                        |
|                                                                                                                                                                                                          | 2.5% SOM | 17              | 320(0.0002) <sup>vap</sup>  | 2.70                 | 7,800(0.0002) <sup>vap</sup>  | 1,200               | 2,400                        |
|                                                                                                                                                                                                          | 6.0% SOM | 39              | 440(0.0004) <sup>vap</sup>  | 6.40                 | 8700                          | 1,200               | 2,500                        |
| Alpha - Hexachlorocyclohexanes                                                                                                                                                                           | 1.0% SOM | 0.23            | 6.90                        | 0.035                | 170                           | 24                  | 47                           |
|                                                                                                                                                                                                          | 2.5% SOM | 0.55            | 9.20                        | 0.087                | 180                           | 24                  | 48                           |
|                                                                                                                                                                                                          | 6.0% SOM | 1.20            | 11                          | 0.210                | 180                           | 24                  | 48                           |
| Beta - Hexachlorocyclohexanes                                                                                                                                                                            | 1.0% SOM | 0.085           | 3.70                        | 0.013                | 65                            | 8.10                | 15                           |
|                                                                                                                                                                                                          | 2.5% SOM | 0.200           | 3.80                        | 0.032                | 65                            | 8.10                | 15                           |
|                                                                                                                                                                                                          | 6.0% SOM | 0.460           | 3.80                        | 0.077                | 65                            | 8.10                | 16                           |
| Gamma - Hexachlorocyclohexanes                                                                                                                                                                           | 1.0% SOM | 0.06            | 2.90                        | 0.0092               | 67                            | 8.2                 | 14                           |
|                                                                                                                                                                                                          | 2.5% SOM | 0.14            | 3.30                        | 0.0230               | 69                            | 8.2                 | 15                           |
|                                                                                                                                                                                                          | 6.0% SOM | 0.33            | 3.50                        | 0.0540               | 70                            | 8.2                 | 15                           |
| <b>Chlorobenzenes</b>                                                                                                                                                                                    |          |                 |                             |                      |                               |                     |                              |
| Chlorobenzene                                                                                                                                                                                            | 1.0% SOM | 0.46            | 0.46                        | 5.90                 | 56                            | 11,000              | 1,300(675) <sup>sol</sup>    |
|                                                                                                                                                                                                          | 2.5% SOM | 1.00            | 1.00                        | 14                   | 130                           | 13,000              | 2,000(1520) <sup>sol</sup>   |
|                                                                                                                                                                                                          | 6.0% SOM | 2.40            | 2.40                        | 32                   | 290                           | 14,000              | 2,900                        |
| 1,2-Dichlorobenzene                                                                                                                                                                                      | 1.0% SOM | 23              | 24                          | 94                   | 2,000 (571) <sup>sol</sup>    | 90,000              | 24,000(571) <sup>sol</sup>   |
|                                                                                                                                                                                                          | 2.5% SOM | 55              | 57                          | 230                  | 4,800 (1370) <sup>sol</sup>   | 95,000              | 36,000(1370) <sup>sol</sup>  |
|                                                                                                                                                                                                          | 6.0% SOM | 130             | 130                         | 540                  | 11,000 (3240) <sup>sol</sup>  | 98,000              | 51,000(3240) <sup>sol</sup>  |
| 1,3-Dichlorobenzene                                                                                                                                                                                      | 1.0% SOM | 0.40            | 0.44                        | 0.25                 | 30                            | 300                 | 390                          |
|                                                                                                                                                                                                          | 2.5% SOM | 1.00            | 1.10                        | 0.60                 | 73                            | 300                 | 440                          |
|                                                                                                                                                                                                          | 6.0% SOM | 2.30            | 2.50                        | 1.50                 | 170                           | 300                 | 470                          |
| 1,4-Dichlorobenzene                                                                                                                                                                                      | 1.0% SOM | 61              | 61                          | 15                   | 4,400 (224) <sup>vap</sup>    | 17,000 <sup>£</sup> | 36,000 (224) <sup>vap</sup>  |
|                                                                                                                                                                                                          | 2.5% SOM | 150             | 150                         | 37                   | 10,000 (540) <sup>vap</sup>   | 17,000 <sup>£</sup> | 36,000 (540) <sup>vap</sup>  |
|                                                                                                                                                                                                          | 6.0% SOM | 350             | 350                         | 88 <sup>£</sup>      | 25,000 (1280) <sup>vap</sup>  | 17,000 <sup>£</sup> | 36,000 (1280) <sup>vap</sup> |
| 1,2,3,-Trichlorobenzene                                                                                                                                                                                  | 1.0% SOM | 1.50            | 1.50                        | 4.70                 | 102                           | 1,800               | 770(134) <sup>vap</sup>      |
|                                                                                                                                                                                                          | 2.5% SOM | 3.60            | 3.70                        | 12                   | 250                           | 1,800               | 1,100(330) <sup>vap</sup>    |
|                                                                                                                                                                                                          | 6.0% SOM | 8.60            | 8.80                        | 28                   | 590                           | 1,800               | 1,600(789) <sup>vap</sup>    |
| 1,2,4,-Trichlorobenzene                                                                                                                                                                                  | 1.0% SOM | 2.60            | 2.60                        | 55                   | 220                           | 15,000              | 1,700(318) <sup>vap</sup>    |
|                                                                                                                                                                                                          | 2.5% SOM | 6.40            | 6.40                        | 140                  | 530                           | 17,000              | 2,600(786) <sup>vap</sup>    |
|                                                                                                                                                                                                          | 6.0% SOM | 15              | 15                          | 320                  | 1,300                         | 19,000              | 4,000(1880) <sup>vap</sup>   |
| 1,3,5,-Trichlorobenzene                                                                                                                                                                                  | 1.0% SOM | 0.33            | 0.33                        | 4.70                 | 23                            | 1,700               | 380(36.7) <sup>vap</sup>     |
|                                                                                                                                                                                                          | 2.5% SOM | 0.81            | 0.81                        | 12                   | 55                            | 1,700               | 590(90.8) <sup>vap</sup>     |
|                                                                                                                                                                                                          | 6.0% SOM | 1.90            | 1.90                        | 140                  | 130                           | 1,800               | 860(217) <sup>vap</sup>      |
| <sup>vap</sup> – GAC presented exceeds the vapour saturation limit, which is presented in brackets.<br><sup>sol</sup> – GAC presented exceeds the soil saturation limit, which is presented in brackets. |          |                 |                             |                      |                               |                     |                              |

VOC and SVOC table continued overleaf



VOC and SVOC table continued from previous page

| LQM CIEH General Assessment Criteria: Volatile and Semi-Volatile Organic Compounds                                                                                                                       |          |                           |                            |                      |                               |                               |                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------|----------------------------|----------------------|-------------------------------|-------------------------------|-------------------------------|
| Determinands                                                                                                                                                                                             |          | RwHP<br>(mg/kg)           | RwoHP<br>(mg/kg)           | Allotment<br>(mg/kg) | Commercial<br>(mg/kg)         | POSresi<br>(mg/kg)            | POSpark<br>(mg/kg)            |
| <b>Chlorobenzenes (cont.)</b>                                                                                                                                                                            |          |                           |                            |                      |                               |                               |                               |
| <b>1,2,3,4,-<br/>Tetrachlorobenzene</b>                                                                                                                                                                  | 1.0% SOM | 15                        | 24                         | 4.40                 | 1,700(122) <sup>vap</sup>     | 830                           | 1,500(122) <sup>vap</sup>     |
|                                                                                                                                                                                                          | 2.5% SOM | 36                        | 56                         | 11                   | 3,080(304) <sup>vap</sup>     | 830                           | 1,600                         |
|                                                                                                                                                                                                          | 6.0% SOM | 78                        | 120                        | 26                   | 4,400(728) <sup>vap</sup>     | 830                           | 1,600                         |
| <b>1,2,3,5,-<br/>Tetrachlorobenzene</b>                                                                                                                                                                  | 1.0% SOM | 0.66                      | 0.75                       | 0.38                 | 49(39.4) <sup>vap</sup>       | 78                            | 110(39) <sup>vap</sup>        |
|                                                                                                                                                                                                          | 2.5% SOM | 1.60                      | 1.90                       | 0.90                 | 120(98.1) <sup>vap</sup>      | 79                            | 120                           |
|                                                                                                                                                                                                          | 6.0% SOM | 3.70                      | 4.30                       | 2.20                 | 240(235) <sup>vap</sup>       | 79                            | 130                           |
| <b>1,2,4, 5,-<br/>Tetrachlorobenzene</b>                                                                                                                                                                 | 1.0% SOM | 0.33                      | 0.73                       | 0.06                 | 42(19.7) <sup>sol</sup>       | 13                            | 25                            |
|                                                                                                                                                                                                          | 2.5% SOM | 0.77                      | 1.70                       | 0.16                 | 72(49.1) <sup>sol</sup>       | 13                            | 26                            |
|                                                                                                                                                                                                          | 6.0% SOM | 1.60                      | 3.50                       | 0.37                 | 96                            | 13                            | 26                            |
| <b>Pentachlorobenzene</b>                                                                                                                                                                                | 1.0% SOM | 5.80                      | 19                         | 1.20                 | 640(43.0) <sup>sol</sup>      | 100                           | 190                           |
|                                                                                                                                                                                                          | 2.5% SOM | 12                        | 30                         | 3.10                 | 770(107) <sup>sol</sup>       | 100                           | 190                           |
|                                                                                                                                                                                                          | 6.0% SOM | 22                        | 38                         | 7.00                 | 830                           | 100                           | 190                           |
| <b>Hexachlorobenzene</b>                                                                                                                                                                                 | 1.0% SOM | 1.80(0.20) <sup>vap</sup> | 4.10 (0.20) <sup>vap</sup> | 0.47                 | 110(0.20) <sup>vap</sup>      | 16                            | 30                            |
|                                                                                                                                                                                                          | 2.5% SOM | 3.30(0.50) <sup>vap</sup> | 5.70 (0.50) <sup>vap</sup> | 1.10                 | 120                           | 16                            | 30                            |
|                                                                                                                                                                                                          | 6.0% SOM | 4.90                      | 6.70 (1.2) <sup>vap</sup>  | 2.50                 | 120                           | 16                            | 30                            |
| <b>Phenols &amp; Chlorophenols</b>                                                                                                                                                                       |          |                           |                            |                      |                               |                               |                               |
| <b>BTEX</b>                                                                                                                                                                                              |          |                           |                            |                      | 760 <sup>dir</sup> (31,000)   | 760 <sup>dir</sup> (11,000)   | 760 <sup>dir</sup> (8,600)    |
|                                                                                                                                                                                                          | 1.0% SOM | 280                       | 750                        | 66                   |                               |                               |                               |
|                                                                                                                                                                                                          | 2.5% SOM | 550                       | 1,300                      | 140                  | 1,500 <sup>dir</sup> (35,000) | 1,500 <sup>dir</sup> (11,000) | 1,500 <sup>dir</sup> (9,700)  |
|                                                                                                                                                                                                          | 6.0% SOM | 1100                      | 2,300                      | 280                  | 3,200 <sup>dir</sup> (37,000) | 3,200 <sup>dir</sup> (11,000) | 3,200 <sup>dir</sup> (11,000) |
| <b>Chlorophenols (4<br/>Congeners)</b>                                                                                                                                                                   | 1.0% SOM | 0.87                      | 94                         | 0.13                 | 3,500                         | 620                           | 1,100                         |
|                                                                                                                                                                                                          | 2.5% SOM | 2.00                      | 150                        | 0.30                 | 4,000                         | 620                           | 1,100                         |
|                                                                                                                                                                                                          | 6.0% SOM | 4.50                      | 210                        | 0.70                 | 4,300                         | 620                           | 1,100                         |
| <b>Pentachlorophenols</b>                                                                                                                                                                                | 1.0% SOM | 0.22                      | 27(16.4) <sup>vap</sup>    | 0.03                 | 400                           | 60                            | 110                           |
|                                                                                                                                                                                                          | 2.5% SOM | 0.52                      | 29                         | 0.08                 | 400                           | 60                            | 120                           |
|                                                                                                                                                                                                          | 6.0% SOM | 1.20                      | 31                         | 0.19                 | 400                           | 60                            | 120                           |
| <b>Others</b>                                                                                                                                                                                            |          |                           |                            |                      |                               |                               |                               |
| <b>Carbon Disulphide</b>                                                                                                                                                                                 | 1.0% SOM | 0.14                      | 0.14                       | 4.80                 | 11                            | 11,000                        | 1,300                         |
|                                                                                                                                                                                                          | 2.5% SOM | 0.29                      | 0.29                       | 10                   | 22                            | 11,000                        | 1,900                         |
|                                                                                                                                                                                                          | 6.0% SOM | 0.62                      | 0.62                       | 23                   | 47                            | 12,000                        | 2,700                         |
| <b>Hexachloro-1,3-<br/>Butadiene</b>                                                                                                                                                                     | 1.0% SOM | 0.29                      | 0.32                       | 0.25                 | 31                            | 25                            | 48                            |
|                                                                                                                                                                                                          | 2.5% SOM | 0.70                      | 0.78                       | 0.61                 | 68                            | 25                            | 50                            |
|                                                                                                                                                                                                          | 6.0% SOM | 1.60                      | 1.80                       | 1.40                 | 120                           | 25                            | 51                            |
| <sup>vap</sup> – GAC presented exceeds the vapour saturation limit, which is presented in brackets.<br><sup>sol</sup> – GAC presented exceeds the soil saturation limit, which is presented in brackets. |          |                           |                            |                      |                               |                               |                               |

VOC and SVOC table continued overleaf

VOC and SVOC table continued from previous page

| CL:AIRE General Assessment Criteria: Volatile and Semi-Volatile Organic Compounds |          |                 |                  |                      |                       |
|-----------------------------------------------------------------------------------|----------|-----------------|------------------|----------------------|-----------------------|
| Determinands                                                                      |          | RwHP<br>(mg/kg) | RwoHP<br>(mg/kg) | Allotment<br>(mg/kg) | Commercial<br>(mg/kg) |
| 1,1,2 Trichloroethane                                                             | 1.0% SOM | 0.60            | 0.88             | 0.28                 | 94                    |
|                                                                                   | 2.5% SOM | 1.20            | 1.8              | 0.61                 | 190                   |
|                                                                                   | 6.0% SOM | 2.70            | 3.9              | 1.40                 | 400                   |
| 1,1-Dichloroethane                                                                | 1.0% SOM | 2.40            | 2.50             | 9.20                 | 280                   |
|                                                                                   | 2.5% SOM | 3.90            | 4.10             | 17                   | 450                   |
|                                                                                   | 6.0% SOM | 7.40            | 7.70             | 35                   | 850                   |
| 1,1-Dichloroethene                                                                | 1.0% SOM | 0.23            | 0.23             | 2.80                 | 26                    |
|                                                                                   | 2.5% SOM | 0.40            | 0.41             | 5.60                 | 46                    |
|                                                                                   | 6.0% SOM | 0.82            | 0.82             | 12                   | 92                    |
| 1,2,4-Trimethylbenzene                                                            | 1.0% SOM | 0.35            | 0.41             | 0.38                 | 42                    |
|                                                                                   | 2.5% SOM | 0.85            | 0.99             | 0.93                 | 99                    |
|                                                                                   | 6.0% SOM | 2.00            | 2.30             | 2.20                 | 220                   |
| 1,2-Dichloropropane                                                               | 1.0% SOM | 0.024           | 0.024            | 0.62                 | 3.3                   |
|                                                                                   | 2.5% SOM | 0.042           | 0.042            | 1.20                 | 5.9                   |
|                                                                                   | 6.0% SOM | 0.084           | 0.085            | 2.60                 | 12                    |
| 2,4-Dimethylphenol                                                                | 1.0% SOM | 19              | 210              | 3.10                 | 16000*                |
|                                                                                   | 2.5% SOM | 43              | 410              | 7.20                 | 24000*                |
|                                                                                   | 6.0% SOM | 97              | 730              | 17                   | 30000*                |
| 2,4-Dinitrotoluene                                                                | 1.0% SOM | 1.50            | 170*             | 0.22                 | 3700*                 |
|                                                                                   | 2.5% SOM | 3.20            | 170              | 0.49                 | 3700*                 |
|                                                                                   | 6.0% SOM | 7.20            | 170              | 1.10                 | 3800*                 |
| 2,6-Dinitrotoluene                                                                | 1.0% SOM | 0.78            | 78               | 0.12                 | 1900*                 |
|                                                                                   | 2.5% SOM | 1.70            | 84               | 0.27                 | 1900*                 |
|                                                                                   | 6.0% SOM | 3.90            | 87               | 0.61                 | 1900*                 |
| 2-Chloronaphthalene                                                               | 1.0% SOM | 3.70            | 3.80             | 40                   | 390*                  |
|                                                                                   | 2.5% SOM | 9.20            | 9.30             | 98                   | 960*                  |
|                                                                                   | 6.0% SOM | 22              | 22               | 230                  | 2200*                 |
| Biphenyl                                                                          | 1.0% SOM | 66*             | 220*             | 14                   | 18000*                |
|                                                                                   | 2.5% SOM | 160             | 500*             | 35                   | 33000*                |
|                                                                                   | 6.0% SOM | 360             | 980*             | 83                   | 48000*                |
| Bis (2-ethylhexyl) phthalate                                                      | 1.0% SOM | 280*            | 2700*            | 47*                  | 85000*                |
|                                                                                   | 2.5% SOM | 610*            | 2800*            | 120*                 | 86000*                |
|                                                                                   | 6.0% SOM | 1100*           | 2800*            | 280*                 | 86000*                |
| Bromobenzene                                                                      | 1.0% SOM | 0.87            | 0.91             | 3.2                  | 97                    |
|                                                                                   | 2.5% SOM | 2.0             | 2.1              | 7.6                  | 220                   |
|                                                                                   | 6.0% SOM | 4.7             | 4.9              | 18                   | 520                   |
| Bromodichloromethane                                                              | 1.0% SOM | 0.016           | 0.019            | 0.016                | 2.1                   |
|                                                                                   | 2.5% SOM | 0.030           | 0.034            | 0.032                | 3.7                   |
|                                                                                   | 6.0% SOM | 0.061           | 0.070            | 0.068                | 7.6                   |
| Bromoform                                                                         | 1.0% SOM | 2.8             | 5.2              | 0.95                 | 760                   |
|                                                                                   | 2.5% SOM | 5.9             | 11               | 2.1                  | 1500                  |
|                                                                                   | 6.0% SOM | 13              | 23               | 4.6                  | 3100                  |
| Butyl benzyl phthalate                                                            | 1.0% SOM | 1400*           | 42000*           | 220*                 | 940000*               |
|                                                                                   | 2.5% SOM | 3300*           | 44000*           | 550*                 | 940000*               |
|                                                                                   | 6.0% SOM | 7200*           | 44000*           | 1300*                | 950000*               |

\*soil concentration above saturation limit



VOC and SVOC table continued from previous page

| CL:AIRE General Assessment Criteria: Volatile and Semi-Volatile Organic Compounds |          |                 |                  |                      |                       |
|-----------------------------------------------------------------------------------|----------|-----------------|------------------|----------------------|-----------------------|
| Determinands                                                                      |          | RwHP<br>(mg/kg) | RwoHP<br>(mg/kg) | Allotment<br>(mg/kg) | Commercial<br>(mg/kg) |
| Chloroethane                                                                      | 1.0% SOM | 8.3             | 8.4              | 110                  | 960                   |
|                                                                                   | 2.5% SOM | 11              | 11               | 200                  | 1300                  |
|                                                                                   | 6.0% SOM | 18              | 18               | 380                  | 2100                  |
| Chloromethane                                                                     | 1.0% SOM | 0.0083          | 0.0085           | 0.066                | 1.0                   |
|                                                                                   | 2.5% SOM | 0.0098          | 0.0099           | 0.13                 | 1.2                   |
|                                                                                   | 6.0% SOM | 0.013           | 0.013            | 0.23                 | 1.6                   |
| <i>Cis</i> 1,2 Dichloroethene                                                     | 1.0% SOM | 0.11            | 0.12             | 0.26                 | 14                    |
|                                                                                   | 2.5% SOM | 0.19            | 0.20             | 0.50                 | 24                    |
|                                                                                   | 6.0% SOM | 0.37            | 0.39             | 1.0                  | 47                    |
| Dichloromethane                                                                   | 1.0% SOM | 0.58            | 2.10             | 0.10                 | 270                   |
|                                                                                   | 2.5% SOM | 0.98            | 2.80             | 0.19                 | 360                   |
|                                                                                   | 6.0% SOM | 1.70            | 4.50             | 0.34                 | 560                   |
| Diethyl Phthalate                                                                 | 1.0% SOM | 120*            | 1800*            | 19*                  | 150000*               |
|                                                                                   | 2.5% SOM | 260*            | 3500*            | 41*                  | 220000*               |
|                                                                                   | 6.0% SOM | 570*            | 6300*            | 94*                  | 290000*               |
| Di- <i>n</i> -butyl phthalate                                                     | 1.0% SOM | 13*             | 450*             | 2.00                 | 15000*                |
|                                                                                   | 2.5% SOM | 31*             | 450*             | 5.00                 | 15000*                |
|                                                                                   | 6.0% SOM | 67*             | 450*             | 12                   | 15000*                |
| Di- <i>n</i> -octyl phthalate                                                     | 1.0% SOM | 2300*           | 3400*            | 940*                 | 89000*                |
|                                                                                   | 2.5% SOM | 2800*           | 3400*            | 2100*                | 89000*                |
|                                                                                   | 6.0% SOM | 3100*           | 3400*            | 3900*                | 89000*                |
| Hexachloroethane                                                                  | 1.0% SOM | 0.20            | 0.22             | 0.27                 | 22*                   |
|                                                                                   | 2.5% SOM | 0.48            | 0.54             | 0.67                 | 53*                   |
|                                                                                   | 6.0% SOM | 1.10            | 1.30             | 1.60                 | 120*                  |
| Isopropylbenzene                                                                  | 1.0% SOM | 11              | 12               | 32                   | 1400*                 |
|                                                                                   | 2.5% SOM | 27              | 28               | 79                   | 3300*                 |
|                                                                                   | 6.0% SOM | 64              | 67               | 190                  | 7700*                 |
| Methyl <i>tert</i> -butyl ether<br>(MTBE)                                         | 1.0% SOM | 49              | 73               | 23                   | 7900                  |
|                                                                                   | 2.5% SOM | 84              | 120              | 44                   | 13000                 |
|                                                                                   | 6.0% SOM | 160             | 220              | 90                   | 24000                 |
| Propylbenzene                                                                     | 1.0% SOM | 34              | 40               | 34                   | 4100*                 |
|                                                                                   | 2.5% SOM | 82              | 97               | 83                   | 9700*                 |
|                                                                                   | 6.0% SOM | 190             | 230              | 200                  | 21000*                |
| Styrene                                                                           | 1.0% SOM | 8.10            | 35               | 1.60                 | 3300*                 |
|                                                                                   | 2.5% SOM | 19              | 78               | 3.70                 | 6500*                 |
|                                                                                   | 6.0% SOM | 43              | 170              | 8.70                 | 11000*                |
| Total Cresols (2-, 3-, and 4-methylphenol)                                        | 1.0% SOM | 80              | 3700             | 12                   | 160000                |
|                                                                                   | 2.5% SOM | 180             | 5400             | 27                   | 180000*               |
|                                                                                   | 6.0% SOM | 400             | 6900             | 63                   | 180000*               |
| <i>Trans</i> 1,2 Dichloroethene                                                   | 1.0% SOM | 0.19            | 0.19             | 0.93                 | 22                    |
|                                                                                   | 2.5% SOM | 0.34            | 0.35             | 1.90                 | 40                    |
|                                                                                   | 6.0% SOM | 0.70            | 0.71             | 0.24                 | 81                    |
| Tributyl tin oxide                                                                | 1.0% SOM | 0.25            | 1.40             | 0.042                | 130*                  |
|                                                                                   | 2.5% SOM | 0.59            | 3.10             | 0.100                | 180*                  |
|                                                                                   | 6.0% SOM | 1.30            | 5.70             | 0.240                | 200*                  |

\*soil concentration above saturation limit

| C4SL Low Level of Toxicological Concern     |          |                 |                  |                      |                       |                    |                    |
|---------------------------------------------|----------|-----------------|------------------|----------------------|-----------------------|--------------------|--------------------|
| Determinands                                |          | RwHP<br>(mg/kg) | RwoHP<br>(mg/kg) | Allotment<br>(mg/kg) | Commercial<br>(mg/kg) | POSresi<br>(mg/kg) | POSpark<br>(mg/kg) |
| 1,2-Dichloroethane<br>(Ethylene Dichloride) | 1.0% SOM | 0.11            | 0.16             | 0.054                | 12                    | 300                | 300                |
|                                             | 2.5% SOM | 0.18            | 0.24             | 0.10                 | 17                    | 310                | 330                |
|                                             | 6.0% SOM | 0.31            | 0.41             | 0.19                 | 29                    | 310                | 380                |
| Cis-1,2-Dichloroethene                      | 1.0% SOM | 0.46            | 0.50             | 0.89                 | 38                    | 3,800              | 2,000              |
|                                             | 2.5% SOM | 0.78            | 0.84             | 1.7                  | 64                    | 3,800              | 2,400              |
|                                             | 6.0% SOM | 1.5             | 1.6              | 3.6                  | 120                   | 3,900              | 3,100              |
| Tetrachloroethene<br>(PCE)                  | 1.0% SOM | 0.31            | 0.32             | 2                    | 24                    | 3,200              | 1,400              |
|                                             | 2.5% SOM | 0.70            | 0.71             | 4.8                  | 55                    | 3,300              | 1,900              |
|                                             | 6.0% SOM | 1.60            | 1.60             | 11                   | 130                   | 3,400              | 2,500              |
| Trans-1,2-Dichloroethene                    | 1.0% SOM | 0.90            | 0.93             | 3.70                 | 69                    | 13,000             | 5,600              |
|                                             | 2.5% SOM | 1.60            | 1.70             | 7.50                 | 120                   | 13,000             | 7,000              |
|                                             | 6.0% SOM | 3.30            | 3.40             | 16                   | 260                   | 13,000             | 9,100              |
| Trichloroethene<br>(TCE)                    | 1.0% SOM | 0.0093          | 0.0097           | 0.032                | 0.73                  | 76                 | 41                 |
|                                             | 2.5% SOM | 0.020           | 0.020            | 0.072                | 1.5                   | 78                 | 54                 |
|                                             | 6.0% SOM | 0.043           | 0.045            | 0.16                 | 3.4                   | 79                 | 69                 |
| Vinyl Chloride<br>(Chloroethene)            | 1.0% SOM | 0.0064          | 0.015            | 0.0017               | 1.1                   | 7.8                | 18                 |
|                                             | 2.5% SOM | 0.010           | 0.019            | 0.0031               | 1.4                   | 7.8                | 19                 |
|                                             | 6.0% SOM | 0.017           | 0.029            | 0.0058               | 2.2                   | 7.8                | 19                 |

#### 9.6. Per- and Polyfluoroalkyl Substances (PFAS)

| Interim C4SLs for PFOA, PFNA, PFHxS and PFOS |                 |                  |                      |                       |                    |                    |
|----------------------------------------------|-----------------|------------------|----------------------|-----------------------|--------------------|--------------------|
| Determinand                                  | RwHP<br>(mg/kg) | RwoHP<br>(mg/kg) | Allotment<br>(mg/kg) | Commercial<br>(mg/kg) | POSresi<br>(mg/kg) | POSpark<br>(mg/kg) |
| PFOA                                         | 0.076           | 0.041            | 0.0014               | 0.60                  | 0.079              | 0.17               |
| PFOS                                         | 0.013           | 0.041            | 0.0027               | 0.60                  | 0.079              | 0.17               |
| PFHxS                                        | 0.0081          | 0.041            | 0.0015               | 0.60                  | 0.079              | 0.17               |
| PFNA                                         | 0.0073          | 0.041            | 0.0013               | 0.60                  | 0.079              | 0.17               |

#### 9.7. Asbestos

No asbestos or asbestos containing materials (ACM's) are considered acceptable on-site from a human health perspective. Therefore the GAC for asbestos & ACM's within any imported material should be none detected (ND).



# APPENDIX I: Ground-gas Monitoring Results

|            |                             |
|------------|-----------------------------|
| Job No:    | 6869                        |
| Site name: | Land South of Wandleys Lane |
| Operator:  | AA                          |

|           |          |    |       |  |
|-----------|----------|----|-------|--|
| Date:     | 02.12.25 |    |       |  |
| Time:     | 12:15    | to | 13:30 |  |
| Visit No: | 1        | of | 6     |  |

|                          |       |
|--------------------------|-------|
| Ground Gas Serial No.:   | 2     |
| Last Calibration:        |       |
| PID Analyser Serial No.: | Pid 2 |
| Last Calibration:        |       |

| Monitoring Point | GAS CONCENTRATIONS |        |                       |        |                       |                         |               |        | VOLATILES               |                |                        | FLOW DATA        |        |                                     | WELL AND WATER DATA |                       |
|------------------|--------------------|--------|-----------------------|--------|-----------------------|-------------------------|---------------|--------|-------------------------|----------------|------------------------|------------------|--------|-------------------------------------|---------------------|-----------------------|
|                  | Methane (%v/v)     |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppm) | Hydrogen sulphide (ppm) | Oxygen (%v/v) |        | PID Compensation Factor | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Water level (m bgl) | Depth of well (m bgl) |
|                  | Peak               | Steady | Peak                  | Steady | Peak                  | Peak                    | Min           | Steady |                         |                |                        | Peak             | Steady |                                     |                     |                       |
| Ambient air      | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 21.00         | 20.90  | /                       | /              | /                      | n/a              | n/a    | n/a                                 | n/a                 | n/a                   |
| Ws1              | 0.00               | 0.00   | 0.40                  | 0.40   | 0                     | 0                       | 20.50         | 20.60  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 2.54                  |
| Ws5              | 0.00               | 0.00   | 0.60                  | 0.60   | 0                     | 0                       | 20.60         | 20.60  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 1.88                  |
| Ws3              | 0.00               | 0.00   | 0.80                  | 0.80   | 0                     | P                       | 20.60         | 20.50  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 1.50                  |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
| Max              | 0.00               | 0.00   | 0.80                  | 0.80   | 0                     | 0                       | 21.00         | 20.90  |                         | 0.0            | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |
| Min              | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 20.50         | 20.50  |                         | 0.0            | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |

#### SITE INFORMATION:

State of ground:  Dry ☒ Wet  Snow  Frozen  Hardstanding

Wind:  Calm ☒ Moderate  Strong

Cloud cover:  None ☒ Cloudy  Overcast

Precipitation:  None ☒ Moderate  Heavy

#### METEOROLOGICAL INFORMATION:

Official Barometric Pressure (mbar):  1003.0 3hr Before  1003.0 End of Monitoring (taken from wow.metoffice.gov.uk station)

Official Pressure Tendency:

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

Falling (decreasing change >1.6 mbar)

☒ Steady (change of 0.1 - 1.5 mbar)

Rising (increasing change >1.6 mbar)

# Gas Monitoring Data Sheet

|            |                             |
|------------|-----------------------------|
| Job No:    | GWPR 6869                   |
| Site name: | Land South of Wandleys Lane |
| Operator:  | AP                          |

|           |          |    |       |  |
|-----------|----------|----|-------|--|
| Date:     | 11.12.25 |    |       |  |
| Time:     | 09:45    | to | 10:30 |  |
| Visit No: | 2        | of | 6     |  |

|                          |        |
|--------------------------|--------|
| Ground Gas Serial No.:   | 12539  |
| Last Calibration:        | Mar-25 |
| PID Analyser Serial No.: | 83390  |
| Last Calibration:        | Jul-26 |

| Monitoring Point | GAS CONCENTRATIONS |        |                       |        |                       |                         |               |        | VOLATILES               |                |                        | FLOW DATA        |        |                                     | WELL AND WATER DATA |                       |
|------------------|--------------------|--------|-----------------------|--------|-----------------------|-------------------------|---------------|--------|-------------------------|----------------|------------------------|------------------|--------|-------------------------------------|---------------------|-----------------------|
|                  | Methane (%v/v)     |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppm) | Hydrogen sulphide (ppm) | Oxygen (%v/v) |        | PID Compensation Factor | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Water level (m bgl) | Depth of well (m bgl) |
|                  | Peak               | Steady | Peak                  | Steady | Peak                  | Peak                    | Min           | Steady |                         |                |                        | Peak             | Steady |                                     |                     |                       |
| Ambient air      | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 20.20         | 20.20  | /                       | /              | /                      | n/a              | n/a    | n/a                                 | n/a                 | n/a                   |
| WS1              | 0.00               | 0.00   | 1.60                  | 1.60   | 0                     | 0                       | 18.70         | 18.70  | 1.0                     | 84.3           | /                      | 0.0              | 0.0    | /                                   | Dry                 | 1.58m                 |
| WS3              | 0.00               | 0.00   | 0.80                  | 0.80   | 0                     | 0                       | 19.50         | 19.50  | 1.0                     | 18.4           | /                      | 0.0              | 0.0    | /                                   | Dry                 | 1.53m                 |
| WS5              | 0.00               | 0.00   | 2.20                  | 2.20   | 0                     | 0                       | 16.50         | 16.50  | 1.0                     | 90.5           | /                      | 0.0              | 0.0    | /                                   | Dry                 | 1.87m                 |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
| Max              | 0.00               | 0.00   | 2.20                  | 2.20   | 0                     | 0                       | 20.20         | 20.20  |                         | 90.5           | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |
| Min              | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 16.50         | 16.50  |                         | 18.4           | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |

## SITE INFORMATION:

|                  |                                     |      |                                     |          |                          |          |                          |        |                          |              |
|------------------|-------------------------------------|------|-------------------------------------|----------|--------------------------|----------|--------------------------|--------|--------------------------|--------------|
| State of ground: | <input type="checkbox"/>            | Dry  | <input checked="" type="checkbox"/> | Wet      | <input type="checkbox"/> | Snow     | <input type="checkbox"/> | Frozen | <input type="checkbox"/> | Hardstanding |
| Wind:            | <input checked="" type="checkbox"/> | Calm | <input type="checkbox"/>            | Moderate | <input type="checkbox"/> | Strong   |                          |        |                          |              |
| Cloud cover:     | <input type="checkbox"/>            | None | <input checked="" type="checkbox"/> | Cloudy   | <input type="checkbox"/> | Overcast |                          |        |                          |              |
| Precipitation:   | <input checked="" type="checkbox"/> | None | <input type="checkbox"/>            | Moderate | <input type="checkbox"/> | Heavy    |                          |        |                          |              |

## METEOROLOGICAL INFORMATION:

Official Barometric Pressure (mbar):  3hr Before  End of Monitoring (taken from [www.metoffice.gov.uk](http://www.metoffice.gov.uk) station)

Official Pressure Tendency:

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

|                                     |                                       |
|-------------------------------------|---------------------------------------|
| <input type="checkbox"/>            | Falling (decreasing change >1.6 mbar) |
| <input checked="" type="checkbox"/> | Steady (change of 0.1 - 1.5 mbar)     |
| <input type="checkbox"/>            | Rising (increasing change >1.6 mbar)  |

|            |                             |
|------------|-----------------------------|
| Job No:    | 6869                        |
| Site name: | Land South of Wandleys Lane |
| Operator:  | AA                          |

|           |          |    |       |  |
|-----------|----------|----|-------|--|
| Date:     | 16.12.25 |    |       |  |
| Time:     | 12:10    | to | 12:40 |  |
| Visit No: | 3        | of | 6     |  |

|                          |       |
|--------------------------|-------|
| Ground Gas Serial No.:   | 2     |
| Last Calibration:        |       |
| PID Analyser Serial No.: | Pid 2 |
| Last Calibration:        |       |

| Monitoring Point | GAS CONCENTRATIONS |        |                       |        |                       |                         |               |        | VOLATILES               |                |                        | FLOW DATA        |        |                                     | WELL AND WATER DATA |                       |
|------------------|--------------------|--------|-----------------------|--------|-----------------------|-------------------------|---------------|--------|-------------------------|----------------|------------------------|------------------|--------|-------------------------------------|---------------------|-----------------------|
|                  | Methane (%v/v)     |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppm) | Hydrogen sulphide (ppm) | Oxygen (%v/v) |        | PID Compensation Factor | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Water level (m bgl) | Depth of well (m bgl) |
|                  | Peak               | Steady | Peak                  | Steady | Peak                  | Peak                    | Min           | Steady |                         |                |                        | Peak             | Steady |                                     |                     |                       |
| Ambient air      | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 21.00         | 21.00  | /                       | /              | /                      | n/a              | n/a    | n/a                                 | n/a                 | n/a                   |
| Ws1              | 0.00               | 0.00   | 0.50                  | 0.50   | 0                     | 0                       | 20.60         | 20.60  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 2.54                  |
| Ws5              | 0.00               | 0.00   | 0.60                  | 0.60   | 0                     | 0                       | 20.60         | 20.60  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 1.88                  |
| Ws3              | 0.00               | 0.00   | 0.70                  | 0.60   | 0                     | P                       | 20.40         | 20.40  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 1.50                  |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
| Max              | 0.00               | 0.00   | 0.70                  | 0.60   | 0                     | 0                       | 21.00         | 21.00  |                         | 0.0            | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |
| Min              | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 20.40         | 20.40  |                         | 0.0            | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |

#### SITE INFORMATION:

State of ground:  Dry ☒ Wet  Snow  Frozen  Hardstanding

Wind:  Calm ☒ Moderate  Strong

Cloud cover:  None ☒ Cloudy  Overcast

Precipitation:  None ☒ Moderate  Heavy

#### METEOROLOGICAL INFORMATION:

Official Barometric Pressure (mbar):  1009.0 3hr Before  1009.0 End of Monitoring (taken from wow.metoffice.gov.uk station)

Official Pressure Tendency:

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

Falling (decreasing change >1.6 mbar)

☒ Steady (change of 0.1 - 1.5 mbar)

Rising (increasing change >1.6 mbar)



|            |                             |
|------------|-----------------------------|
| Job No:    | 6869                        |
| Site name: | Land South of Wandleys Lane |
| Operator:  | AA                          |

|           |          |    |       |  |
|-----------|----------|----|-------|--|
| Date:     | 23.12.25 |    |       |  |
| Time:     | 08:20    | to | 08:50 |  |
| Visit No: | 4        | of | 6     |  |

|                          |       |
|--------------------------|-------|
| Ground Gas Serial No.:   | 2     |
| Last Calibration:        |       |
| PID Analyser Serial No.: | Pid 2 |
| Last Calibration:        |       |

| Monitoring Point | GAS CONCENTRATIONS |        |                       |        |                       |                         |               |        | VOLATILES               |                |                        | FLOW DATA        |        |                                     | WELL AND WATER DATA |                       |
|------------------|--------------------|--------|-----------------------|--------|-----------------------|-------------------------|---------------|--------|-------------------------|----------------|------------------------|------------------|--------|-------------------------------------|---------------------|-----------------------|
|                  | Methane (%v/v)     |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppm) | Hydrogen sulphide (ppm) | Oxygen (%v/v) |        | PID Compensation Factor | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Water level (m bgl) | Depth of well (m bgl) |
|                  | Peak               | Steady | Peak                  | Steady | Peak                  | Peak                    | Min           | Steady |                         |                |                        | Peak             | Steady |                                     |                     |                       |
| Ambient air      | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 20.90         | 20.90  | /                       | /              | /                      | n/a              | n/a    | n/a                                 | n/a                 | n/a                   |
| Ws1              | 0.00               | 0.00   | 0.60                  | 0.60   | 0                     | 0                       | 20.50         | 20.60  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 2.54                  |
| Ws5              | 0.00               | 0.00   | 0.60                  | 0.60   | 0                     | 0                       | 20.60         | 20.60  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 1.88                  |
| Ws3              | 0.00               | 0.00   | 0.70                  | 0.60   | 0                     | P                       | 20.40         | 20.40  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 1.50                  |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
| Max              | 0.00               | 0.00   | 0.70                  | 0.60   | 0                     | 0                       | 20.90         | 20.90  |                         | 0.0            | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |
| Min              | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 20.40         | 20.40  |                         | 0.0            | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |

#### SITE INFORMATION:

State of ground:  Dry ☒ Wet  Snow  Frozen  Hardstanding

Wind:  Calm ☒ Moderate  Strong

Cloud cover:  None ☒ Cloudy  Overcast

Precipitation:  None ☒ Moderate  Heavy

#### METEOROLOGICAL INFORMATION:

Official Barometric Pressure (mbar):  1014.0 3hr Before  1014.0 End of Monitoring (taken from wow.metoffice.gov.uk station)

Official Pressure Tendency:

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

Falling (decreasing change >1.6 mbar)

☒ Steady (change of 0.1 - 1.5 mbar)

Rising (increasing change >1.6 mbar)

|            |                             |
|------------|-----------------------------|
| Job No:    | 6869                        |
| Site name: | Land South of Wandleys Lane |
| Operator:  | AA                          |

|           |        |    |       |
|-----------|--------|----|-------|
| Date:     | 7.1.25 |    |       |
| Time:     | 11:35  | to | 12:10 |
| Visit No: | 5      | of | 6     |

|                          |       |
|--------------------------|-------|
| Ground Gas Serial No.:   | 2     |
| Last Calibration:        |       |
| PID Analyser Serial No.: | Pid 2 |
| Last Calibration:        |       |

| Monitoring Point | GAS CONCENTRATIONS |        |                       |        |                       |                         |               |        | VOLATILES               |                |                        | FLOW DATA        |        |                                     | WELL AND WATER DATA |                       |
|------------------|--------------------|--------|-----------------------|--------|-----------------------|-------------------------|---------------|--------|-------------------------|----------------|------------------------|------------------|--------|-------------------------------------|---------------------|-----------------------|
|                  | Methane (%v/v)     |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppm) | Hydrogen sulphide (ppm) | Oxygen (%v/v) |        | PID Compensation Factor | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Water level (m bgl) | Depth of well (m bgl) |
|                  | Peak               | Steady | Peak                  | Steady | Peak                  | Peak                    | Min           | Steady |                         |                |                        | Peak             | Steady |                                     |                     |                       |
| Ambient air      | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 20.90         | 20.90  | /                       | /              | /                      | n/a              | n/a    | n/a                                 | n/a                 | n/a                   |
| Ws1              | 0.00               | 0.00   | 0.10                  | 0.10   | 0                     | 0                       | 19.90         | 20.00  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 2.54                  |
| Ws5              | 0.00               | 0.00   | 0.10                  | 0.10   | 0                     | 0                       | 20.00         | 20.00  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 1.88                  |
| Ws3              | 0.00               | 0.00   | 0.10                  | 0.10   | 0                     | P                       | 20.10         | 20.10  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 1.50                  |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
| Max              | 0.00               | 0.00   | 0.10                  | 0.10   | 0                     | 0                       | 20.90         | 20.90  |                         | 0.0            | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |
| Min              | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 19.90         | 20.00  |                         | 0.0            | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |

#### SITE INFORMATION:

State of ground:  Dry ☒ Wet  Snow  Frozen  Hardstanding

Wind:  Calm ☒ Moderate  Strong

Cloud cover:  None ☒ Cloudy  Overcast

Precipitation:  None ☒ Moderate  Heavy

#### METEOROLOGICAL INFORMATION:

Official Barometric Pressure (mbar):  1008.0 3hr Before  1008.0 End of Monitoring (taken from wow.metoffice.gov.uk station)

Official Pressure Tendency:

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

Falling (decreasing change >1.6 mbar)

☒ Steady (change of 0.1 - 1.5 mbar)

Rising (increasing change >1.6 mbar)

|            |                             |
|------------|-----------------------------|
| Job No:    | 6869                        |
| Site name: | Land South of Wandleys Lane |
| Operator:  | AA                          |

|           |         |    |       |  |
|-----------|---------|----|-------|--|
| Date:     | 14.1.26 |    |       |  |
| Time:     | 10:05   | to | 10:35 |  |
| Visit No: | 6       | of | 6     |  |

|                          |       |
|--------------------------|-------|
| Ground Gas Serial No.:   | 2     |
| Last Calibration:        |       |
| PID Analyser Serial No.: | Pid 2 |
| Last Calibration:        |       |

| Monitoring Point | GAS CONCENTRATIONS |        |                       |        |                       |                         |               |        | VOLATILES               |                |                        | FLOW DATA        |        |                                     | WELL AND WATER DATA |                       |
|------------------|--------------------|--------|-----------------------|--------|-----------------------|-------------------------|---------------|--------|-------------------------|----------------|------------------------|------------------|--------|-------------------------------------|---------------------|-----------------------|
|                  | Methane (%v/v)     |        | Carbon dioxide (%v/v) |        | Carbon monoxide (ppm) | Hydrogen sulphide (ppm) | Oxygen (%v/v) |        | PID Compensation Factor | PID Peak (ppm) | Product thickness (mm) | Flow rate (l/hr) |        | Differential borehole Pressure (Pa) | Water level (m bgl) | Depth of well (m bgl) |
|                  | Peak               | Steady | Peak                  | Steady | Peak                  | Peak                    | Min           | Steady |                         |                |                        | Peak             | Steady |                                     |                     |                       |
| Ambient air      | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 20.90         | 20.90  | /                       | /              | /                      | n/a              | n/a    | n/a                                 | n/a                 | n/a                   |
| Ws1              | 0.00               | 0.00   | 0.10                  | 0.10   | 0                     | 0                       | 19.80         | 19.80  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 2.54                  |
| Ws5              | 0.00               | 0.00   | 0.10                  | 0.10   | 0                     | 0                       | 20.10         | 20.10  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 1.88                  |
| Ws3              | 0.00               | 0.00   | 0.10                  | 0.10   | 0                     | 0                       | 20.00         | 20.10  | 0.6                     | 0.0            |                        | 0.0              | 0.0    | 0.00                                | Dry                 | 1.50                  |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
|                  |                    |        |                       |        |                       |                         |               |        |                         |                |                        |                  |        |                                     |                     |                       |
| Max              | 0.00               | 0.00   | 0.10                  | 0.10   | 0                     | 0                       | 20.90         | 20.90  |                         | 0.0            | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |
| Min              | 0.00               | 0.00   | 0.00                  | 0.00   | 0                     | 0                       | 19.80         | 19.80  |                         | 0.0            | 0                      | 0.00             | 0.00   | 0.00                                | 0                   |                       |

#### SITE INFORMATION:

State of ground:  Dry ☒ Wet  Snow  Frozen  Hardstanding

Wind:  Calm ☒ Moderate  Strong

Cloud cover:  None ☒ Cloudy  Overcast

Precipitation:  None ☒ Moderate  Heavy

#### METEOROLOGICAL INFORMATION:

Official Barometric Pressure (mbar):  1014.0 3hr Before  1014.0 End of Monitoring (taken from wow.metoffice.gov.uk station)

Official Pressure Tendency:

(Change in atmospheric pressure for the preceding 3 hours of monitoring)

Falling (decreasing change >1.6 mbar)

☒ Steady (change of 0.1 - 1.5 mbar)

Rising (increasing change >1.6 mbar)

# **APPENDIX I:**

## **Waste Hazard Assessment**



## 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)



V0Q44-ANAA4-EZYKD

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

### Job name

Land South of Wandleys Lane, Fontwell, Eastergate, West Sussex PO20 3SE

### Description/Comments

### Project

GWPR5571

### Site

Land South of Wandleys Lane, Fontwell, Eastergate, West Sussex PO20 3SE

### Classified by

Name:

**Roger Foord**

Date:

**19 Oct 2023 16:07 GMT**

Telephone:

[REDACTED]

Company:

**Ground and Water  
Brighton**

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

**HazWasteOnline™ Certification:**

-

**Course**

Hazardous Waste Classification

**Date**

-

### Purpose of classification

2 - Material Characterisation

### Address of the waste

Land South of Wandleys Lane, Fontwell, Eastergate, West Sussex

**Post Code** PO20 3SE

### SIC for the process giving rise to the waste

### Description of industry/producer giving rise to the waste

Development of undeveloped field

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

Waste created during foundation excavations

### Description of the waste

Brown slightly clayey sandy gravel.

## Job summary

| # | Sample name        | Depth [m] | Classification Result | Hazard properties | Page |
|---|--------------------|-----------|-----------------------|-------------------|------|
| 1 | GWPR5571 WS1@0.20  |           | Non Hazardous         |                   | 3    |
| 2 | GWPR5571 Ws3@0.20m |           | Non Hazardous         |                   | 6    |
| 3 | GWPR5571 W4s@0.20m |           | Non Hazardous         |                   | 7    |
| 4 | GWPR5571 WS4@0.20m |           | Non Hazardous         |                   | 10   |

## Related documents

| # | Name           | Description                                      |
|---|----------------|--------------------------------------------------|
| 1 | 231006-62.hwol | ALS Hawarden .hwol file used to populate the Job |

## Report

Created by: Roger Foord

Created date: 19 Oct 2023 16:07 GMT

| Appendices                                                                 | Page |
|----------------------------------------------------------------------------|------|
| <a href="#">Appendix A: Classifier defined and non GB MCL determinands</a> | 12   |
| <a href="#">Appendix B: Rationale for selection of metal species</a>       | 13   |
| <a href="#">Appendix C: Version</a>                                        | 14   |

Classification of sample: GWPR5571 WS1@0.20

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

### Sample details

|                                        |                                                                                           |
|----------------------------------------|-------------------------------------------------------------------------------------------|
| Sample name:                           | LoW Code:                                                                                 |
| <b>GWPR5571 WS1@0.20</b>               | Chapter:                                                                                  |
| Moisture content:                      | 17: Construction and Demolition Wastes (including excavated soil from contaminated sites) |
| <b>8.1%</b><br>(wet weight correction) | Entry:                                                                                    |
|                                        | 17 05 04 (Soil and stones other than those mentioned in 17 05 03)                         |

### Hazard properties

None identified

### Determinands

Moisture content: 8.1% Wet 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  | acenaphthene                                                                                                                                                                           | 201-469-6    | 83-32-9    |            | <0.008 mg/kg      |              | <0.008 mg/kg   | <0.0000008 %         |            | <LOD           |
| 2  | acenaphthylene                                                                                                                                                                         | 205-917-1    | 208-96-8   |            | <0.012 mg/kg      |              | <0.012 mg/kg   | <0.0000012 %         |            | <LOD           |
| 3  | anthracene                                                                                                                                                                             | 204-371-1    | 120-12-7   |            | <0.016 mg/kg      |              | <0.016 mg/kg   | <0.0000016 %         |            | <LOD           |
| 4  | arsenic { arsenic trioxide }                                                                                                                                                           | 033-003-00-0 | 215-481-4  | 1327-53-3  | 7.35 mg/kg        | 1.32         | 8.918 mg/kg    | 0.000892 %           | ✓          |                |
| 5  | benzo[a]anthracene                                                                                                                                                                     | 601-033-00-9 | 200-280-6  | 56-55-3    | 0.0555 mg/kg      |              | 0.051 mg/kg    | 0.0000051 %          | ✓          |                |
| 6  | benzene                                                                                                                                                                                | 601-020-00-8 | 200-753-7  | 71-43-2    | <0.01 mg/kg       |              | <0.01 mg/kg    | <0.000001 %          |            | <LOD           |
| 7  | benzo[a]pyrene; benzo[def]chrysene                                                                                                                                                     | 601-032-00-3 | 200-028-5  | 50-32-8    | 0.071 mg/kg       |              | 0.0652 mg/kg   | 0.00000652 %         | ✓          |                |
| 8  | benzo[b]fluoranthene                                                                                                                                                                   | 601-034-00-4 | 205-911-9  | 205-99-2   | 0.0926 mg/kg      |              | 0.0851 mg/kg   | 0.00000851 %         | ✓          |                |
| 9  | benzo[ghi]perylene                                                                                                                                                                     | 205-883-8    | 191-24-2   |            | 0.0498 mg/kg      |              | 0.0458 mg/kg   | 0.00000458 %         | ✓          |                |
| 10 | benzo[k]fluoranthene                                                                                                                                                                   | 601-036-00-5 | 205-916-6  | 207-08-9   | 0.0347 mg/kg      |              | 0.0319 mg/kg   | 0.00000319 %         | ✓          |                |
| 11 | boron { boron tribromide }                                                                                                                                                             | 005-003-00-0 | 233-657-9  | 10294-33-4 | <1 mg/kg          | 23.173       | <23.173 mg/kg  | <0.00232 %           |            | <LOD           |
| 12 | cadmium { cadmium sulfide }                                                                                                                                                            | 048-010-00-4 | 215-147-8  | 1306-23-6  | <0.02 mg/kg       | 1.285        | <0.0257 mg/kg  | <0.000002 %          |            | <LOD           |
| 13 | chromium in chromium(VI) compounds { chromium(VI) oxide }                                                                                                                              | 024-001-00-0 | 215-607-8  | 1333-82-0  | <0.6 mg/kg        | 1.923        | <1.154 mg/kg   | <0.000115 %          |            | <LOD           |
| 14 | chrysene                                                                                                                                                                               | 601-048-00-0 | 205-923-4  | 218-01-9   | 0.0634 mg/kg      |              | 0.0583 mg/kg   | 0.00000583 %         | ✓          |                |
| 15 | copper { dicopper oxide; copper (I) oxide }                                                                                                                                            | 029-002-00-X | 215-270-7  | 1317-39-1  | 27.4 mg/kg        | 1.126        | 28.351 mg/kg   | 0.00284 %            | ✓          |                |
| 16 | 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 } | 006-007-00-5 |            |            | <1 mg/kg          | 1.884        | <1.884 mg/kg   | <0.000188 %          |            | <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     | dibenz[a,h]anthracene                                                                                                    |                                                                  |                                                              |          | <0.023 mg/kg      |              | <0.023 mg/kg   | <0.0000023 % |                      |            | <LOD           |
|        | 601-041-00-2                                                                                                             | 200-181-8                                                        | 53-70-3                                                      |          |                   |              |                |              |                      |            |                |
| 18     | ethylbenzene                                                                                                             |                                                                  |                                                              |          | <0.01 mg/kg       |              | <0.01 mg/kg    | <0.000001 %  |                      |            | <LOD           |
|        | 601-023-00-4                                                                                                             | 202-849-4                                                        | 100-41-4                                                     |          |                   |              |                |              |                      |            |                |
| 19     | fluoranthene                                                                                                             |                                                                  |                                                              |          | 0.12 mg/kg        |              | 0.11 mg/kg     | 0.000011 %   |                      | ✓          |                |
|        |                                                                                                                          | 205-912-4                                                        | 206-44-0                                                     |          |                   |              |                |              |                      |            |                |
| 20     | fluorene                                                                                                                 |                                                                  |                                                              |          | <0.01 mg/kg       |              | <0.01 mg/kg    | <0.000001 %  |                      |            | <LOD           |
|        |                                                                                                                          | 201-695-5                                                        | 86-73-7                                                      |          |                   |              |                |              |                      |            |                |
| 21     | indeno[123-cd]pyrene                                                                                                     |                                                                  |                                                              |          | 0.0499 mg/kg      |              | 0.0459 mg/kg   | 0.00000459 % |                      | ✓          |                |
|        |                                                                                                                          | 205-893-2                                                        | 193-39-5                                                     |          |                   |              |                |              |                      |            |                |
| 22     | lead { lead chromate }                                                                                                   |                                                                  |                                                              | 1        | 28.6 mg/kg        | 1.56         | 40.997 mg/kg   | 0.00263 %    |                      | ✓          |                |
|        | 082-004-00-2                                                                                                             | 231-846-0                                                        | 7758-97-6                                                    |          |                   |              |                |              |                      |            |                |
| 23     | mercury { mercury dichloride }                                                                                           |                                                                  |                                                              |          | <0.1 mg/kg        | 1.353        | <0.135 mg/kg   | <0.0000135 % |                      |            | <LOD           |
|        | 080-010-00-X                                                                                                             | 231-299-8                                                        | 7487-94-7                                                    |          |                   |              |                |              |                      |            |                |
| 24     | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane                                                                 |                                                                  |                                                              |          | <0.005 mg/kg      |              | <0.005 mg/kg   | <0.0000005 % |                      |            | <LOD           |
|        | 603-181-00-X                                                                                                             | 216-653-1                                                        | 1634-04-4                                                    |          |                   |              |                |              |                      |            |                |
| 25     | naphthalene                                                                                                              |                                                                  |                                                              |          | <0.009 mg/kg      |              | <0.009 mg/kg   | <0.0000009 % |                      |            | <LOD           |
|        | 601-052-00-2                                                                                                             | 202-049-5                                                        | 91-20-3                                                      |          |                   |              |                |              |                      |            |                |
| 26     | nickel { nickel dihydroxide }                                                                                            |                                                                  |                                                              |          | 10.4 mg/kg        | 1.579        | 15.096 mg/kg   | 0.00151 %    |                      | ✓          |                |
|        | 028-008-00-X                                                                                                             | 235-008-5 [1]<br>234-348-1 [2]                                   | 12054-48-7 [1]<br>11113-74-9 [2]                             |          |                   |              |                |              |                      |            |                |
| 27     | pH                                                                                                                       |                                                                  | PH                                                           |          | 6.13 pH           |              | 6.13 pH        | 6.13 pH      |                      |            |                |
| 28     | phenanthrene                                                                                                             |                                                                  |                                                              |          | 0.0313 mg/kg      |              | 0.0288 mg/kg   | 0.00000288 % |                      | ✓          |                |
|        |                                                                                                                          | 201-581-5                                                        | 85-01-8                                                      |          |                   |              |                |              |                      |            |                |
| 29     | phenol                                                                                                                   |                                                                  |                                                              |          | <0.01 mg/kg       |              | <0.01 mg/kg    | <0.000001 %  |                      |            | <LOD           |
|        | 604-001-00-2                                                                                                             | 203-632-7                                                        | 108-95-2                                                     |          |                   |              |                |              |                      |            |                |
| 30     | pyrene                                                                                                                   |                                                                  |                                                              |          | 0.11 mg/kg        |              | 0.101 mg/kg    | 0.0000101 %  |                      | ✓          |                |
|        |                                                                                                                          | 204-927-3                                                        | 129-00-0                                                     |          |                   |              |                |              |                      |            |                |
| 31     | selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } |                                                                  |                                                              |          | <1 mg/kg          | 1.405        | <1.405 mg/kg   | <0.000141 %  |                      |            | <LOD           |
|        | 034-002-00-8                                                                                                             |                                                                  |                                                              |          |                   |              |                |              |                      |            |                |
| 32     | toluene                                                                                                                  |                                                                  |                                                              |          | <0.01 mg/kg       |              | <0.01 mg/kg    | <0.000001 %  |                      |            | <LOD           |
|        | 601-021-00-3                                                                                                             | 203-625-9                                                        | 108-88-3                                                     |          |                   |              |                |              |                      |            |                |
| 33     | TPH (C6 to C40) petroleum group                                                                                          |                                                                  | TPH                                                          |          | 17.6 mg/kg        |              | 16.174 mg/kg   | 0.00162 %    |                      | ✓          |                |
| 34     | vanadium { divanadium pentaoxide; vanadium pentoxide }                                                                   |                                                                  |                                                              |          | 26.8 mg/kg        | 1.785        | 43.968 mg/kg   | 0.0044 %     |                      | ✓          |                |
|        | 023-001-00-8                                                                                                             | 215-239-8                                                        | 1314-62-1                                                    |          |                   |              |                |              |                      |            |                |
| 35     | zinc { zinc chromate }                                                                                                   |                                                                  |                                                              |          | 47.5 mg/kg        | 2.774        | 121.098 mg/kg  | 0.0121 %     |                      | ✓          |                |
|        | 024-007-00-3                                                                                                             | 236-878-9                                                        | 13530-65-9                                                   |          |                   |              |                |              |                      |            |                |
| 36     | xylene                                                                                                                   |                                                                  |                                                              |          | <0.04 mg/kg       |              | <0.04 mg/kg    | <0.000004 %  |                      |            | <LOD           |
|        | 601-022-00-9                                                                                                             | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] |          |                   |              |                |              |                      |            |                |
| 37     | chromium in chromium(III) compounds { chromium(III) oxide (worst case) }                                                 |                                                                  |                                                              |          | 13.3 mg/kg        | 1.462        | 17.864 mg/kg   | 0.00179 %    |                      | ✓          |                |
|        |                                                                                                                          | 215-160-9                                                        | 1308-38-9                                                    |          |                   |              |                |              |                      |            |                |
| Total: |                                                                                                                          |                                                                  |                                                              |          |                   |              |                |              | 0.0306 %             |            |                |

#### 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                                                                                                        |
| CLP: Note 1 | Only the metal concentration has been used for classification                                                                   |



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### Supplementary Hazardous Property Information

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**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 Heavy end hydrocarbons unlikely to be flammable at the concentrations noted.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00162%)

Classification of sample: GWPR5571 Ws3@0.20m

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

### Sample details

|                                        |                                                                                                    |
|----------------------------------------|----------------------------------------------------------------------------------------------------|
| Sample name:                           | LoW Code:                                                                                          |
| <b>GWPR5571 Ws3@0.20m</b>              | 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)                           |
| <b>8.4%</b><br>(wet weight correction) |                                                                                                    |

### Hazard properties

None identified

### Determinands

Moisture content: 8.4% Wet 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      | benzene                                                  |                                                                  |                                                              |          | <0.001 mg/kg      |              | <0.001 mg/kg   | <0.0000001 %         |            | <LOD           |
|        | 601-020-00-8                                             | 200-753-7                                                        | 71-43-2                                                      |          |                   |              |                |                      |            |                |
| 2      | ethylbenzene                                             |                                                                  |                                                              |          | <0.001 mg/kg      |              | <0.001 mg/kg   | <0.0000001 %         |            | <LOD           |
|        | 601-023-00-4                                             | 202-849-4                                                        | 100-41-4                                                     |          |                   |              |                |                      |            |                |
| 3      | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane |                                                                  |                                                              |          | <0.0005 mg/kg     |              | <0.0005 mg/kg  | <0.00000005 %        |            | <LOD           |
|        | 603-181-00-X                                             | 216-653-1                                                        | 1634-04-4                                                    |          |                   |              |                |                      |            |                |
| 4      | toluene                                                  |                                                                  |                                                              |          | <0.001 mg/kg      |              | <0.001 mg/kg   | <0.0000001 %         |            | <LOD           |
|        | 601-021-00-3                                             | 203-625-9                                                        | 108-88-3                                                     |          |                   |              |                |                      |            |                |
| 5      | coronene                                                 |                                                                  |                                                              |          | <0.2 mg/kg        |              | <0.2 mg/kg     | <0.00002 %           |            | <LOD           |
|        |                                                          | 205-881-7                                                        | 191-07-1                                                     |          |                   |              |                |                      |            |                |
| 6      | polychlorobiphenyls; PCB                                 |                                                                  |                                                              |          | <0.021 mg/kg      |              | <0.021 mg/kg   | <0.0000021 %         |            | <LOD           |
|        | 602-039-00-4                                             | 215-648-1                                                        | 1336-36-3                                                    |          |                   |              |                |                      |            |                |
| 7      | xylene                                                   |                                                                  |                                                              |          | <0.004 mg/kg      |              | <0.004 mg/kg   | <0.0000004 %         |            | <LOD           |
|        | 601-022-00-9                                             | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] |          |                   |              |                |                      |            |                |
| Total: |                                                          |                                                                  |                                                              |          |                   |              |                | 0.00002 %            |            |                |

### 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)                     |
| <LOD | Below limit of detection                                                              |

Classification of sample: GWPR5571 W4s@0.20m

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

### Sample details

|                                       |           |                                                                                           |
|---------------------------------------|-----------|-------------------------------------------------------------------------------------------|
| Sample name:                          | LoW Code: |                                                                                           |
| <b>GWPR5571 W4s@0.20m</b>             | 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)                         |
| <b>12%</b><br>(wet weight correction) |           |                                                                                           |

### Hazard properties

None identified

### Determinands

Moisture content: 12% Wet 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  | acenaphthene                                                                                                                                                                           | 201-469-6    | 83-32-9    |            | <0.008 mg/kg      |              | <0.008 mg/kg   | <0.0000008 %         |            | <LOD           |
| 2  | acenaphthylene                                                                                                                                                                         | 205-917-1    | 208-96-8   |            | <0.012 mg/kg      |              | <0.012 mg/kg   | <0.0000012 %         |            | <LOD           |
| 3  | anthracene                                                                                                                                                                             | 204-371-1    | 120-12-7   |            | <0.016 mg/kg      |              | <0.016 mg/kg   | <0.0000016 %         |            | <LOD           |
| 4  | arsenic { arsenic trioxide }                                                                                                                                                           | 033-003-00-0 | 215-481-4  | 1327-53-3  | 6.76 mg/kg        | 1.32         | 7.854 mg/kg    | 0.000785 %           | ✓          |                |
| 5  | benzo[a]anthracene                                                                                                                                                                     | 601-033-00-9 | 200-280-6  | 56-55-3    | 0.0364 mg/kg      |              | 0.032 mg/kg    | 0.0000032 %          | ✓          |                |
| 6  | benzene                                                                                                                                                                                | 601-020-00-8 | 200-753-7  | 71-43-2    | <0.001 mg/kg      |              | <0.001 mg/kg   | <0.0000001 %         |            | <LOD           |
| 7  | benzo[a]pyrene; benzo[def]chrysene                                                                                                                                                     | 601-032-00-3 | 200-028-5  | 50-32-8    | 0.0404 mg/kg      |              | 0.0356 mg/kg   | 0.00000356 %         | ✓          |                |
| 8  | benzo[b]fluoranthene                                                                                                                                                                   | 601-034-00-4 | 205-911-9  | 205-99-2   | 0.0598 mg/kg      |              | 0.0526 mg/kg   | 0.00000526 %         | ✓          |                |
| 9  | benzo[ghi]perylene                                                                                                                                                                     | 205-883-8    | 191-24-2   |            | 0.0293 mg/kg      |              | 0.0258 mg/kg   | 0.00000258 %         | ✓          |                |
| 10 | benzo[k]fluoranthene                                                                                                                                                                   | 601-036-00-5 | 205-916-6  | 207-08-9   | 0.0196 mg/kg      |              | 0.0172 mg/kg   | 0.00000172 %         | ✓          |                |
| 11 | boron { boron tribromide }                                                                                                                                                             | 005-003-00-0 | 233-657-9  | 10294-33-4 | <1 mg/kg          | 23.173       | <23.173 mg/kg  | <0.00232 %           |            | <LOD           |
| 12 | cadmium { cadmium sulfide }                                                                                                                                                            | 048-010-00-4 | 215-147-8  | 1306-23-6  | 0.167 mg/kg       | 1.285        | 0.189 mg/kg    | 0.0000147 %          | ✓          |                |
| 13 | chromium in chromium(VI) compounds { chromium(VI) oxide }                                                                                                                              | 024-001-00-0 | 215-607-8  | 1333-82-0  | <0.6 mg/kg        | 1.923        | <1.154 mg/kg   | <0.000115 %          |            | <LOD           |
| 14 | chrysene                                                                                                                                                                               | 601-048-00-0 | 205-923-4  | 218-01-9   | 0.0417 mg/kg      |              | 0.0367 mg/kg   | 0.00000367 %         | ✓          |                |
| 15 | copper { dicopper oxide; copper (I) oxide }                                                                                                                                            | 029-002-00-X | 215-270-7  | 1317-39-1  | 14 mg/kg          | 1.126        | 13.871 mg/kg   | 0.00139 %            | ✓          |                |
| 16 | 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 } | 006-007-00-5 |            |            | <1 mg/kg          | 1.884        | <1.884 mg/kg   | <0.000188 %          |            | <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     | dibenz[a,h]anthracene                                                                                                    |                                                                  |                                                              |          | <0.023 mg/kg      |              | <0.023 mg/kg   | <0.0000023 %  |                      |            | <LOD           |
|        | 601-041-00-2                                                                                                             | 200-181-8                                                        | 53-70-3                                                      |          |                   |              |                |               |                      |            |                |
| 18     | ethylbenzene                                                                                                             |                                                                  |                                                              |          | <0.001 mg/kg      |              | <0.001 mg/kg   | <0.0000001 %  |                      |            | <LOD           |
|        | 601-023-00-4                                                                                                             | 202-849-4                                                        | 100-41-4                                                     |          |                   |              |                |               |                      |            |                |
| 19     | fluoranthene                                                                                                             |                                                                  |                                                              |          | 0.0814 mg/kg      |              | 0.0716 mg/kg   | 0.00000716 %  |                      | ✓          |                |
|        |                                                                                                                          | 205-912-4                                                        | 206-44-0                                                     |          |                   |              |                |               |                      |            |                |
| 20     | fluorene                                                                                                                 |                                                                  |                                                              |          | <0.01 mg/kg       |              | <0.01 mg/kg    | <0.000001 %   |                      |            | <LOD           |
|        |                                                                                                                          | 201-695-5                                                        | 86-73-7                                                      |          |                   |              |                |               |                      |            |                |
| 21     | indeno[123-cd]pyrene                                                                                                     |                                                                  |                                                              |          | 0.0307 mg/kg      |              | 0.027 mg/kg    | 0.0000027 %   |                      | ✓          |                |
|        |                                                                                                                          | 205-893-2                                                        | 193-39-5                                                     |          |                   |              |                |               |                      |            |                |
| 22     | lead { lead chromate }                                                                                                   |                                                                  |                                                              | 1        | 36.2 mg/kg        | 1.56         | 49.689 mg/kg   | 0.00319 %     |                      | ✓          |                |
|        | 082-004-00-2                                                                                                             | 231-846-0                                                        | 7758-97-6                                                    |          |                   |              |                |               |                      |            |                |
| 23     | mercury { mercury dichloride }                                                                                           |                                                                  |                                                              |          | <0.1 mg/kg        | 1.353        | <0.135 mg/kg   | <0.0000135 %  |                      |            | <LOD           |
|        | 080-010-00-X                                                                                                             | 231-299-8                                                        | 7487-94-7                                                    |          |                   |              |                |               |                      |            |                |
| 24     | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane                                                                 |                                                                  |                                                              |          | <0.0005 mg/kg     |              | <0.0005 mg/kg  | <0.00000005 % |                      |            | <LOD           |
|        | 603-181-00-X                                                                                                             | 216-653-1                                                        | 1634-04-4                                                    |          |                   |              |                |               |                      |            |                |
| 25     | naphthalene                                                                                                              |                                                                  |                                                              |          | <0.009 mg/kg      |              | <0.009 mg/kg   | <0.0000009 %  |                      |            | <LOD           |
|        | 601-052-00-2                                                                                                             | 202-049-5                                                        | 91-20-3                                                      |          |                   |              |                |               |                      |            |                |
| 26     | nickel { nickel dihydroxide }                                                                                            |                                                                  |                                                              |          | 10.5 mg/kg        | 1.579        | 14.595 mg/kg   | 0.00146 %     |                      | ✓          |                |
|        | 028-008-00-X                                                                                                             | 235-008-5 [1]<br>234-348-1 [2]                                   | 12054-48-7 [1]<br>11113-74-9 [2]                             |          |                   |              |                |               |                      |            |                |
| 27     | pH                                                                                                                       |                                                                  | PH                                                           |          | 5.65 pH           |              | 5.65 pH        | 5.65 pH       |                      |            |                |
| 28     | phenanthrene                                                                                                             |                                                                  |                                                              |          | 0.0246 mg/kg      |              | 0.0216 mg/kg   | 0.00000216 %  |                      | ✓          |                |
|        |                                                                                                                          | 201-581-5                                                        | 85-01-8                                                      |          |                   |              |                |               |                      |            |                |
| 29     | phenol                                                                                                                   |                                                                  |                                                              |          | <0.01 mg/kg       |              | <0.01 mg/kg    | <0.000001 %   |                      |            | <LOD           |
|        | 604-001-00-2                                                                                                             | 203-632-7                                                        | 108-95-2                                                     |          |                   |              |                |               |                      |            |                |
| 30     | pyrene                                                                                                                   |                                                                  |                                                              |          | 0.072 mg/kg       |              | 0.0634 mg/kg   | 0.00000634 %  |                      | ✓          |                |
|        |                                                                                                                          | 204-927-3                                                        | 129-00-0                                                     |          |                   |              |                |               |                      |            |                |
| 31     | selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } |                                                                  |                                                              |          | <1 mg/kg          | 1.405        | <1.405 mg/kg   | <0.000141 %   |                      |            | <LOD           |
|        | 034-002-00-8                                                                                                             |                                                                  |                                                              |          |                   |              |                |               |                      |            |                |
| 32     | toluene                                                                                                                  |                                                                  |                                                              |          | <0.001 mg/kg      |              | <0.001 mg/kg   | <0.0000001 %  |                      |            | <LOD           |
|        | 601-021-00-3                                                                                                             | 203-625-9                                                        | 108-88-3                                                     |          |                   |              |                |               |                      |            |                |
| 33     | TPH (C6 to C40) petroleum group                                                                                          |                                                                  | TPH                                                          |          | 12.6 mg/kg        |              | 11.088 mg/kg   | 0.00111 %     |                      | ✓          |                |
| 34     | vanadium { divanadium pentaoxide; vanadium pentoxide }                                                                   |                                                                  |                                                              |          | 26.8 mg/kg        | 1.785        | 42.102 mg/kg   | 0.00421 %     |                      | ✓          |                |
|        | 023-001-00-8                                                                                                             | 215-239-8                                                        | 1314-62-1                                                    |          |                   |              |                |               |                      |            |                |
| 35     | zinc { zinc chromate }                                                                                                   |                                                                  |                                                              |          | 65.3 mg/kg        | 2.774        | 159.414 mg/kg  | 0.0159 %      |                      | ✓          |                |
|        | 024-007-00-3                                                                                                             | 236-878-9                                                        | 13530-65-9                                                   |          |                   |              |                |               |                      |            |                |
| 36     | xylene                                                                                                                   |                                                                  |                                                              |          | <0.004 mg/kg      |              | <0.004 mg/kg   | <0.0000004 %  |                      |            | <LOD           |
|        | 601-022-00-9                                                                                                             | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] |          |                   |              |                |               |                      |            |                |
| 37     | chromium in chromium(III) compounds { chromium(III) oxide (worst case) }                                                 |                                                                  |                                                              |          | 17.1 mg/kg        | 1.462        | 21.993 mg/kg   | 0.0022 %      |                      | ✓          |                |
|        |                                                                                                                          | 215-160-9                                                        | 1308-38-9                                                    |          |                   |              |                |               |                      |            |                |
| Total: |                                                                                                                          |                                                                  |                                                              |          |                   |              |                |               | 0.0331 %             |            |                |

#### 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                                                                                                        |
| CLP: Note 1 | Only the metal concentration has been used for classification                                                                   |



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### Supplementary Hazardous Property Information

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**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 Heavy end hydrocarbons unlikely to be flammable at the concentrations noted.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00111%)

Classification of sample: GWPR5571 WS4@0.20m

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

### Sample details

|                           |                                                                                           |
|---------------------------|-------------------------------------------------------------------------------------------|
| Sample name:              | LoW Code:                                                                                 |
| <b>GWPR5571 WS4@0.20m</b> | Chapter:                                                                                  |
| Moisture content:         | 17: Construction and Demolition Wastes (including excavated soil from contaminated sites) |
| <b>9.1%</b>               | Entry:                                                                                    |
| (wet weight correction)   | 17 05 04 (Soil and stones other than those mentioned in 17 05 03)                         |

### Hazard properties

None identified

### Determinands

Moisture content: 9.1% Wet 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  | acenaphthene                                                                                                                                                                           | 201-469-6    | 83-32-9    |            | <0.008 mg/kg      |              | <0.008 mg/kg   | <0.0000008 % |                      |            | <LOD           |
| 2  | acenaphthylene                                                                                                                                                                         | 205-917-1    | 208-96-8   |            | <0.012 mg/kg      |              | <0.012 mg/kg   | <0.0000012 % |                      |            | <LOD           |
| 3  | anthracene                                                                                                                                                                             | 204-371-1    | 120-12-7   |            | <0.016 mg/kg      |              | <0.016 mg/kg   | <0.0000016 % |                      |            | <LOD           |
| 4  | arsenic { arsenic trioxide }                                                                                                                                                           | 033-003-00-0 | 215-481-4  | 1327-53-3  | 9.78 mg/kg        | 1.32         | 11.738 mg/kg   | 0.00117 %    | ✓                    |            |                |
| 5  | benzo[a]anthracene                                                                                                                                                                     | 601-033-00-9 | 200-280-6  | 56-55-3    | 0.095 mg/kg       |              | 0.0864 mg/kg   | 0.00000864 % | ✓                    |            |                |
| 6  | benzo[a]pyrene; benzo[def]chrysene                                                                                                                                                     | 601-032-00-3 | 200-028-5  | 50-32-8    | 0.119 mg/kg       |              | 0.108 mg/kg    | 0.0000108 %  | ✓                    |            |                |
| 7  | benzo[b]fluoranthene                                                                                                                                                                   | 601-034-00-4 | 205-911-9  | 205-99-2   | 0.145 mg/kg       |              | 0.132 mg/kg    | 0.0000132 %  | ✓                    |            |                |
| 8  | benzo[ghi]perylene                                                                                                                                                                     | 205-883-8    | 191-24-2   |            | 0.0789 mg/kg      |              | 0.0717 mg/kg   | 0.00000717 % | ✓                    |            |                |
| 9  | benzo[k]fluoranthene                                                                                                                                                                   | 601-036-00-5 | 205-916-6  | 207-08-9   | 0.053 mg/kg       |              | 0.0482 mg/kg   | 0.00000482 % | ✓                    |            |                |
| 10 | boron { boron tribromide }                                                                                                                                                             | 005-003-00-0 | 233-657-9  | 10294-33-4 | <1 mg/kg          | 23.173       | <23.173 mg/kg  | <0.00232 %   |                      |            | <LOD           |
| 11 | cadmium { cadmium sulfide }                                                                                                                                                            | 048-010-00-4 | 215-147-8  | 1306-23-6  | 0.287 mg/kg       | 1.285        | 0.335 mg/kg    | 0.0000261 %  | ✓                    |            |                |
| 12 | chromium in chromium(VI) compounds { chromium(VI) oxide }                                                                                                                              | 024-001-00-0 | 215-607-8  | 1333-82-0  | <0.6 mg/kg        | 1.923        | <1.154 mg/kg   | <0.000115 %  |                      |            | <LOD           |
| 13 | chrysene                                                                                                                                                                               | 601-048-00-0 | 205-923-4  | 218-01-9   | 0.103 mg/kg       |              | 0.0936 mg/kg   | 0.00000936 % | ✓                    |            |                |
| 14 | copper { dicopper oxide; copper (I) oxide }                                                                                                                                            | 029-002-00-X | 215-270-7  | 1317-39-1  | 10.6 mg/kg        | 1.126        | 10.848 mg/kg   | 0.00108 %    | ✓                    |            |                |
| 15 | 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 } | 006-007-00-5 |            |            | <1 mg/kg          | 1.884        | <1.884 mg/kg   | <0.000188 %  |                      |            | <LOD           |
| 16 | dibenz[a,h]anthracene                                                                                                                                                                  | 601-041-00-2 | 200-181-8  | 53-70-3    | <0.023 mg/kg      |              | <0.023 mg/kg   | <0.0000023 % |                      |            | <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     | fluoranthene                                                                                                             | 205-912-4    | 206-44-0                       |          | 0.192 mg/kg       |              | 0.175 mg/kg    | 0.0000175 %          | ✓          |                |
| 18     | fluorene                                                                                                                 | 201-695-5    | 86-73-7                        |          | <0.01 mg/kg       |              | <0.01 mg/kg    | <0.000001 %          |            | <LOD           |
| 19     | indeno[123-cd]pyrene                                                                                                     | 205-893-2    | 193-39-5                       |          | 0.085 mg/kg       |              | 0.0773 mg/kg   | 0.00000773 %         | ✓          |                |
| 20     | lead { lead chromate }                                                                                                   | 082-004-00-2 | 231-846-0                      | 1        | 36.2 mg/kg        | 1.56         | 51.327 mg/kg   | 0.00329 %            | ✓          |                |
| 21     | mercury { mercury dichloride }                                                                                           | 080-010-00-X | 231-299-8                      |          | <0.1 mg/kg        | 1.353        | <0.135 mg/kg   | <0.0000135 %         |            | <LOD           |
| 22     | naphthalene                                                                                                              | 601-052-00-2 | 202-049-5                      |          | <0.009 mg/kg      |              | <0.009 mg/kg   | <0.0000009 %         |            | <LOD           |
| 23     | nickel { nickel dihydroxide }                                                                                            | 028-008-00-X | 235-008-5 [1]<br>234-348-1 [2] |          | 16.6 mg/kg        | 1.579        | 23.834 mg/kg   | 0.00238 %            | ✓          |                |
| 24     | pH                                                                                                                       |              | PH                             |          | 6.41 pH           |              | 6.41 pH        | 6.41 pH              |            |                |
| 25     | phenanthrene                                                                                                             | 201-581-5    | 85-01-8                        |          | 0.0507 mg/kg      |              | 0.0461 mg/kg   | 0.00000461 %         | ✓          |                |
| 26     | phenol                                                                                                                   | 604-001-00-2 | 203-632-7                      |          | <0.01 mg/kg       |              | <0.01 mg/kg    | <0.000001 %          |            | <LOD           |
| 27     | pyrene                                                                                                                   | 204-927-3    | 129-00-0                       |          | 0.173 mg/kg       |              | 0.157 mg/kg    | 0.0000157 %          | ✓          |                |
| 28     | selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } | 034-002-00-8 |                                |          | 1.54 mg/kg        | 1.405        | 1.967 mg/kg    | 0.000197 %           | ✓          |                |
| 29     | vanadium { divanadium pentaoxide; vanadium pentoxide }                                                                   | 023-001-00-8 | 215-239-8                      |          | 24.7 mg/kg        | 1.785        | 40.082 mg/kg   | 0.00401 %            | ✓          |                |
| 30     | zinc { zinc chromate }                                                                                                   | 024-007-00-3 | 236-878-9                      |          | 66.1 mg/kg        | 2.774        | 166.684 mg/kg  | 0.0167 %             | ✓          |                |
| 31     | chromium in chromium(III) compounds { chromium(III) oxide (worst case) }                                                 | 215-160-9    | 1308-38-9                      |          | 12.2 mg/kg        | 1.462        | 16.208 mg/kg   | 0.00162 %            | ✓          |                |
| Total: |                                                                                                                          |              |                                |          |                   |              |                | 0.0332 %             |            |                |

#### 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                                                                                                        |
| CLP: Note 1 | Only the metal concentration has been used for classification                                                                   |



## Appendix A: Classifier defined and non GB MCL determinands

### • 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

### • 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

### • 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

### • 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

### • 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

### • 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

### • 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

### • 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

### • 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

### • pH (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.



• **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

• **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

• **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

• **divanadium pentaoxide; vanadium pentoxide** (EC Number: 215-239-8, CAS Number: 1314-62-1)

GB MCL index number: 023-001-00-8

Description/Comments: Hazard statements H301, H330, H350 added by HazWasteOnline due to ATP 18 (Regulation (EU) 2022/692) considers vanadium pentoxide to be Carc. 1B; H350. The GB MCL Agency has reached the same opinion [but is yet to formerly make this change to the MCL List]. Substance has therefore been self-classified.

Additional Hazard Statement(s): Carc. 1B; H350 , Acute Tox. 3; H301 , Acute Tox. 2; H330

Reason for additional Hazards Statement(s):

20 Sep 2022 - Carc. 1B; H350 hazard statement sourced from: ATP 18 (Regulation (EU) 2022/692) considers vanadium pentoxide to be Carc. 1B; H350. The GB MCL Agency has reached the same opinion [but is yet to formerly make this change to the MCL List].

Substance has therefore been self-classified.

28 Sep 2022 - Acute Tox. 3; H301 hazard statement sourced from: ATP 18 (Regulation (EU) 2022/692) considers vanadium pentoxide to be "Acute tox 3; H301". The GB MCL Agency has reached the same opinion [but is yet to formerly make this change to the MCL List].

Substance has therefore been self-classified.

28 Sep 2022 - Acute Tox. 2; H330 hazard statement sourced from: ATP 18 (Regulation (EU) 2022/692) considers vanadium pentoxide to be "Acute tox 2; H330". The GB MCL Agency has reached the same opinion [but is yet to formerly make this change to the MCL List].

Substance has therefore been self-classified.

• **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

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

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

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

Data source date: 16 Jun 2014

Hazard Statements: STOT SE 2; H371

• **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

### arsenic {arsenic trioxide}

Most likely worst-case

### boron {boron tribromide}

worst-case

**cadmium {cadmium sulfide}**

Most likely worst-case

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

Most likely worst-case

**copper {dicopper oxide; copper (I) oxide}**

Most likely worst-case

**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}**

Most likely worst-case

**lead {lead chromate}**

worst-case

**mercury {mercury dichloride}**

Most likely worst-case

**nickel {nickel dihydroxide}**

Most likely worst-case

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

Most likely worst-case

**vanadium {divanadium pentaoxide; vanadium pentoxide}**

Most likely worst-case

**zinc {zinc chromate}**

worst-case

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

worst case

**Appendix C: Version**

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**  
HazWasteOnline Classification Engine Version: 2023.289.5779.10675 (16 Oct 2023)  
HazWasteOnline Database: 2023.283.5774.10667 (10 Oct 2023)

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