

# ENVIRONMENTAL REPORT

|                      |                                                                  |
|----------------------|------------------------------------------------------------------|
| Site Address:        | Brimsole Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN |
| Report Date:         | March 2025                                                       |
| Project No.:         | 19458                                                            |
| Prepared for:        | Open Architecture Ltd                                            |
| Planning Application | Gravesham Borough Council - 20231221                             |



## CONTENTS

|       |                                                              |    |
|-------|--------------------------------------------------------------|----|
| 1     | Context and Objectives of this report                        | 5  |
| 1.1   | Introduction                                                 | 5  |
| 2     | Report Objectives                                            | 5  |
| 2.1   | Limitations                                                  | 5  |
| 2.2   | Planning Condition                                           | 5  |
| 2.3   | Decision Notice Relating to Contaminated Land                | 5  |
| 3     | Site Location and National Grid Reference                    | 7  |
| 4     | Review of Previous Reports or Documents Relating to the Site | 7  |
| 4.1   | Site Details                                                 | 7  |
| 4.2   | Risks derived from DTS.                                      | 8  |
| 5     | Details of Preparatory Work                                  | 9  |
| 6     | Details of Investigation Objectives.                         | 9  |
| 7     | Summary of Work Undertaken                                   | 9  |
| 7.1   | Investigation Works Completed                                | 9  |
| 7.2   | Historic Investigation                                       | 10 |
| 8     | Location Plans for Exploratory Excavations                   | 10 |
| 9     | Description of Site Works and on/off Site Observations       | 10 |
| 10    | Contamination Assessment                                     | 12 |
| 10.1  | Contamination                                                | 12 |
| 10.2  | Human Health Risk                                            | 12 |
| 10.3  | Sources of Risk within Soils                                 | 16 |
| 10.4  | Human Health Source Conclusions                              | 16 |
| 10.5  | Ground and Surface Water Source                              | 16 |
| 10.6  | Land Gas Assessments                                         | 17 |
| 10.7  | Vapour Risks                                                 | 18 |
| 10.8  | Water Main Pipework                                          | 18 |
| 10.9  | Building Risks                                               | 18 |
| 10.10 | General Source Risk Conclusions                              | 20 |
| 11    | Risk Assessment Based on Source Risk                         | 21 |
| 12    | Implications of the End Use of the Site                      | 24 |
| 13    | Outline Remediation Measures                                 | 24 |
| 13.1  | Cover Systems - NHBC                                         | 24 |
| 14    | Waste Disposal                                               | 27 |
| 14.1  | WAC Testing                                                  | 27 |
| 15    | Source Risk Conclusions                                      | 28 |

## APPENDIXES

APPENDIX A - Conceptual Model

APPENDIX 1 - Site Plans

APPENDIX 2 - Excavation Logs

APPENDIX 3 - Chemical Testing Results

## TABLES AND FIGURES

|          |                                                                                        |    |
|----------|----------------------------------------------------------------------------------------|----|
| Table 1  | Site Detail                                                                            | 7  |
| Table 2  | Geological Profile                                                                     | 11 |
| Table 3  | Groundwater Summary                                                                    | 11 |
| Table 4  | Generic Guidance Values Criteria - Residential Land Use with Home Grown Produce        | 13 |
| Table 5  | TPHs - Generic Guidance Values Criteria - Residential Land Use with Home Grown Produce | 14 |
| Table 6  | Sampling and Testing Schedule                                                          | 15 |
| Table 7  | Soil Contamination Risks – Human Health                                                | 16 |
| Table 8  | Land Gas Assessment - Response Zone                                                    | 17 |
| Table 9  | Vapour Risk Assessment - Response Zone                                                 | 18 |
| Table 10 | Source Risk Conclusions                                                                | 20 |
| Table 11 | Risk Assessment A                                                                      | 21 |
| Table 12 | Risk Assessment B                                                                      | 22 |
| Table 13 | Risk Assessment C                                                                      | 23 |
| Table 14 | Outline Remediation Measures for end use of the site                                   | 26 |
| Table 15 | WAC testing Results                                                                    | 28 |

## REFERENCES

- BRE Report BR211: Radon: Protective measures for new dwellings, 2015. BRE, Watford.
- BRE Digest 365 (2016): Soakaway design. BRE, Watford.
- BRE Special Digest 1: Concrete in Aggressive Ground, 2005.
- BRE, Watford. British Standards Institution (2004) Eurocode 7 – Geotechnical design - Part 1: General rules. BS EN 1997 1. Incorporating Corrigendum No.1. BSI, London
- British Standards Institution (2007) Eurocode 7 – Geotechnical design - Part 2: Geotechnical investigation and testing. BS EN 1997-2. BSI, London.
- British Standards Institution (2015) BS 3882 Specification for topsoil and requirements for use. BSI, London.
- British Standards Institution (2011) BS 10175 Code of practice for the investigation of potentially contaminated sites. BSI, London.
- British Standards Institution (2013) BS 8576 Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOC's), BSI, London.
- British Standards Institution BS 5930:2015+A1:2020 Code of practice for ground investigations. BSI, London.
- British Standards Institution (2015) BS 8485:2015 Incorporating corrigendum No.1 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. BSI, London.
- CIEH & CL:AIRE (2008) Guidance on comparing soil contamination data with a critical concentration. London: Chartered Institute of Environmental Health (CIEH) and CL:AIRE.
- CIRIA C665 (2007) Assessing risks posed by hazardous ground gases to buildings.
- CIRIA, London CIRIA Report R143 (1995): The Standard Penetration Test (SPT): Methods and use. CIRIA, London.
- CL:AIRE (2020) Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration. CL:AIRE, Buckinghamshire.
- Environment Agency (2020) Land contamination risk management (LCRM).
- Environment Agency, NHBC & CIEH (2008) Guidance for the safe development of housing on land affected by contamination. R & D Publication 66. London: Environment Agency.
- Environment Agency (2006) Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination Environment Agency.
- LQM/CIEH S4ULs. LQM, 2014.
- Ministry of Housing, Communities & Local Government: National Planning Policy Framework. February 2019.
- NHBC Standards 2022. NHBC, Milton Keynes.
- Tomlinson M.J (2001): Foundation Design and Construction: 7th Edition. Pearson Prentice Hall, Harlow. UFST.

## GENERAL NOTES

This report has been prepared based on the findings of investigations into the site's conditions using current available data which has been recovered from Envirocheck to provide environmental data in relation to the site and surrounding area. Where possible, local sources have been researched to gain a better understanding of the site's conditions. As part of this review, research has been undertaken with the Local Authority and the Environment Agency to the site's condition.

We can confirm that this report has been prepared based on the information gained and that this information is not exhaustive, and that subsequent research may reveal additional facts that may influence the reporting. Where possible, this information has been researched.

All geological information has been researched using the British Geological Society website, (the geology viewer). The disclaimer associated with this portal confirms 'The British Geological Society accept no responsibility for omissions or misinterpretations of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation.

The 'Copyright' within this report including plans and all other prepared documents prepared by Herts & Essex Site Investigations, (HESI), is owned by HESI and no such report, plan or document may be reproduced, published or adapted without their written consent. Complete copies of this report may, however, be made and distributed by the client as an expedient in dealing with matters relating to this commission.

The accuracy of map extracts cannot be guaranteed, and it should be recognized that different conditions on site may have existed between subsequent to the various map surveys.

We can confirm that within the assessment of the site, various websites have been visited and as such, we cannot confirm the validity of these sites and as such, this information is accepted de facto and without prejudice. Anyone relying on these sources does so at their own risk, however, Herts & Essex Site Investigations does undertake all reasonable care to ensure this data is relevant and correct.

It should be confirmed that the extent of review of this report has undertaken a broad review of on-site features which would promote a contamination ground risk, however, this does not include ecological features and in particular Japanese Knotweed which should be reviewed under separate cover.

A review of the site will be made to confirm the extent of obvious Asbestos products or sheet materials either on the surface of the site soil or evident above ground, however, does not constitute a full Asbestos Survey by any means. This should be sought under separate cover.

## DOCUMENT INFORMATION AND CONTROL SHEET

### Client

#### Open Architecture Ltd

Anton House  
South Park  
Sevenoaks  
Kent  
TN13 1EB

### Environmental Consultants:

Herts & Essex Site Investigations.  
Unit J8 Peek Business Centre  
Woodside  
Dunmow Road  
Bishop's Stortford  
Hertfordshire.  
CM23 5RG

Tel: 01920 822233  
Mobile: 07770274498  
E-Mail: [csgrey@hesi.co.uk](mailto:csgrey@hesi.co.uk)  
Web: <http://www.hesi.co.uk>

### Project Manager:

Chris Gray, PG Cert, PG Dip, M.Sc

### Principal Author:

Rebecca Chamberlain

### Document Status and Approval Schedule

| <i>Issue No</i> | <i>Status</i> | <i>Date</i>                 | <i>Prepared by:<br/>Rebecca<br/>Chamberlain<br/>Signature / Date</i>                 | <i>Technical review<br/>by:<br/>Chris Gray<br/>Signature / Date</i>                   |
|-----------------|---------------|-----------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1               | Final         | 17 <sup>th</sup> March 2025 |  |  |

## SUMMARY

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                 |                      |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Client                             | Open Architecture Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                 |                      |
| Site Location                      | Brimsole Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                 |                      |
| Existing Development               | The existing site is formed primarily by a storage area, formally farm barns which are accessed from the main road down a slope and into the site. A pond which is essentially sludge filled is present adjacent to the main entrance to the front of the site with barns and outbuildings to the rear. Upon gaining access to the main part of the site, the site is essentially flat                                                                                                                                       |                                                                                                                                                                 |                      |
| Proposed Development               | The proposed development forms the construction of two new residential dwellings with associated access and park areas with landscaping proposed to both the front and rear of the site                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                 |                      |
| Site Settings and Previous Uses    | The existing site is recorded as the existing farm buildings in place from the earliest map records in 1869 until present day. A pond is also present on the site from the earliest map record until present day.                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                 |                      |
|                                    | Surrounding the site, Woodland and Open Land is in place from the earliest map records with Brimstone Cottage some 90 meters to the southeast of the site from again, the earliest map record until present day. A residential house is constructed on the northern boundary in 1961 and present to date. Farm buildings, (expansion of the farm), was completed in 1961 and remains in place to date some 20 meters to the east. Greenacres Farm is developed in 1961 and present to date some 50 meters to the north west. |                                                                                                                                                                 |                      |
| Geological Profile                 | Geology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Depth (m)                                                                                                                                                       | Hydrological Profile |
|                                    | Hardcore FILL and made ground                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.75-1.00 meters                                                                                                                                                | Not Classified       |
|                                    | Head Deposits, (Mixture of Clays, Sand & Gravel)                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.90-3.30 meters                                                                                                                                                | Secondary Aquifer    |
|                                    | New Pit Chalk Formation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4.00 meters +                                                                                                                                                   | Principal Aquifer    |
| Groundwater                        | No groundwater has been identified in place. This is based on short term observations.                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                 |                      |
| Nearest Surface Water Feature      | The nearest surface water feature is recorded as 292 meters to the north of the site which is recorded as a pond.                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                 |                      |
| Groundwater Abstractions           | The nearest abstraction well is located 262 meters to the north of the site which is recorded as an Industrial; Commercial and Public Services: Laundry Use. No Potable Water Supplies are recorded within 1km of the site area.                                                                                                                                                                                                                                                                                             |                                                                                                                                                                 |                      |
| Source Protection Zone             | The site lies within a Zone 2 Source Protection Zone.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                 |                      |
| Potential Sources of Contamination | <b>Features On Site</b> <ul style="list-style-type: none"><li>Farm,</li><li>Infilled Pond with organic material,</li><li>Garage Area.</li></ul>                                                                                                                                                                                                                                                                                                                                                                              | <b>Features Off Site</b> <ul style="list-style-type: none"><li>Farm Buildings</li><li>Greenacres Farm, 50m, NW</li><li>Additional Barns Built, 20m, E</li></ul> |                      |
| Previous Investigations            | No reports relating to contaminated land are known to us at the time of writing this report relating to the site.                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                 |                      |
| Human Health Risk                  | The site has identified Made Ground and potentially contaminated ground. These risks form the following layers and associated contamination: - <ul style="list-style-type: none"><li><b>FILL: - <i>Isolated</i></b> contamination from <b>PAH</b> to the areas of <b>WS1 ONLY – Remediation works will be required to this area.</b></li><li><b>FILL: - <i>Asbestos</i></b> has been identified as cement board in WS4. – Additional testing required</li></ul>                                                              |                                                                                                                                                                 |                      |
|                                    | Based on the above, <b>remedial measures will likely be required areas where pathways to receptors are in place.</b>                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                 |                      |
| Workforce                          | The above human health risk is in place within the site area, will promote a low risk on a short-term bases to any workforce within the areas. <b>Appropriate PPE / RPE should be worn, and the soil contamination risk should be noted within any site inductions. This is particularly relevant to the Asbestos risks.</b>                                                                                                                                                                                                 |                                                                                                                                                                 |                      |
| Land Gas Risks                     | Potential for land gas risk from on and off-site landfills are in place. Gas testing needs to be completed, in line with best practice, we would suggest that a minimum of six monitoring rounds should be completed which should be undertaken over falling atmospheric pressures or frozen ground conditions to optimise worst case results for the assessment of the gas regime at the site.                                                                                                                              |                                                                                                                                                                 |                      |
| Vapour Risks                       | Chemical testing of the soils show that low risks are in place. Vapour risk is not in place.                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                 |                      |
| Groundwater Risks                  | Due to the presence of a low level contamination and some clay elements, <b>risks to groundwater are generally considered low.</b>                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                 |                      |
| Construction Materials             | Water main pipework has been considered and risk has been identified directly to any water main pipework developed at the site. Water main pipework can be laid in a protective pipework system. Any water main pipework should be laid in clean corridors in order to prevent future risk to workforce used in the maintenance and repair of any water main system.                                                                                                                                                         |                                                                                                                                                                 |                      |
| Further Works                      | It is recommended that additional works will be required for the site in order to complete assessments which are detailed as follows: - <ul style="list-style-type: none"><li>Additional sampling to be completed across the site when full access to the site can be made.</li><li>Complete six monitoring rounds for Landfill Gas Monitoring over low or rapidly falling atmospheric pressures.</li></ul>                                                                                                                  |                                                                                                                                                                 |                      |
|                                    | Submit reports to Local Authority and Environment Agency for review and confirm the risks identified in this report along with the further works proposed are suitable and acceptable.                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                 |                      |
|                                    | The exact details of remediation required for the site should be assessed and reported in a Remediation Strategy Report in order to comply with current best practice.                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                 |                      |

## ENVIRONMENTAL ASSESSMENT - PHASE 2

### **1 Context and Objectives of this report**

#### **1.1 Introduction**

We have been asked by Open Architecture Ltd to undertake an investigation of the above site in order to assess the potential environmental impact of the historical use of the site on the proposed development. The development of this report has been completed utilising information and assessments completed by HESI developed from a desktop study completed in February 2025.

### **2 Report Objectives**

The objectives of this report are to assess and define the extent of contamination within the site as a result of the investigation works undertaken to date.

The assessment of the site in this report have been prepared in accordance with key guidance documents as follows: -

- National Planning Policy Framework.
- BS 10175:2011+A2:2017, (Investigation of potentially contaminated sites. Code of practice - Code of practice).
- Land contamination risk management (LCRM).
- DEFRA: Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, (April 2012).
- Environment Agency, (2010) GPLC1 Guidance Principles for Land Contamination.

#### **2.1 Limitations**

The opinions expressed within this document and the comments and recommendations given, are based on the information gained, to date within a desktop study previously undertaken on the site. The interpretation of the data has been made by Herts & Essex Site Investigations.

Within any site investigation, materials sampled represent only a small proportion of the materials present on site. It is therefore possible that other conditions prevailing at the site which have not been revealed within the scope of this report, have not been considered. Where suspect materials are encountered during any further or future works within the site, additional specialist advice should be sought to assess whether any new information will materially affect the recommendations given within any physical ground investigation.

#### **2.2 Planning Condition**

An application is in place with Gravesham Council as follows:-

Application no: 20231221

Application details: Conversion of existing agricultural barns into two 3 bedroom dwellings, with associated car ports, garden and landscaping.

Decision: Granted Permission.

#### **2.3 Decision Notice Relating to Contaminated Land**

Within the above application the following condition (s) are in place which relates to contaminated land and this report should be submitted as part of gaining the planning approval.

## DECISION NOTICE – CONDITION 3

No development shall take place prior to a contaminated land assessment (in accordance with the CLEA guidelines and CLR 11 methodology) and if necessary an associated remedial strategy, together with a timetable of works, being submitted to and approved in writing by the Local Planning Authority.

a) The contaminated land assessment shall include a desk study to be submitted to the Local Planning Authority for approval. The desk study shall detail the history of the site uses and propose a site investigation strategy based on the relevant information discovered by the desk study. The strategy shall be approved by the Local Planning Authority prior to investigations commencing on site.

b) The site investigation, including relevant soil, soil gas, surface and groundwater sampling, shall be carried out by a suitably qualified and accredited consultant/contractor in accordance with a Quality Assured sampling and analysis methodology.

c) A site investigation report detailing all investigative works and sampling on site, together with the results of analysis, risk assessment to any receptors and a proposed remediation strategy shall be submitted to the Local Planning Authority. The Local Planning Authority shall approve such remedial works as required prior to any remediation commencing on site. The works shall be of such a nature so as to render harmless the identified contamination given the proposed end-use of the site and surrounding environment including any controlled waters.

d) Approved remediation works shall be carried out in full on site under a quality assurance scheme to demonstrate compliance with the proposed methodology and best practice guidance). If during any works contamination is encountered which has not previously been identified then the additional contamination shall be fully assessed and an appropriate remediation scheme agreed with the Local Planning Authority.

e) Upon completion of the works, this condition shall not be discharged until a closure report has been submitted to and approved by the Local Planning Authority. The closure report shall include details of the proposed remediation works and the quality assurance certificates to show that the works have been carried out in full in accordance with the approved methodology. Details of any post remediation sampling and analysis to show the site has reached the required clean-up criteria shall be included in the closure report together with the necessary documentation detailing what waste materials have been removed from the site.

f) Where applicable, a monitoring and maintenance scheme to include monitoring the long-term effectiveness of the proposed remediation over an agreed period of time, and the provision of reports on the same, must be prepared and approved in writing by the Local Planning Authority. Following completion of the measures identified in that scheme, and when the remediation objectives have been achieved, reports that demonstrate the effectiveness of the monitoring and maintenance carried out must be produced and submitted to the Local Planning Authority.

Reason: To prevent harm to human health and pollution of the environment in accordance with Policy CS19 of the Gravesham Local Plan Core Strategy 2014..

### 3 Site Location and National Grid Reference

The site is located within a rural area of Meopham in Kent, the details of which are summarised in Table 1 with the location plan of the site shown in Appendix 1, Sheet 1.

**Table 1** *Site Detail*

|                                                   |                                                                                      |
|---------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Site Address:</b>                              | Brimsole Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN                     |
| <b>Site assessed under</b>                        | Site Owners Request - Aid as part of planning and warranties.                        |
| <b>Current use of land:</b>                       | Farm.                                                                                |
| <b>Previous use of site, (if known)</b>           | As above.                                                                            |
| <b>Grid Reference</b>                             | NGR 565540, 165830                                                                   |
| <b>Site Area</b>                                  | 0.12 Hectares.                                                                       |
| <b>Local Authority</b>                            | Gravesham Borough Council.                                                           |
| <b>Gradient of the site</b>                       | The site slopes down from the main road and into the site where the site levels out. |
| <b>Proximity of Controlled Waters, (if known)</b> | The nearest surface water feature is recorded as on site which forms a pond.         |

### 4 Review of Previous Reports or Documents Relating to the Site

#### 4.1 Site Details

- The existing site is formed primarily by a storage area, formally farm barns which are accessed from the main road down a slope and into the site. A pond which is essentially sludge filled is present adjacent to the main entrance to the front of the site with barns and outbuildings to the rear. Upon gaining access to the main part of the site, the site is essentially flat.
- The proposed development forms the construction of two new residential dwellings with associated access and park areas with landscaping proposed to both the front and rear of the site.
- The existing site is recorded as the existing farm buildings in place from the earliest map records in 1869 until present day. A pond is also present on the site from the earliest map record until present day.
- Surrounding the site, Woodland and Open Land is in place from the earliest map records with Brimstone Cottage some 90 meters to the southeast of the site from again, the earliest map record until present day. A residential house is constructed on the northern boundary in 1961 and present to date. Farm buildings, (expansion of the farm), was completed in 1961 and remains in place to date some 20 meters to the east. Greenacres Farm is developed in 1961 and present to date some 50 meters to the northwest.
- The geology at the site is identified as a nominal depth of made ground which in turn overlies Head Deposits. This in turn is anticipated to overlie New Pit Chalk formation.
- The nearest surface water feature is recorded as on site which is identified as a Pond. No river systems are identified within close proximity to the site.

- The nearest abstraction well is located 823 meters to the northeast of the site which is identified as a Public Water Supply.
- The site lies within an SPZ II Source Protection Zone. An SPZ I is recorded as 221 meters to the east of the site.

## 4.2 Risks derived from DTS.

As a result of the works undertaken, the following have been confirmed as:

### Source Risk

#### Features On Site

- Farm,
- Infilled Pond with organic material,
- Garage Area.

#### Features Off Site

- Farm Buildings
- Greenacres Farm, 50m, NW
- Additional Barns Built, 20m, E

### Pathways

Potential pathways in place within the site area recorded as: -

- Dermal Contact.
- Inhalation of dust and fibres.
- Ingestion of dust and fibres via home-grown produce with plant uptake.
- Inhalation of vapours from soils.
- Inhalation of land Gases.
- Inhalation of vapours through contaminated groundwaters
- Ingestion of contaminated water through water main pipework.
- Leaching, lateral migration of shallow groundwater to a target receptor.
- Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.
- Plant Uptake.
- Inhalation Asbestos dust and fibres (from Asbestos within the building).
- Inhalation Asbestos dust and fibres (from asbestos within the soil).

### Receptors

Potential receptors in place within the site area recorded as: -

- Human Health, (Site Development Personnel).
- Human Health, (Residents or staff).
- Adjoining Landowners, (unlikely).
- Flora.
- Groundwater.
- Abstraction wells.
- Surface water features.

## **5** *Details of Preparatory Work*

Preparatory works had been agreed with the client to gain access and undertake excavations within the site. This incorporates free access across the site area, the proposed investigation was not inhibited in any way and had free access across the site.

## **6** *Details of Investigation Objectives.*

Within the scope of this report, the objectives will form the following: -

- To anticipate regulatory action and provide sufficient data to overcome and answer any outstanding queries they may raise.
- Provide the relevant authorities sufficient information to satisfy any regulatory requirements set for the site.
- To ensure that the development, on completion, will be fit for the proposed use with all risk assessed and removed.
- It is proposed within this investigation to assess the suitability of the site for a new development which will incorporate residential structure and associated landscaping.
- In order to assess this suitability for development, it is proposed to use a source-pathway-receptor analogy, which, if broken, presents a reduced risk to the development.
- It is proposed to assess, where possible, sources of contamination within the site as a result of historical or ongoing use and whether these uses have pathways to receptors within the proposed development.

## **7** *Summery of Work Undertaken*

The scope of the works involved excavation of boreholes to gain a better and more visual understanding of the site conditions. This was undertaken at locations around the site and broadly confirmed the findings of the visual inspection of the site.

Samples were taken in containers dependent upon the proposed sampling regime required and placed in cool boxes where they were transported directly to the analytical chemist for assessment. These works included the following: -

### **7.1** *Investigation Works Completed*

The focus of the investigation was to confirm risks from the site which are detailed as follows: -

- Assessment of possible Asbestos in soils across the site area.
- Targeted sampling to access risk from historic farming uses, the existing barn set up at the site and the potential ground gases released from farming land and the on site pond which has organic material in place.
- Spatial sampling around the remainder of the site to provide a general assessment.

### ***Initial Investigation – 26<sup>th</sup> February 2025***

- 5 No Competitor Rig Windowless Sampler borehole sunk to a maximum depth of between 4.00 meters - Date of Works – February and March 2025.
- Chemical Sampling and Testing recovered from samples and sent to analytical chemist, (report date 27/03/2024).

### ***7.2 Historic Investigation***

Prior to our involvement in the development of the site, no historic investigations are known to us.

### ***8 Location Plans for Exploratory Excavations***

The plans which detail the location of the site, existing site use, proposed site use and identification of features on the site that may promote a risk are shown in Appendix 1. The plans also confirm the location of the excavations made on the site.

The areas of risk will be dictated by the risk classification given in this report and confirm where risk is in place relevant to the proposed end land use classification.

### ***9 Description of Site Works and on/off Site Observations***

In order to provide an easy understanding of the proposed development, we can confirm that the site will assess as a single section of land with the same proposed residential land use with potential for home grown produce.

The site has been reviewed and we can confirm that the geology within the site is as follows: -

**Table 2**      **Geological Profile**

| Location   | Made Ground                                                                                     | Depths (m) | Natural Soils                                                                       | Depths (m) |
|------------|-------------------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------|------------|
| <b>WS1</b> | Crushed concrete hardcore FILL                                                                  | 0.50m      | Stiff becoming firm, brown, silty CLAY with occasional flint gravel                 | 1.90m      |
|            | Compact dark brown very silty sandy claybound FILL with occasional flint gravel, brick and ash. | 0.75m      | Medium dense, light brown, silty claybound SAND and angular flint GRAVEL with chalk | 3.30m      |
| <b>WS2</b> | Hardcore stone FILL                                                                             | 1.00m      | CHALK                                                                               | 4.00m+     |
|            |                                                                                                 |            | Soft to firm, brown silty CLAY                                                      | 1.70m      |
|            |                                                                                                 |            | Stiff becoming firm, brown, silty CLAY with occasional flint gravel                 | 2.10m      |
|            |                                                                                                 |            | Soft, light brown, silty CLAY with much chalk fragments                             | 2.40m      |
|            |                                                                                                 |            | Medium dense, light brown, silty claybound SAND and angular flint GRAVEL with chalk | 3.10m      |
|            |                                                                                                 |            | CHALK                                                                               | 4.00m+     |
| <b>WS3</b> | Gravel over hardcore chalk FILL                                                                 | 0.10m      | Stiff becoming firm, brown, silty CLAY with occasional flint gravel                 | 1.90m      |
|            | Moderately compact, black brown, silty claybound, gravel FILL with slate and brick              | 0.60m      | Medium dense, light brown, silty claybound SAND and angular flint GRAVEL with chalk | 2.70m      |
|            | Chalk Rock                                                                                      | 0.80m      | CHALK                                                                               | 4.00m+     |
| <b>WS4</b> | Gravel over chalk flint brick FILL                                                              | 0.80m      | Stiff becoming firm, brown, silty CLAY with occasional flint gravel                 | 1.90m      |
|            |                                                                                                 |            | Medium dense, light brown, silty very claybound SAND and angular flint GRAVEL       | 4.00m+     |
| <b>WS5</b> | Gravel drive over hardcore brick FILL                                                           | 0.80m      | Stiff becoming firm, brown, silty CLAY with occasional flint gravel                 | 1.90m      |
|            |                                                                                                 |            | CHALK                                                                               | 4.00m+     |

**Table 3**      **Groundwater Summary**

| Location   | Depth Water Struck (m) | Depth of Standing Water (m) | Rate of Inflow |
|------------|------------------------|-----------------------------|----------------|
| <b>WS1</b> | DRY                    |                             |                |
| <b>WS2</b> | DRY                    |                             |                |
| <b>WS3</b> | DRY                    |                             |                |
| <b>WS4</b> | DRY                    |                             |                |
| <b>WS5</b> | DRY                    |                             |                |

Any comments in relation to groundwater is based on short term observations. Should groundwater monitoring be required, (which may impact on the development of the site), standpipes and inspections should be requested and completed. All current groundwater comments are based on limited information to date.

The various strata encountered within each test location recorded within the logs forming appendix 2.

At the time of logging the samples recovered from the site a further visual and olfactory inspection has been completed to note any potential sources of contamination or risk. The following was noted:

- The upper made ground geology formed hardcore in most areas which has a potential to contain Asbestos Fibres. Non were visually noted.
- The natural clay soils did not record any odours or sign of contamination.

Based on the above, the risk assessment and sampling proposals set out within the Desktop Study a suite of chemical tests were completed from across the site area as noted in Table 6 completed was undertaken in line with.

## 10 Contamination Assessment

### 10.1 Contamination

In order to assess the site, the site will be considered based on the historic land use of the site which will depict the extent of testing undertaken to consider risk within the area and additionally, the site will consider the proposed land use for assessment of whether target values have been exceeded for that particular land use.

### 10.2 Human Health Risk

As part of a generic assessment of the subsoil conditions, a comparison has initially been made using Generic Quantitative Assessment Criteria, (GQRA), values for contaminants derived the Environment Agency in Soil Guideline Values released in LCRM, (Land Contamination Risk Management), for Human Health Risk Assessment. For the proposed land use of this site, we can confirm that Generic Quantitative Assessment Criteria have been identified for the site. This is the order in which the Health Criteria Values will be used.

We are aware that the CIEH have published a 'Position Statement' which confirms that they do not wish to be associated with Category 4 screening values under the planning regime and as such would revert back to their own values, although, we are also aware that Local Authorities recommend the use of these value, although this is dependent upon the council EHO. As detailed above, the order of progression will be EA - SGV's, LQM / CIEH Data and then C4SL data.

It is possible that where exceedance of these values are recorded, a more Detailed, Qualitative Risk Assessment, (DQRA), could be completed using site specific scenarios and toxicological properties of the subsoil and site conditions to derive Site Specific Assessment Criteria, (SSAC), for the site. The assessment of testing has been completed as follows and reports the initial risks considered in place compared to GQRA.

For ease of assessment, we can confirm that the site will be considered based on a single zone of development with the following land use: -

|               |                 |                                                    |
|---------------|-----------------|----------------------------------------------------|
| <b>Zone 1</b> | <b>The Site</b> | <b>Residential Land Use with Homegrown Produce</b> |
|---------------|-----------------|----------------------------------------------------|

A comparison of the data recovered from the sample analysis against the human health risk assessments for Residential Land Use with Homegrown Produce has been completed, the standards used are shown in the table below and where exceedance of the relevant generic guidance values have been identified, if any, these are detailed within Table 6. A complete copy of all the chemical data is recorded within the appendix of this report.

**Table 4**      **Generic Guidance Values Criteria - Residential Land Use with Home Grown Produce**

| <i>Pollutant</i>            | <i>Allowable<br/>(mg/kg<sup>-1</sup>)</i> | <i>Level</i> | <i>Source</i> |
|-----------------------------|-------------------------------------------|--------------|---------------|
| <b>Asbestos</b>             | Absent /Present                           |              |               |
| <b>Inorganic Arsenic</b>    | 37                                        |              | S4UL          |
| <b>Beryllium</b>            | 1.7                                       |              | S4UL          |
| <b>Cadmium</b>              | 11                                        |              | S4UL          |
| <b>Chromium, (III)</b>      | 910                                       |              | S4UL          |
| <b>Chromium, (VI)</b>       | 6                                         |              | S4UL          |
| <b>Copper</b>               | 2400                                      |              | S4UL          |
| <b>Lead</b>                 | 200                                       |              | At Risk Soils |
| <b>Mercury, (Elemental)</b> | 1.2                                       |              | S4UL          |
| <b>Mercury, (Inorganic)</b> | 40                                        |              | S4UL          |
| <b>Mercury, (Methyl)</b>    | 11                                        |              | S4UL          |
| <b>Nickel</b>               | 180                                       |              | S4UL          |
| <b>Selenium</b>             | 250                                       |              | S4UL          |
| <b>Vanadium</b>             | 410                                       |              | S4UL          |
| <b>Zinc</b>                 | 3700                                      |              | S4UL          |
| <b>Boron</b>                | 290                                       |              | S4UL          |
| <b>TPH, (Total)</b>         | >20 required<br>assessment                | Speciated    |               |

| Pollutant                     | Allowable Level (mg/kg-1) |          |        | Source                 |
|-------------------------------|---------------------------|----------|--------|------------------------|
|                               | 1% SOM                    | 2.5% SOM | 6% SOM |                        |
| <b>Naphthalene</b>            | 2.3                       | 5.6      | 13     | <b>S4UL</b>            |
| <b>Acenaphthylene</b>         | 170                       | 420      | 920    |                        |
| <b>Acenaphthene</b>           | 210                       | 510      | 1100   |                        |
| <b>Flourene</b>               | 170                       | 400      | 860    |                        |
| <b>Phenanthrene</b>           | 95                        | 220      | 440    |                        |
| <b>Anthracene</b>             | 2400                      | 5400     | 11000  |                        |
| <b>Flouranthene</b>           | 280                       | 560      | 890    |                        |
| <b>Pyrene</b>                 | 620                       | 1200     | 2000   |                        |
| <b>Benzo(a)anthracene</b>     | 7.2                       | 11       | 13     |                        |
| <b>Chrysene</b>               | 15                        | 22       | 27     |                        |
| <b>Benzo(b)flouranthene</b>   | 2.6                       | 3.3      | 3.7    |                        |
| <b>Benzo(k)flouranthene</b>   | 77                        | 93       | 100    |                        |
| <b>Benzo(a)pyrene</b>         | 2.2                       | 2.7      | 3      |                        |
| <b>Indeno(1,2,3-cd)pyrene</b> | 27                        | 36       | 41     |                        |
| <b>Dibenzo(ah)anthracene</b>  | 0.24                      | 0.28     | 0.3    |                        |
| <b>Benzo(g,h,i)perylene</b>   | 320                       | 340      | 350    | <b>LQM/CIEH (S4UL)</b> |
| <b>Phenols</b>                | 280                       | 550      | 1100   |                        |

**Table 5**      **TPHs - Generic Guidance Values Criteria - Residential Land Use with Home Grown Produce**

| Pollutant                    | 1% Soil Organic Matter | 2.5% Soil Organic Matter | 6% Soil Organic Matter | Source |
|------------------------------|------------------------|--------------------------|------------------------|--------|
| Total Petroleum Hydrocarbons |                        |                          |                        |        |
| Aliphatic Fractions          |                        |                          |                        |        |
| EC > 5-6                     | 42                     | 78                       | 160                    | S4UL   |
| EC > 6-8                     | 100                    | 230                      | 530                    |        |
| EC > 8-10                    | 27                     | 65                       | 150                    |        |
| EC > 10-12                   | 130                    | 330                      | 760                    |        |
| EC > 12-16                   | 1100                   | 2400                     | 4300                   |        |
| EC > 16-35                   | 65000                  | 92000                    | 110000                 |        |
| EC > 35-44                   | 65000                  | 92000                    | 110000                 |        |
| Aromatic Fractions           |                        |                          |                        |        |
| EC > 5-7                     | 70                     | 140                      | 300                    | S4UL   |
| EC > 7-8                     | 130                    | 290                      | 660                    |        |
| EC > 8-10                    | 34                     | 83                       | 190                    |        |
| EC > 10-12                   | 74                     | 180                      | 380                    |        |
| EC > 12-16                   | 140                    | 330                      | 660                    |        |
| EC > 16-21                   | 260                    | 540                      | 930                    |        |
| EC > 21-35                   | 1100                   | 1500                     | 1700                   |        |
| EC > 33–44                   | 1100                   | 1500                     | 1700                   |        |
| Aliphatic & Aromatic         |                        |                          |                        |        |
| EC > 44-70                   | 1600                   | 1800                     | 1900                   | S4UL   |

**Table 6**      **Sampling and Testing Schedule**

| Existing Site Use                                                                                           |                               | Proposed Site Use           | Chemical Testing Date | stratum sampled | Depth Of Stratum<br>(m b.g.l) | Sample Location | Sample Depth<br>(m) |      | HESI Suite 1             | PAHs, (Speciated) | TPHS, (TPHCWG) | Asbestos | Pesticides | WAC & WM3 | Type Of Asbestos Identified | Asbestos Quantification<br>% | Benzo(b)fluoranthene<br>(mg/kg) | Benzo(a)pyrene<br>(mg/kg) | Dibenz(a,h)Anthracene<br>(mg/kg) |       |     |     |      |
|-------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------|-----------------------|-----------------|-------------------------------|-----------------|---------------------|------|--------------------------|-------------------|----------------|----------|------------|-----------|-----------------------------|------------------------------|---------------------------------|---------------------------|----------------------------------|-------|-----|-----|------|
| EXISTING FARM BUILDINGS                                                                                     | RESIDENTIAL LAND USE STANDARD | 27 <sup>TH</sup> MARCH 2025 | FILL                  | 0.50m           | WS1                           | 0.20            | -                   | 0.25 | Farm Uses, pond.         | ✓                 | ✓              | ✓        | ✓          |           |                             | NONE                         | N/A                             | 1.9                       | 1.6                              | 0.16  |     |     |      |
|                                                                                                             |                               |                             | FILL                  | 0.75m           | WS1                           | 0.60            | -                   | 0.65 |                          | ✓                 | ✓              | ✓        | ✓          |           |                             | NONE                         | N/A                             | 8.5                       | 7.1                              | 0.78  |     |     |      |
|                                                                                                             |                               |                             | FILL                  | 1.00m           | WS2                           | 0.30            | -                   | 0.35 | Storage barns, farm use  |                   |                |          | ✓          |           | ✓                           | NONE                         | N/A                             | 0.76                      | 0.55                             | <0.05 |     |     |      |
|                                                                                                             |                               |                             | FILL                  | 1.00m           | WS2                           | 0.70            | -                   | 0.75 |                          | ✓                 | ✓              | ✓        | ✓          | ✓         |                             | NONE                         | N/A                             | 1.4                       | 1.1                              | 0.1   |     |     |      |
|                                                                                                             |                               |                             | NAT                   | 1.70m           | WS2                           | 1.20            | -                   | 1.25 |                          |                   |                |          | ✓          |           | ✓                           | NONE                         | N/A                             | <0.05                     | <0.05                            | <0.05 |     |     |      |
|                                                                                                             |                               |                             | FILL                  | 0.65m           | WS3                           | 0.10            | -                   | 0.15 | Farm Uses, garage, pond. |                   |                |          | ✓          |           |                             | NONE                         | N/A                             | -                         | -                                | -     |     |     |      |
|                                                                                                             |                               |                             | FILL                  | 0.80m           | WS3                           | 0.60            |                     | 0.65 |                          | ✓                 | ✓              | ✓        | ✓          |           |                             | NONE                         | N/A                             | <0.05                     | <0.05                            | <0.05 |     |     |      |
|                                                                                                             |                               |                             | FILL                  | 0.80m           | WS4                           | 0.20            |                     | 0.25 | Farm Uses, garage, pond. | ✓                 | ✓              | ✓        | ✓          |           |                             | Chrysotile                   | Cement Fragment                 | 1.7                       | 1.6                              | 0.21  |     |     |      |
|                                                                                                             |                               |                             | FILL                  | 0.80m           | WS4                           | 0.60            |                     | 0.65 |                          | ✓                 | ✓              | ✓        | ✓          |           |                             | NONE                         | N/A                             | 0.68                      | 0.5                              | <0.05 |     |     |      |
|                                                                                                             |                               |                             | FILL                  | 0.80m           | WS5                           | 0.10            |                     | 0.15 | Storage barns, farm use  |                   |                |          | ✓          |           |                             | NONE                         | N/A                             | -                         | -                                | -     |     |     |      |
|                                                                                                             |                               |                             | FILL                  | 0.80m           | WS5                           | 0.60            | -                   | 0.65 |                          | ✓                 | ✓              | ✓        | ✓          |           |                             | NONE                         | N/A                             | 1                         | 0.82                             | 0.07  |     |     |      |
|                                                                                                             |                               |                             | NAT                   | 1.90m           | WS5                           | 0.90            | -                   | 0.95 |                          | ✓                 | ✓              | ✓        | ✓          |           |                             | NONE                         | N/A                             | <0.05                     | <0.05                            | <0.05 |     |     |      |
| * Indicates the value which forms the lowest trigger level.                                                 |                               |                             |                       |                 |                               |                 |                     |      |                          |                   |                |          |            |           |                             | 1%                           | 2.6                             | 2.2                       | 0.24                             |       |     |     |      |
| Where PAHs are additionally tested within the VOC List. the highest values have been taken.                 |                               |                             |                       |                 |                               |                 |                     |      |                          |                   |                |          |            |           |                             | EXPOSURE LEVELS              |                                 |                           |                                  | 2.5%  | 3.3 | 2.7 | 0.28 |
| For the purposes of assessment where not stated otherwise Soil Organic Matter values of 2.5% has been used. |                               |                             |                       |                 |                               |                 |                     |      |                          |                   |                |          |            |           |                             |                              |                                 |                           |                                  | 5%    | 3.7 | 3.0 | 0.30 |
| All measurements are given in mg/kg                                                                         |                               |                             |                       |                 |                               |                 |                     |      |                          |                   |                |          |            |           |                             |                              |                                 |                           |                                  | 5%    | 3.7 | 3.0 | 0.30 |

### 10.3 Sources of Risk within Soils

Based on the information gained, we can confirm that areas of the site have recorded contamination in place above a human health risk level which can be confirmed as follows: -

- Isolated risk from Asbestos in WS4 @0.20-0.25 meters below ground level. The Asbestos was identified as a cement fragment and noted as Chrysotile. This was identified within the made ground.
- Isolated and very marginal levels of contamination from Benzo(b)fluoranthene, Benzo(a)pyrene, Dibenzo(a,h)Anthracene in WS1 @ 0.60m-0.65 meters below ground level. This was identified within the made ground.
  - PAHs, (which Dibenzo(ah)Anthracene forms a pollutant), are derived from ash and clinker materials and burnt debris. As such, the presence of this isolated and marginal pollutant are likely small amounts of ash and clinker in the subsoil.

### 10.4 Human Health Source Conclusions

Risk based on assessments of the site confirm that risk is in place as follows: -

**Table 7 Soil Contamination Risks – Human Health**

| Risk Factor           |  | Risks in place                                | Remediation                                                                                                                                      |
|-----------------------|--|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Targeted Risks</b> |  | <b>Asbestos</b> Risk within the hardcore Fill | Remediation action required.<br><br>Assume as Widespread.<br>OR<br>Additional sampling to comply with BS10175:2011, 5m grid and to confirm risk. |
|                       |  | <b>WS4 at 0.20 meters deep</b>                |                                                                                                                                                  |
|                       |  | <b>Chrysotile fragment.</b>                   |                                                                                                                                                  |
|                       |  | <b>PAHs within the Hardcore Fill</b>          |                                                                                                                                                  |
|                       |  | <b>WS1 at 0.60 meters deep</b>                |                                                                                                                                                  |
| <b>Spatial Risks</b>  |  | NONE                                          |                                                                                                                                                  |

### 10.5 Ground and Surface Water Source

The published Environment Agency Groundwater Vulnerability Map of the area indicates the site to be located within an area classified as a Secondary A Aquifer. The underlying geology is recorded as an Principal Aquifer which is formed by New Pit Chalk formation.

Principal aquifers provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands.

Secondary A aquifers comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers.

The nearest abstraction well is located 823 meters to the north east of the site which is identified as a Public Water Supply.

The site lies within an SPZ II Source Protection Zone. An SPZ I is recorded as 221 meters to the east of the site.

The nearest surface water feature is recorded as on site which is identified as a Pond. No river systems are identified within close proximity to the site.

No discharge consents are recorded surrounding the site.

The nearest pollution incident to controlled waters is identified as 237 meters to the south east of the site. This is recorded as a Minor Incident from Miscellaneous – Fire water / Foam..

Isolated risk from **PAHs** promotes low risk to groundwater.

Considering the above, we can confirm that the likely current and historical impact of pollution on a groundwater system underlying the site will be minimal due to the presents of London clay and the absence of a groundwater system or controlled surface water features.

## 10.6 Land Gas Assessments

Considering the potential for Land Gas risks due to the potential infilled ground and pond adjacent to the site which is heavily filled with organic materials potentially in place within the site area Land Gas risk assessments must be completed. These will include the potential for contamination migration from on and off-site sources which may be present in concentrations where risk is recorded.

Land gas monitoring should be specifically targeting the following land uses.

**Table 8** Land Gas Assessment - Response Zone

| Feature                               | Targeted Response Zone | Location to Target | Gas risk                                         |
|---------------------------------------|------------------------|--------------------|--------------------------------------------------|
| Made ground and Infilled ground, Pond | Made Ground            | Site Wide          | Land Gases - CO <sub>2</sub> , CH <sub>4</sub> . |

A visual appraisal has been made for any decomposable materials and fuels or organic compounds which may promote a risk, whilst sub-sampling soils at the site for chemical analysis. Based on this review, no visual risks were identified in place. Whilst this is the case, the pond identified on site will form a source of potential risk, (although, this is proposed to be removed).

Considering the above, we would suggest that soil testing is undertaken to assess the infilled ground its depth and type, and a standpipe should be installed within the site with response zones placed within the upper made ground solely, and the following assessments completed as follows:-

- Install standpipes to allow vapour and Land Gas risk to be considered from the upper made ground.

- Assess vapour risk over a minimum of six monitoring rounds to comply with CIRIA C665 to consider risks to buildings, LCRM and R & D Publication 66.
- Monitoring should be completed over falling or low atmospheric pressures or in periods where ground conditions are frozen to provide the worst-case scenario for the site, although, the site is laid to hard cover which will restrict natural ventilation of any gases.
- Reporting of land gas and vapour risk/ can be completed assessing soils in situ using a Photo Ionisation Detector for Volatile Organic Compounds, (which include BTEX). Flow rates should also be noted for reporting purposes.

## 10.7 Vapour Risks

Considering the potential for vapour risk to be in place from various source as noted below, the following risk are in place.

**Table 9 Vapour Risk Assessment - Response Zone**

| Feature                         | Targeted Response Zone                     | Location to Target | Vapour or Gas risk |
|---------------------------------|--------------------------------------------|--------------------|--------------------|
| Garage, Farm Use, Infilled Pond | Made Ground / Head Deposits, New Pit Chalk | Site wide          | TPHs, Naphthalene. |

Chemical testing has been completed and no elevated level of these vaporous contamination have been recorded in place also when logging and sub-sampling a visual and olfactoral assessment of the soils have been completed, and no contamination that promotes a vapour risk has been encountered within the assessment completed to date.

## 10.8 Water Main Pipework

An assessment of risk in relation to water main pipework has been considered within the scope of the works and considering the pollution measured at the site. Based on a comparison of the WRAS Data and UKWIR, (Guidance for the selection of water supply pipework on brownfield sites), it can be seen that marginal levels of contamination, (In the form of fuels), have been identified and risk is directly in place to water main pipework. This would suggest that any new water main pipework should be installed using Protecta-Line pipework.

Considering the risk to the workforce used in the construction and possible future maintenance of water main pipework, risk is in place based on the standard human health risk, as detailed in Section 10.5. As such, we would suggest that if the site has not undergone full remediation, all water main pipework should be laid in clean corridors to prevent future harm to the workforce used in maintenance of the system. To confirm: -

Water main pipework should be laid in a Protecta-Line pipework system.

Any water main pipework should be laid in clean corridors in order to prevent future risk to workforce used in the maintenance and repair of any water main system.

## 10.9 Building Risks

Based on the information shown, we can confirm that the risk from explosive land gases is low based on the information identified. The justification for low ground gas risk has been identified and reviewed in Section 10.6.

Considering the risk from Sulphates to concrete we can confirm that the chemical testing has been completed.

Based on the information gained, we can confirm that a classification of DS1-AC1s should be adopted for the site. This would suggest that a conventional cement mix can be used for the development, although testing of the deeper soils should be completed.

## 10.10 General Source Risk Conclusions

**Table 10** *Source Risk Conclusions*

| Receptor                  | Source      | Pollutant                         | Location                                                           | Action                                         |
|---------------------------|-------------|-----------------------------------|--------------------------------------------------------------------|------------------------------------------------|
| <b>Human Health Risks</b> |             |                                   |                                                                    |                                                |
|                           | Soils       | PAHs, Asbestos.                   | Isolated risk in the location of WS1, (PAH's) and WS4, (Asbestos). | Remediation required.                          |
|                           | Workforce   | PAHs, Asbestos.                   | Isolated risk in the location of WS1, (PAH's) and WS4, (Asbestos). | PPE, RPE and training required.                |
|                           | Land Gases  | CO <sub>2</sub> , CH <sub>4</sub> | Site Wide.                                                         | Complete 6 Ground Gas Assessments across site. |
|                           | Vapours     | TPHs                              | No Obvious Risk                                                    |                                                |
| <b>Groundwater Risk</b>   |             |                                   |                                                                    |                                                |
|                           | Groundwater | Lead, PAHs.                       | Limited risk in place                                              |                                                |
| <b>Building Materials</b> |             |                                   |                                                                    |                                                |
|                           | Soils       | TPHs                              | Widespread risk within the Fill                                    | Protective water main pipework                 |

Additional testing is recommended to further assess the risks found within the location of WS1, (For PAH's) and WS4, (Asbestos), to aid in the density of sampling up to the currently guidance for asbestos, also to isolate the extent of the targeted risks identified within the site.

Testing should be for Asbestos and PAHs, and we would recommend at least 10 samples.

## 11 Risk Assessment Based on Source Risk

Considering the presence of contamination which has been identified above, we confirm the following outlines the assessment of the site completed and way forward for the site.

**Table 11 Risk Assessment A**

| Contaminant | Receptors                              | Pathways                                                                                   | Mitigation / Discussion                                                                                                                               |
|-------------|----------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| TPHs        | Site Users<br>Construction<br>Workers. | Direct contact.<br>Inhalation dust and fibers.<br>Dermal contact                           | Levels in place are not above a human health risk                                                                                                     |
|             |                                        | Ingestion of home-grown produce                                                            | Levels in place are not above a human health risk                                                                                                     |
|             |                                        | Ingestion of contaminated water through water main pipework                                | <b>Remediation required OR Mitigation measure to be installed</b>                                                                                     |
|             |                                        | Inhalation of vapours                                                                      | Levels within the soil are unlikely to promote vapor risks and PID testing is ongoing                                                                 |
|             |                                        | Inhalation of vapours through contaminated ground waters                                   | Risk from the groundwater have not been identified as low based on the information gained.                                                            |
|             | Adjoining<br>Landowners                | Direct contact.<br>Inhalation dust and fibers.<br>Dermal contact                           | Levels in place are not above a human health risk and therefore will not impact on adjoining landowners.                                              |
|             |                                        | Ingestion of home-grown produce                                                            |                                                                                                                                                       |
|             |                                        | Ingestion of contaminated water through water main pipework                                |                                                                                                                                                       |
|             |                                        | Inhalation of vapours                                                                      |                                                                                                                                                       |
|             |                                        | Inhalation of vapours through contaminated ground waters                                   |                                                                                                                                                       |
|             | Controlled<br>Surface Water;           | Leaching, lateral migration of shallow groundwater to a target receptor.                   | The distance from the site to the surface water feature will reduce the likelihood of risk                                                            |
|             | Ground Water.<br>Abstraction<br>Well.  | Leaching, migration through fissures / cracks which may migrate to a groundwater receptor. | Based on the levels in place risk to the groundwater is low based on the information gained.                                                          |
|             | Flora                                  | Plant Uptake<br>Direct Contact                                                             | Based on BS 3882: 2015 there are no allowable levels for TPHs although the levels are not significant as such are unlikely to form a phytotoxic risk. |

**Table 12**
**Risk Assessment B**

| Contaminant                 | Receptors                                                             | Pathways                                                                                   | Mitigation / Discussion                                                                                       |
|-----------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>PAHs,<br/>(WS1 ONLY)</b> | Site Users<br>Construction<br>Workers.                                | Direct contact.<br>Inhalation dust and fibers.<br>Dermal contact                           | <b>Remediation required.<br/>Appropriate PPE.<br/>Appropriate RAMs and MMP.</b>                               |
|                             |                                                                       | Ingestion of home-grown produce                                                            | <b>Remediation required.</b>                                                                                  |
|                             |                                                                       | Ingestion of contaminated water through water main pipework                                | <b>Remediation required OR Mitigation measure to be installed.</b>                                            |
|                             |                                                                       | Inhalation of vapours                                                                      | No vapour risk from PAH contamination identified.                                                             |
|                             |                                                                       | Inhalation of vapours through contaminated ground waters                                   | No vapour risk from PAH contamination identified.                                                             |
|                             | Adjoining<br>Landowners                                               | Direct contact.<br>Inhalation dust and fibers.<br>Dermal contact                           | These contaminants are unlikely to be highly mobile and as such are unlikely to impact on the adjoining land. |
|                             |                                                                       | Ingestion of home-grown produce                                                            |                                                                                                               |
|                             |                                                                       | Ingestion of contaminated water through water main pipework                                |                                                                                                               |
|                             |                                                                       | Inhalation of vapours                                                                      |                                                                                                               |
|                             | Controlled<br>Surface Water;<br>Ground Water.<br>Abstraction<br>Well. | Inhalation of vapours through contaminated ground waters                                   | The distance from the site to the surface water feature will reduce the likelihood of risk.                   |
|                             |                                                                       | Leaching, lateral migration of shallow groundwater to a target receptor.                   |                                                                                                               |
|                             | Flora                                                                 | Leaching, migration through fissures / cracks which may migrate to a groundwater receptor. | Based on the levels in place risk to the groundwater is low based on the information gained.                  |
|                             |                                                                       | Plant Uptake<br>Direct Contact                                                             | Based on BS 3882: 2015 minimal risk is in place.                                                              |

**Table 13**

**Risk Assessment C**

| Source                               | Receptors                                                                         | Pathway                        | Mitigation / Discussion                                                                                              |
|--------------------------------------|-----------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Asbestos</b><br><b>(WS4 ONLY)</b> | Site Users, (current and future)<br>Construction Workers.<br>Adjacent Site Users. | Inhalation of asbestos fibers. | <b>Remediation required.</b><br><b>Appropriate PPE, RPE and training needed.</b><br><b>Appropriate RAMs and MMP.</b> |

## 12 Implications of the End Use of the Site

Within the assessment of the site completed within this report, we can confirm that existing source – pathway – receptor risk assessments are now in place based on actual site data. Based on the change in use of the site through this proposed development, it is possible that pathways to receptors will be either be removed or enhanced such that risk may be in place / removed.

The end use risks based on pathways are discussed below and relate to the site as a whole: -

**Hard Landscaping** - will effectively cap off any contamination and remove risk, although, the placement of hard surfaces across the site should be confirmed as part of the planning application and not form a system of remediation that homeowners could remove as part of the ongoing habitation.

- **Where Asbestos is in place, full remediation and validation will be required.**
- **Maintain a watching brief. Additional sampling has identified no additional risk and as such, the risk from Asbestos will be low.**

**Soft Landscaping** - will form an area where risk is in place and as such, remedial measures are likely to be required.

- **Where Asbestos is in place, full remediation and validation will be required.**

**Under Buildings** - will effectively cap off any contamination and remove risk.

- **Where Asbestos is in place, full remediation.**

**Services** - By examination of the UKWIR, (Guidance for the selection of water supply pipes to be used in brownfield sites) we can confirm the risks associated with human health from water main feeds have been considered in place, as such, preventative measures **are likely to** be required for the site. We would suggest that consultation with the relevant statutory authority will be required which may lead to all existing water mains being retained and any new water main installations being in '**Protecta-line**' pipework.

## 13 Outline Remediation Measures

Considering the above, we would suggest that the following outline remediation measures could be employed in order to develop the site based on the existing data. This will be based on the assumption that there is isolated risk within the site area. although further testing is needed to confirm this.

### 13.1 Cover Systems - NHBC

The remedial measures are likely to include one of the following cover systems for the site: -

Engineered cover systems – designed to provide the complete separation of the receptor from the hazard and to perform a number of functions including limiting upward migration of contaminants due to capillary rise and controlling the downward infiltration of water.

Simple cover systems – to provide a reduction of the hazard to human health and to provide a suitable medium for plant growth.

Consultation within NHBC guidance documents, (Cover Systems for Land Regeneration), confirm that maximum depths of cover will be required for residential sites and overcome the inherent issues with earthworm activity, burrowing animals, effects of trees and plants, digging during garden activities and intermixing of leaf fall. Justification of this is included within the NHBC guidance document.

It is also recorded that as part of the review, a questionnaire was sent out to various Developers, Consultants and Regulators who all confirmed variable degrees of cover system based on the level of contamination which ranged from 0.30 meters to 3.00 meters, although, the report by NHBC removes these as conservative and the suggestion of a 0.60 meter cover system adopted by the report as a maximum depth of cover required to be sufficient.

It should be noted that these cover systems do not overcome the risks from soil gases, hydrocarbons, highly elevated Mercury or Arsenic, the groundwater or any controlled waters, significant contamination, deep excavations, services, slopes or areas where rabbit or badger populations are significant.

**Table 14** *Outline Remediation Measures for end use of the site*

| Land Use                                          | Mitigation Measure                                                                                                                                                                                                                                   | Any Additional Works                                                                                                                                                                                                        | Depth to remove risk                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Confirmation required.                                                                                                     |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Communal Areas & Shrub Planting Areas.            | <b>Isolated risk from PAH's in WS1</b>                                                                                                                                                                                                               |                                                                                                                                                                                                                             | Excavate a maximum of 0.60 meters of the contaminated layer, (defined within this report as the Made Ground) and confirm the geology at depth.                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                            |
|                                                   | Excavate and remove soils which are assessed to form a risk and placement of clean inert soils to a minimum depth of 0.60 meters. (See Cover Systems above for justification).                                                                       | Remediation Required.                                                                                                                                                                                                       | If the contaminated layer is still in place, recover validation samples from the base of the excavation to confirm the contamination status of the soils for future assessment and record. Lay Geo-textile over this contaminated layer to warn future excavators that risk is present below.<br><br>If clean soils are encountered, recover validation samples from the base to confirm that risk has been removed for validation purposes. This can be at any depth provided that clean soils are identified and recorded. | Validation works will be required. Validation of the base of excavation and validation of any soils brought onto the site. |
|                                                   | <b>ASBESTOS– Isolated risk in WS4.</b>                                                                                                                                                                                                               | <b>ASBESTOS</b>                                                                                                                                                                                                             | 1.00m excavation or full removal and replacement of clean inert soils tested to confirm the infilled soils fall below the human health residential land use standards.<br>OR<br>Install Cobblestone layer within the base of the capping layer if fill is in place at the base.                                                                                                                                                                                                                                              | Complete validation testing to the sides (if pre validation is not completed) and base of the remediation cell.            |
|                                                   | Remediate asbestos risk or fully excavate the removal of Asbestos materials fragments or fibres and complete full validation sampling to confirm risk is removed.<br><br>Remediation works should be designed through a REMEDIATION STRATEGY REPORT. | Maintain a watching brief through any construction works and ensure all workforce used in the development of the site adhere to strict health and safety regimes in respect to PPE and RPE.                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                            |
| Hard Landscaping.                                 | Hard landscaping will remove any risks through pathway removal. Must be a permanent feature, (not patio's).                                                                                                                                          | confirmation will be required from the Local or relevant Authority that hard landscaping areas will require specific permission to remove any and / or all hard surfaces which may expose contamination to human receptors. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                            |
|                                                   | Patio's should assume a soft landscape finish.                                                                                                                                                                                                       |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                            |
|                                                   | <b>ASBESTOS– Isolated risk in WS4.</b>                                                                                                                                                                                                               | <b>ASBESTOS</b>                                                                                                                                                                                                             | FULLY remove all soils impacted on by Asbestos contamination.                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Complete validation testing to the sides (if pre validation is not completed) and base of the remediation cell.            |
|                                                   | Remediate asbestos risk or fully excavate the removal of Asbestos materials fragments or fibres and complete full validation sampling to confirm risk is removed.<br><br>Remediation works should be designed through a REMEDIATION STRATEGY REPORT. | Maintain a watching brief through any construction works and ensure all workforce used in the development of the site adhere to strict health and safety regimes in respect to PPE and RPE.                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                            |
| Under Buildings.                                  | <b>ASBESTOS– Isolated risk in WS4.</b>                                                                                                                                                                                                               | <b>ASBESTOS</b>                                                                                                                                                                                                             | FULLY remove all soils impacted on by Asbestos contamination.                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Complete validation testing to the sides (if pre validation is not completed) and base of the remediation cell.            |
|                                                   | Remediate asbestos risk or fully excavate the removal of Asbestos materials fragments or fibres and complete full validation sampling to confirm risk is removed.<br><br>Remediation works should be designed through a REMEDIATION STRATEGY REPORT. | Maintain a watching brief through any construction works and ensure all workforce used in the development of the site adhere to strict health and safety regimes in respect to PPE and RPE.                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                            |
| Water Main.                                       | Any new water main installations can be installed using Protecta-Line pipework.                                                                                                                                                                      | None.                                                                                                                                                                                                                       | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | To be confirmed with the relevant statutory authority.                                                                     |
|                                                   | Any new water main pipework should be laid in clean corridors. Full removal of Asbestos should be completed as identified above.                                                                                                                     |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                            |
| Controlled Waters – Surface Water & Ground Water. | Groundwater risks removed based on the current site condition.                                                                                                                                                                                       |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                            |
|                                                   | Consider possible future development and pathway creation for contamination to impact on the underlying Secondary Aquifer.                                                                                                                           |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                            |

## 14 Waste Disposal

The Landfill Directive sets rigorous standards to reduce both our reliance on landfill and the environmental impact of wastes disposed of by landfill. Tighter operational and infrastructure standards limit the types and nature of waste that we can send to landfill and place greater restrictions on the location of landfill sites.

The key points are:

- Certain kinds of waste cannot be landfilled.
- Landfills are classified according to whether they can accept hazardous, non-hazardous or inert wastes.
- Wastes can only be accepted at a landfill if they meet the waste acceptance criteria (WAC) for that class of landfill.
- Most wastes must be treated before you can send them to landfill.
- There are formal processes for identifying and checking wastes you must follow before wastes can be accepted at a landfill site.

The Council Decision lays down waste acceptance procedures (WAP). From this foundation landfill operators should build their own site-specific WAP. The Council Decision WAP must be used to determine whether a waste is suitable to go to landfill, and if so, to which class of landfill. The WAP consist of three steps to identify and periodically check the main characteristics of the waste (see Section 9):

- Level 1: basic characterisation. Before you can send a load of waste to landfill, you need to know its composition and properties so you can determine whether it is suitable for acceptance and at which class of site (see the Council Decision Annex, paragraph 1.1).
- Level 2: compliance testing. If you produce waste that is 'regularly arising', e.g. from an industrial process, you must periodically check the waste to ensure that those properties have not changed (see the Council Decision Annex, paragraph 1.2).
- Level 3: on-site verification. The operator must check each delivery at the landfill to verify that it is the expected waste and that it has not been contaminated in storage or transport (see the Council Decision Annex, paragraph 1.3).

Before a waste producer can take waste to a landfill site for disposal, they need to check the landfill site has the appropriate permit and must have completed the following:

- Duty of care transfer note/Hazardous Waste consignment note.
- Pre-treatment declaration form.
- Basic characterisation of the waste, to include:
  - Description of the waste.
  - Waste code (using List of Wastes).
  - Composition of the waste (by testing, if necessary).
  - WAC testing (if required).

### 14.1 WAC Testing

Two WAC tests have been completed on samples from the site area as follows: -

**Table 15** **WAC testing Results**

| Location | Depth (m) | Soil description               | Classification                                     | Reason                                |
|----------|-----------|--------------------------------|----------------------------------------------------|---------------------------------------|
| WS2      | 0.30      | Hardcore stone FILL            | <b>Stable Non-reactive<br/>HAZARDOUS<br/>waste</b> | Elevated<br>pH,<br>Mercury, Fluoride* |
| WS2      | 1.20      | Soft to firm, brown silty CLAY | <b>INERT.</b>                                      |                                       |

## 15 Source Risk Conclusions

### HUMAN HEALTH RISK

The site has identified Made Ground and potentially contaminated ground. These risks form the following layers and associated contamination: -

**FILL:** - Isolated risk from PAH in WS1 within the upper made ground marginally above a residential land use standard with home grown produced.

**FILL:** - Isolated risk from Asbestos in WS4 at a 0.20m.

Based on the above, **remedial measures will likely be required areas where pathways to receptors are in place.**

### WORKFORCE

The above human health risk is in place within the site area, will promote a low risk on a short-term bases to any workforce within the areas. **Appropriate PPE / RPE should be worn and the soil contamination risk should be noted within any site inductions. This is particularly relevant to the Asbestos risks.**

### LAND GAS RISKS

Potential for land gas risk from infilled ground within the site area. Gas testing needs to be completed, in line with best practice, we would suggest that a minimum of six monitoring rounds should be completed which should be undertaken over falling atmospheric pressures or frozen ground conditions to optimise worst case results for the assessment of the gas regime at the site.

### VAPOUR RISKS

Chemical testing of the soils show that low risks are in place. Vapour risk is not in place.

### GROUNDWATER RISKS

**Risks to groundwater is considered low**, although if groundwater is in place within the standpipe, testing for the elevated risks within the site is recommended.

## **CONSTRUCTION MATERIALS**

Water main pipework has been considered, and risk has been identified directly to any water main pipework developed at the site.

Water main pipework can be laid in a protective pipework system.

Any water main pipework should be laid in clean corridors in order to prevent future risk to workforce used in the maintenance and repair of any water main system.

## **FURTHER WORKS**

It is recommended that additional works will be required for the site in order to complete assessments which are detailed as follows: -

- Additional sampling should be completed for both PAH and Asbestos around WS1, (PAH's), and WS4, (Asbestos). We would suggest that 10 samples for each element are tested.
- Install ground gas monitoring well.
  - Complete six monitoring rounds for Landfill Gas Monitoring over low or rapidly falling atmospheric pressures.

Submit reports to Local Authority and Environment Agency for review and confirm the risks identified in this report along with the further works proposed are suitable and acceptable.

The exact details of remediation required for the site should be assessed and reported in a Remediation Strategy Report in order to comply with current best practice.

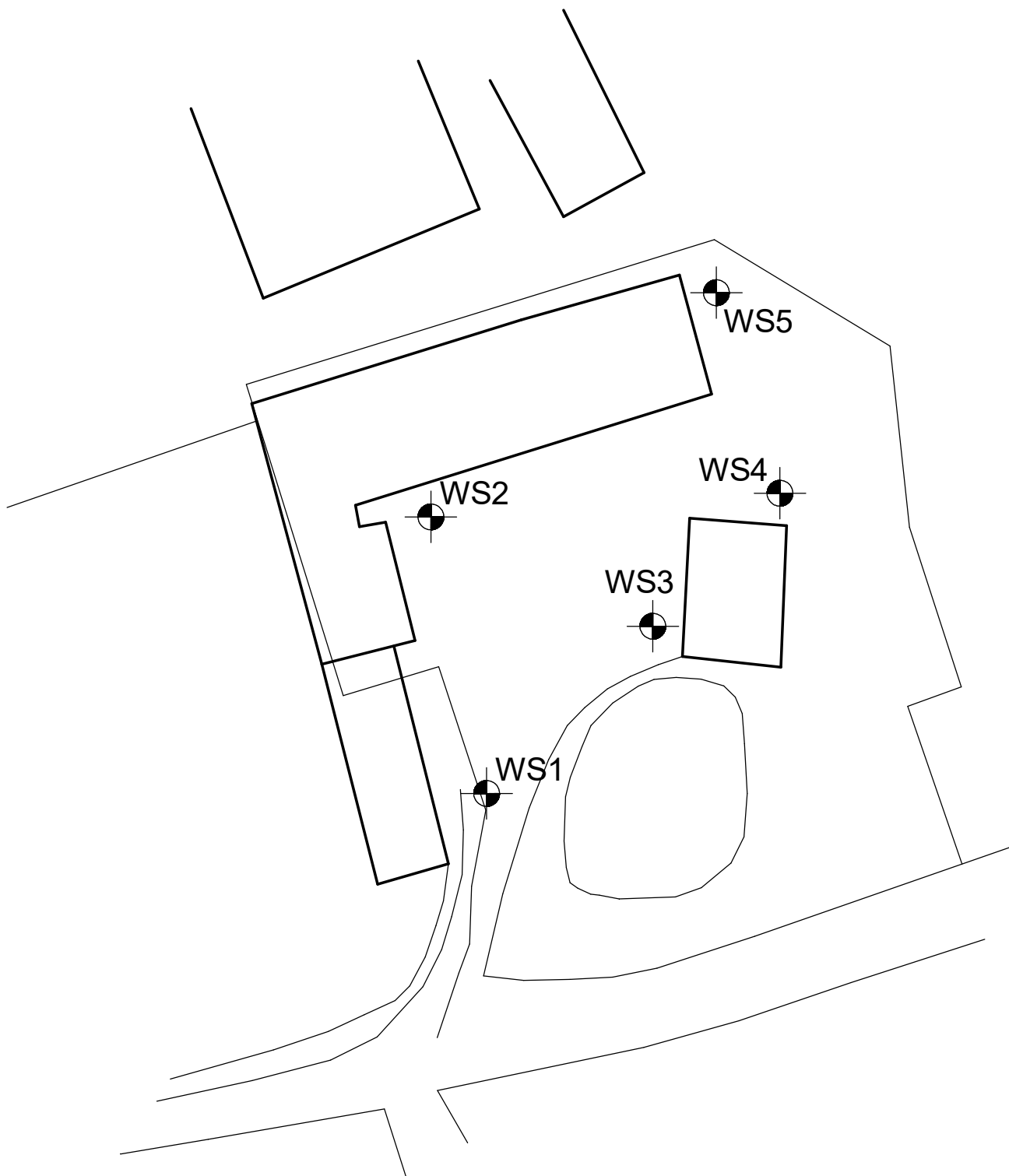
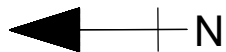
## Brimsole Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN

### Location Plan



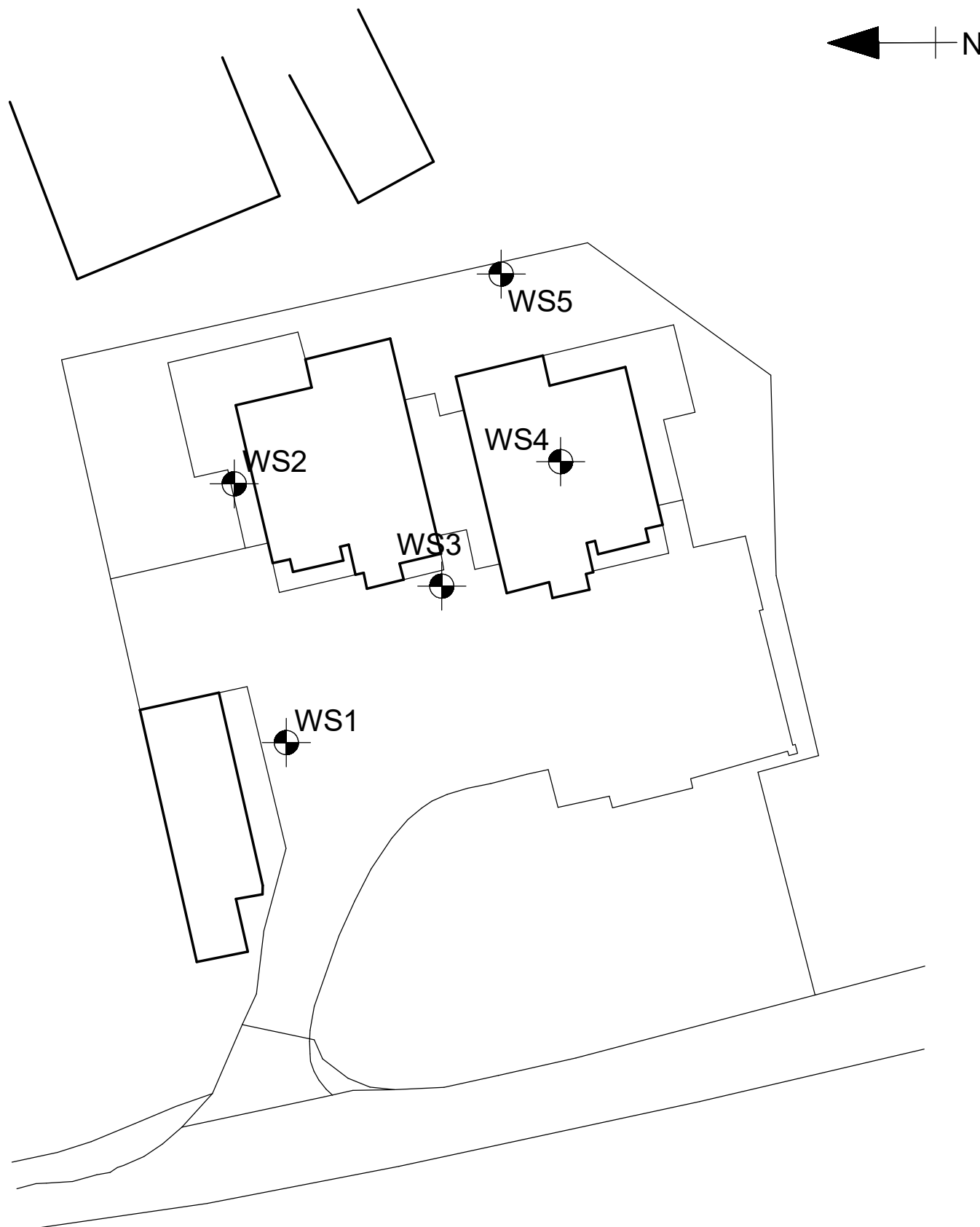
**Brimsole Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN**

**Existing Site Plan**



Brimsole Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN

Proposed Site Plan



Not to Scale  
Sketch No. : ENV / 19458 / 01 / 03

## Brimsole Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN

## Window Sampler One

| Description Of Stratum                                                                          | Legend | Depth | Thickness (m) | Water Level | Samples |      |             | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|-------------------------------------------------------------------------------------------------|--------|-------|---------------|-------------|---------|------|-------------|--------------------------------|-------------|---------------|-------------------|
|                                                                                                 |        |       |               |             | No      | Type | Depth (m)   |                                |             |               |                   |
| Crushed concrete hardcore FILL                                                                  |        |       | 0.50          | DRY         | 1       | U    | G.L. - 1.00 |                                |             |               |                   |
|                                                                                                 |        | 0.50  |               |             |         |      |             |                                |             |               |                   |
| Compact dark brown very silty sandy claybound FILL with occasional flint gravel, brick and ash. |        | 0.75  | 0.25          |             |         |      |             |                                |             |               |                   |
| Stiff becoming firm, brown, silty CLAY with occasional flint gravel                             |        |       |               |             | 2       | U    | 1.00 - 2.00 | N=4                            |             |               | 1.00              |
|                                                                                                 |        |       | 1.15          |             |         |      |             |                                |             |               |                   |
|                                                                                                 |        | 1.90  |               |             |         |      |             |                                |             |               |                   |
| Medium dense, light brown, silty claybound SAND and angular flint GRAVEL with chalk             |        |       |               |             | 3       | U    | 2.00 - 3.00 | N=13                           |             |               |                   |
|                                                                                                 |        |       | 1.40          |             |         |      |             |                                |             |               |                   |
|                                                                                                 |        |       |               |             | 4       | U    | 3.00 - 4.00 | N=36                           |             |               |                   |
|                                                                                                 |        | 3.30  |               |             |         |      |             |                                |             |               |                   |
| CHALK                                                                                           |        |       | 0.70          |             |         |      |             |                                |             |               |                   |
|                                                                                                 |        | 4.00  |               |             |         |      |             | N=14                           |             |               |                   |
| Window Sample closed at 4.00m bgl                                                               |        |       |               |             |         |      |             |                                |             |               |                   |

Remarks

Scale 1 : 25

 Key : U - Undisturbed Sample  
 (100mm diameter)

 B - Bulk Sample  
 - Water Struck

 D - Disturbed Sample  
 - Water Standing

 W - Water Sample  
 T - Chemical Tub

 N - SPT N-Value  
 V - Vane Test, (kN.m²)

## Brimsole Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN

## Window Sampler Two

| Description Of Stratum                                                              | Legend | Depth | Thickness (m) | Water Level | Samples |      |             | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|-------------------------------------------------------------------------------------|--------|-------|---------------|-------------|---------|------|-------------|--------------------------------|-------------|---------------|-------------------|
|                                                                                     |        |       |               |             | No      | Type | Depth (m)   |                                |             |               |                   |
| Hardcore stone FILL                                                                 |        |       | 1.00          | DRY         | 1       | U    | G.L. - 1.00 |                                |             |               |                   |
| Soft to firm, brown silty CLAY                                                      |        | 1.00  | 0.70          |             | 2       | U    | 1.00 - 2.00 | N=4                            |             |               | 1.00              |
| Stiff becoming firm, brown, silty CLAY with occasional flint gravel                 |        | 1.70  | 0.40          |             | 3       | U    | 2.00 - 3.00 | N=27                           |             |               |                   |
| Soft, light brown, silty CLAY with much chalk fragments                             |        | 2.10  | 0.30          |             |         |      |             |                                |             |               |                   |
| Medium dense, light brown, silty claybound SAND and angular flint GRAVEL with chalk |        | 2.40  | 0.70          |             | 4       | U    | 3.00 - 4.00 | N=22                           |             |               |                   |
| CHALK                                                                               |        | 3.10  | 0.90          |             |         |      |             |                                |             |               |                   |
| Window Sample closed at 4.00m bgl                                                   |        | 4.00  |               |             |         |      |             | N=15                           |             |               |                   |
| Remarks                                                                             |        |       |               |             |         |      |             |                                |             |               |                   |

Scale 1 : 25

 Key : U - Undisturbed Sample  
 (100mm diameter)

 B - Bulk Sample  
 - Water Struck

 D - Disturbed Sample  
 - Water Standing

 W - Water Sample  
 T - Chemical Tub

 N - SPT N-Value  
 V - Vane Test, (kN.m²)

## Brimsole Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN

## Window Sampler Three

| Description Of Stratum                                                              | Legend | Depth | Thickness (m) | Water Level | Samples |      |             | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|-------------------------------------------------------------------------------------|--------|-------|---------------|-------------|---------|------|-------------|--------------------------------|-------------|---------------|-------------------|
|                                                                                     |        |       |               |             | No      | Type | Depth (m)   |                                |             |               |                   |
| Gravel over hardcore chalk FILL                                                     |        | 0.10  | 0.10          | DRY         | 1       | U    | G.L. - 1.00 | N=4                            |             |               | 1.00              |
| Moderately compact, black brown, silty claybound, gravel FILL with slate and brick  |        | 0.60  | 0.50          |             |         |      |             |                                |             |               |                   |
| CHALK rock                                                                          |        | 0.80  | 0.20          |             |         |      |             |                                |             |               |                   |
| Stiff becoming firm, brown, silty CLAY with occasional flint gravel                 |        | 1.90  | 1.10          |             | 2       | U    | 1.00 - 2.00 |                                |             |               |                   |
| Medium dense, light brown, silty claybound SAND and angular flint GRAVEL with chalk |        | 2.70  | 0.80          |             | 3       | U    | 2.00 - 3.00 | N=26                           |             |               |                   |
| CHALK                                                                               |        | 4.00  | 1.30          |             | 4       | U    | 3.00 - 4.00 | N=27                           |             |               |                   |
| Window Sample closed at 4.00m bgl                                                   |        |       |               |             |         |      |             | N=14                           |             |               |                   |
|                                                                                     |        |       |               |             |         |      |             |                                |             |               |                   |
|                                                                                     |        |       |               |             |         |      |             |                                |             |               |                   |
|                                                                                     |        |       |               |             |         |      |             |                                |             |               |                   |

Remarks

Scale 1 : 25

Key : U - Undisturbed Sample  
(100mm diameter)

B - Bulk Sample  
- Water Struck

D - Disturbed Sample  
- Water Standing

W - Water Sample  
T - Chemical Tub

N - SPT N-Value  
V - Vane Test, (kN.m²)



## Window Sampler Four

| Description Of Stratum                                                        | Legend | Depth | Thickness (m) | Water Level | Samples |      |             | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |      |
|-------------------------------------------------------------------------------|--------|-------|---------------|-------------|---------|------|-------------|--------------------------------|-------------|---------------|-------------------|------|
|                                                                               |        |       |               |             | No      | Type | Depth (m)   |                                |             |               |                   |      |
| Gravel over chalk flint brick FILL                                            |        | 0.80  | 0.80          | DRY         | 1       | U    | G.L. - 1.00 | N=5                            |             |               | 1.00              |      |
| Stiff becoming firm, brown, silty CLAY with occasional flint gravel           |        | 1.90  | 1.10          |             | 2       | U    | 1.00 - 2.00 |                                |             |               |                   |      |
| Medium dense, light brown, silty very claybound SAND and angular flint GRAVEL |        |       |               |             | 3       | U    | 2.00 - 3.00 |                                |             |               |                   | N=18 |
|                                                                               |        |       | 2.10          |             | 4       | U    | 3.00 - 4.00 |                                |             |               |                   | N=21 |
|                                                                               |        | 4.00  |               |             |         |      |             |                                |             |               |                   | N=21 |
| Window Sample closed at 4.00m bgl                                             |        |       |               |             |         |      |             |                                |             |               |                   |      |

Remarks

Scale 1 : 25

Key : U - Undisturbed Sample  
(100mm diameter)

B - Bulk Sample  
 - Water Struck

D - Disturbed Sample  
 - Water Standing

W - Water Sample  
T - Chemical Tub

|   |                                   |
|---|-----------------------------------|
| N | - SPT N-Value                     |
| V | - Vane Test, (kN.m <sup>2</sup> ) |

## Brimsole Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN

## Window Sampler Five

| Description Of Stratum                                              | Legend | Depth | Thickness (m) | Water Level | Samples |      |             | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|---------------------------------------------------------------------|--------|-------|---------------|-------------|---------|------|-------------|--------------------------------|-------------|---------------|-------------------|
|                                                                     |        |       |               |             | No      | Type | Depth (m)   |                                |             |               |                   |
| Gravel drive over hardcore brick FILL                               |        |       | 0.80          | DRY         | 1       | U    | G.L. - 1.00 |                                |             |               |                   |
|                                                                     |        | 0.80  |               |             |         |      |             |                                |             |               |                   |
| Stiff becoming firm, brown, silty CLAY with occasional flint gravel |        |       | 1.10          |             | 2       | U    | 1.00 - 2.00 | N=5                            |             |               | 1.00              |
|                                                                     |        | 1.90  |               |             |         |      |             |                                |             |               |                   |
| CHALK                                                               |        |       | 2.10          |             | 3       | U    | 2.00 - 3.00 | N=23                           |             |               |                   |
|                                                                     |        |       |               |             | 4       | U    | 3.00 - 4.00 | N=17                           |             |               |                   |
|                                                                     |        | 4.00  |               |             |         |      |             | N=11                           |             |               |                   |
| Window Sample closed at 4.00m bgl                                   |        |       |               |             |         |      |             |                                |             |               |                   |
| Remarks                                                             |        |       |               |             |         |      |             |                                |             |               |                   |

Scale 1 : 25

 Key : U - Undisturbed Sample  
 (100mm diameter)

 B - Bulk Sample  
 - Water Struck

 D - Disturbed Sample  
 - Water Standing

 W - Water Sample  
 T - Chemical Tub

 N - SPT N-Value  
 V - Vane Test, (kN.m²)

## i2 SAMPLE CHAIN OF CUSTODY RECORD

No

|                                                                                   |                                                                              |                     |                                                                   |    |  |                                   |       |                                    |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------|----|--|-----------------------------------|-------|------------------------------------|
|  | 7 Woodshots Meadow<br>Croxley Green Business Park<br>Watford<br><br>WD18 8YS | Client:             | Herts & Essex Site Investigations (HESI)                          |    |  | Date samples dispatched:          |       | sheet 1 of                         |
|                                                                                   |                                                                              | Address:            | Unit J8 Peek Business Centre Bishops Stortford CM23 5RG           |    |  | Samples delivered/collected by:   |       |                                    |
|                                                                                   |                                                                              | Client e-mail:      | rchamberlain@hesi.co.uk; csgray@hesi.co.uk; dhudd@hesi.co.uk      |    |  | Sampler ID                        |       | One project/ site per sheet please |
|                                                                                   |                                                                              | Project/Site Name:  | Brimstone Barn, Brimstone Hill, Meopham, Gravesend, Kent DA13 0BN |    |  | Turnaround time/date results due: | 7     |                                    |
|                                                                                   |                                                                              | Project/Site Code:  | 19458                                                             |    |  |                                   |       |                                    |
| t: 01923 225404<br>f: 01923 237404                                                | Contact Name:                                                                | Rebecca Chamberlain |                                                                   |    |  | Client PO                         |       |                                    |
| reception@i2analytical.com                                                        |                                                                              | Tel 01279 8433322   | Fax:                                                              | NA |  |                                   | 19458 |                                    |

Please indicate the analysis required for each sample by marking the boxes

| Lab Use | BH or TP or Sample ID | Depth (m) | Date sample taken | Time sample taken | S - soil, W - water, L - leachate, O - other | Waters only - Matrix Code (see below) | no. of containers | HESI SUITE 1 | TPH CWG up to C35 inc BTEX & MTBE | Abestos ID - Quantify if positive | Pesticides (DDTs) | Full 2 Stage WAC | WM3 SUITE |  |  |  |  |  |  | Sample Specific Notes/ Container types (Lab use Only) |
|---------|-----------------------|-----------|-------------------|-------------------|----------------------------------------------|---------------------------------------|-------------------|--------------|-----------------------------------|-----------------------------------|-------------------|------------------|-----------|--|--|--|--|--|--|-------------------------------------------------------|
|         | WS1                   | 0.20      | 27/02/2025        |                   | S                                            |                                       | 1                 | X            | X                                 | X                                 |                   |                  |           |  |  |  |  |  |  |                                                       |
|         | WS1                   | 0.60      | 27/02/2025        |                   | S                                            |                                       | 4                 | X            | X                                 | X                                 |                   |                  |           |  |  |  |  |  |  |                                                       |
|         | WS2                   | 0.30      | 27/02/2025        |                   | S                                            |                                       | 9                 |              |                                   | X                                 |                   | X                | X         |  |  |  |  |  |  |                                                       |
|         | WS2                   | 0.70      | 27/02/2025        |                   | S                                            |                                       | 4                 | X            | X                                 | X                                 | X                 |                  |           |  |  |  |  |  |  |                                                       |
|         | WS2                   | 1.20      | 27/02/2025        |                   | S                                            |                                       | 9                 |              |                                   | X                                 |                   | X                | X         |  |  |  |  |  |  |                                                       |
|         | WS3                   | 0.10      | 27/02/2025        |                   | S                                            |                                       | 1                 |              |                                   | X                                 |                   |                  |           |  |  |  |  |  |  |                                                       |
|         | WS3                   | 0.60      | 27/02/2025        |                   | S                                            |                                       | 4                 | X            | X                                 | X                                 |                   |                  |           |  |  |  |  |  |  |                                                       |
|         | WS4                   | 0.20      | 27/02/2025        |                   | S                                            |                                       | 4                 | X            | X                                 | X                                 |                   |                  |           |  |  |  |  |  |  |                                                       |
|         | WS4                   | 0.60      | 27/02/2025        |                   | S                                            |                                       | 4                 | X            | X                                 | X                                 |                   |                  |           |  |  |  |  |  |  |                                                       |
|         | WS5                   | 0.10      | 27/02/2025        |                   | S                                            |                                       | 3                 |              |                                   | X                                 | X                 |                  |           |  |  |  |  |  |  |                                                       |
|         | WS5                   | 0.60      | 27/02/2025        |                   | S                                            |                                       | 4                 | X            | X                                 | X                                 |                   |                  |           |  |  |  |  |  |  |                                                       |
|         | WS5                   | 0.90      | 28/02/2025        |                   | S                                            |                                       | 4                 | X            | X                                 | X                                 |                   |                  |           |  |  |  |  |  |  |                                                       |
|         |                       |           |                   |                   |                                              |                                       |                   |              |                                   |                                   |                   |                  |           |  |  |  |  |  |  |                                                       |
|         |                       |           |                   |                   |                                              |                                       |                   |              |                                   |                                   |                   |                  |           |  |  |  |  |  |  |                                                       |
|         |                       |           |                   |                   |                                              |                                       |                   |              |                                   |                                   |                   |                  |           |  |  |  |  |  |  |                                                       |

Total no. of samples:

12

Possible Hazard Identification

Special instructions / QC; requirements &amp; comments:

Non-Hazard

Hazardous

Unknown

Please provide water matrix information on the Chain of Custody.

GW = Groundwater, SW = Surface Water, PW = Potable Non Regulatory Water, PrW = Process Water (Heating/Cooling), DI PrW = Process Water (DI/RO),

FSE = Final Sewage Effluent, LL = Landfill Leachate. If other, please indicate on COC.

avg. transport temp.

hours in transport

Sample disposal (a fee maybe assessed if samples are retained longer than 1 month)

return to client

disposal by lab

archive for

i2 QUOTE NO

## LAB USE ONLY

Data received:

time:

by:

## Laboratory notes

Data instructed:

time:

by:

314089

Herts & Essex Site Investigations  
The Old Post Office  
Wellpond Green  
Standon  
Herts  
SG11 1NJ

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

t: 01920 822233

t: 01923 225404

e: rchamberlain@hesi.co.uk  
csgray@hesi.co.uk  
dhudd@hesi.co.uk

f: 01923 237404

e: reception@i2analytical.com

## **Analytical Report Number : 25-009985**

|                             |                                                              |                                                        |            |
|-----------------------------|--------------------------------------------------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Brimstone Barn Brimstone Hill<br>Meopham Gravesend Kent DA13 | <b>Samples received on:</b>                            | 28/02/2025 |
| <b>Your job number:</b>     | 19458                                                        | <b>Samples instructed on/<br/>Analysis started on:</b> | 28/02/2025 |
| <b>Your order number:</b>   | 19458                                                        | <b>Analysis completed by:</b>                          | 10/03/2025 |
| <b>Report Issue Number:</b> | 1                                                            | <b>Report issued on:</b>                               | 10/03/2025 |
| <b>Samples Analysed:</b>    | 12 soil samples - 1 bulk sample                              |                                                        |            |



**Signed:**

Adam Fenwick  
Key Account Executive  
**For & on behalf of i2 Analytical Ltd.**

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

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

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

|           |                                 |
|-----------|---------------------------------|
| soils     | - 4 weeks from reporting        |
| leachates | - 2 weeks from reporting        |
| waters    | - 2 weeks from reporting        |
| asbestos  | - 6 months from reporting       |
| air       | - once the analysis is complete |

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.  
Some records may be kept for longer according to other legal/best practice requirements.

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

Analytical Report Number: 25-009985

Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN

Your Order No: 19458

| Lab Sample Number                       |  |  |  | 467704        | 467705                     | 467706                       | 467707        | 467708        |
|-----------------------------------------|--|--|--|---------------|----------------------------|------------------------------|---------------|---------------|
| Sample Reference                        |  |  |  | WS1           | WS1                        | WS2                          | WS2           | WS2           |
| Sample Number                           |  |  |  | None Supplied | None Supplied              | None Supplied                | None Supplied | None Supplied |
| Water Matrix                            |  |  |  | N/A           | N/A                        | N/A                          | N/A           | N/A           |
| Depth (m)                               |  |  |  | 0.20          | 0.60                       | 0.30                         | 0.70          | 1.20          |
| Date Sampled                            |  |  |  | 27/02/2025    | 27/02/2025                 | 27/02/2025                   | 27/02/2025    | 27/02/2025    |
| Time Taken                              |  |  |  | None Supplied | None Supplied              | None Supplied                | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) |  |  |  | Units         | Test Limit of<br>detection | Test Accreditation<br>Status |               |               |

|                               |    |      |      |      |       |      |      |       |
|-------------------------------|----|------|------|------|-------|------|------|-------|
| Stone Content                 | %  | 0.1  | NONE | 72.3 | < 0.1 | 62.3 | 12.1 | < 0.1 |
| Moisture Content              | %  | 0.01 | NONE | 11   | 7.5   | 9.1  | 17   | 22    |
| Total mass of sample received | kg | 0.1  | NONE | 0.5  | 0.5   | 2    | 0.6  | 2     |

#### Asbestos

|                                        |      |     |           |              |              |              |              |              |
|----------------------------------------|------|-----|-----------|--------------|--------------|--------------|--------------|--------------|
| Asbestos in Soil Detected/Not Detected | Type | N/A | ISO 17025 | Not-detected | Not-detected | Not-detected | Not-detected | Not-detected |
| Asbestos Analyst ID                    | N/A  | N/A | N/A       | WEM          | WEM          | WEM          | WEM          | WEM          |
| Analysis completed                     | N/A  | N/A | N/A       | 10/03/2025   | 10/03/2025   | 10/03/2025   | 10/03/2025   | 10/03/2025   |

#### General Inorganics

|                          |          |     |        |   |   |     |   |     |
|--------------------------|----------|-----|--------|---|---|-----|---|-----|
| pH (L099)                | pH Units | N/A | MCERTS | - | - | 9.3 | - | 8.1 |
| Loss on Ignition @ 450°C | %        | 0.2 | MCERTS | - | - | 2.3 | - | 3.1 |

#### Total Phenols

|                            |       |   |        |       |       |   |       |   |
|----------------------------|-------|---|--------|-------|-------|---|-------|---|
| Total Phenols (monohydric) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | - | < 1.0 | - |
|----------------------------|-------|---|--------|-------|-------|---|-------|---|

#### Speciated PAHs

|                        |       |      |           |        |      |        |        |        |
|------------------------|-------|------|-----------|--------|------|--------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.06 | < 0.05 | 0.07   | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS    | 0.07   | 0.33 | 0.07   | 0.2    | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.14 | < 0.05 | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS    | < 0.05 | 0.15 | < 0.05 | 0.06   | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS    | 0.43   | 3.1  | 0.36   | 1.3    | < 0.05 |
| Anthracene             | mg/kg | 0.05 | MCERTS    | 0.16   | 1.1  | < 0.05 | 0.09   | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS    | 2.2    | 11   | 0.82   | 2.6    | < 0.05 |
| Pyrene                 | mg/kg | 0.05 | MCERTS    | 2.2    | 10   | 0.74   | 2.1    | < 0.05 |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS    | 1.2    | 6.3  | 0.33   | 0.7    | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS    | 1.3    | 5.6  | 0.46   | 1.1    | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | ISO 17025 | 1.9    | 8.5  | 0.76   | 1.4    | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | ISO 17025 | 0.81   | 3    | 0.21   | 0.43   | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS    | 1.6    | 7.1  | 0.55   | 1.1    | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS    | 0.88   | 3.4  | 0.32   | 0.62   | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS    | 0.16   | 0.78 | < 0.05 | 0.1    | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS    | 0.97   | 3.5  | 0.39   | 0.68   | < 0.05 |

#### Total PAH

|                             |       |     |           |      |      |   |      |        |
|-----------------------------|-------|-----|-----------|------|------|---|------|--------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | ISO 17025 | 13.9 | 63.7 | 5 | 12.5 | < 0.80 |
|-----------------------------|-------|-----|-----------|------|------|---|------|--------|

#### Heavy Metals / Metalloids

|                                    |       |      |           |       |       |       |       |       |
|------------------------------------|-------|------|-----------|-------|-------|-------|-------|-------|
| Antimony (aqua regia extractable)  | mg/kg | 1    | ISO 17025 | -     | -     | 1.9   | -     | 1.9   |
| Arsenic (aqua regia extractable)   | mg/kg | 1    | MCERTS    | 7.9   | 11    | 9     | 3.4   | 8.7   |
| Barium (aqua regia extractable)    | mg/kg | 1    | MCERTS    | -     | -     | 230   | -     | 86    |
| Beryllium (aqua regia extractable) | mg/kg | 0.06 | MCERTS    | 0.49  | 0.9   | -     | 0.38  | -     |
| Boron (total)                      | mg/kg | 1    | MCERTS    | 8.9   | 15    | -     | 6.9   | -     |
| Cadmium (aqua regia extractable)   | mg/kg | 0.2  | MCERTS    | < 0.2 | < 0.2 | 0.5   | 0.3   | 1     |
| Chromium (hexavalent)              | mg/kg | 1.8  | MCERTS    | < 1.8 | < 1.8 | < 1.8 | < 1.8 | < 1.8 |
| Chromium (III)                     | mg/kg | 1    | NONE      | 21    | 15    | 23    | 10    | 32    |
| Chromium (aqua regia extractable)  | mg/kg | 1    | MCERTS    | 21    | 15    | 23    | 11    | 32    |
| Copper (aqua regia extractable)    | mg/kg | 1    | MCERTS    | 21    | 23    | 25    | 13    | 17    |
| Lead (aqua regia extractable)      | mg/kg | 1    | MCERTS    | 22    | 26    | 55    | 110   | 15    |
| Mercury (aqua regia extractable)   | mg/kg | 0.3  | MCERTS    | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |

Analytical Report Number: 25-009985

Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN

Your Order No: 19458

| Lab Sample Number                       |       |                            |                              | 467704        | 467705        | 467706        | 467707        | 467708        |
|-----------------------------------------|-------|----------------------------|------------------------------|---------------|---------------|---------------|---------------|---------------|
| Sample Reference                        |       |                            |                              | WS1           | WS1           | WS2           | WS2           | WS2           |
| Sample Number                           |       |                            |                              | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Water Matrix                            |       |                            |                              | N/A           | N/A           | N/A           | N/A           | N/A           |
| Depth (m)                               |       |                            |                              | 0.20          | 0.60          | 0.30          | 0.70          | 1.20          |
| Date Sampled                            |       |                            |                              | 27/02/2025    | 27/02/2025    | 27/02/2025    | 27/02/2025    | 27/02/2025    |
| Time Taken                              |       |                            |                              | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Test Limit of<br>detection | Test Accreditation<br>Status |               |               |               |               |               |
| Molybdenum (aqua regia extractable)     | mg/kg | 0.25                       | MCERTS                       | -             | -             | 1.2           | -             | 0.76          |
| Nickel (aqua regia extractable)         | mg/kg | 1                          | MCERTS                       | 16            | 22            | 20            | 8.8           | 27            |
| Selenium (aqua regia extractable)       | mg/kg | 1                          | MCERTS                       | < 1.0         | < 1.0         | 1.2           | < 1.0         | < 1.0         |
| Vanadium (aqua regia extractable)       | mg/kg | 1                          | MCERTS                       | 28            | 32            | -             | 13            | -             |
| Zinc (aqua regia extractable)           | mg/kg | 1                          | MCERTS                       | 49            | 72            | 140           | 76            | 80            |

#### Petroleum Hydrocarbons

|                                                          |       |      |        |         |         |         |         |         |
|----------------------------------------------------------|-------|------|--------|---------|---------|---------|---------|---------|
| TPHCWG - Aliphatic >EC5 - EC6 <sub>HS_1D_AL</sub>        | mg/kg | 0.01 | MCERTS | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aliphatic >EC6 - EC8 <sub>HS_1D_AL</sub>        | mg/kg | 0.01 | MCERTS | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aliphatic >EC8 - EC10 <sub>HS_1D_AL</sub>       | mg/kg | 0.01 | MCERTS | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aliphatic >EC10 - EC12 <sub>EH_CU_1D_AL</sub>   | mg/kg | 1    | MCERTS | < 1.0   | < 1.0   | < 1.0   | < 1.0   | < 1.0   |
| TPHCWG - Aliphatic >EC12 - EC16 <sub>EH_CU_1D_AL</sub>   | mg/kg | 2    | MCERTS | < 2.0   | < 2.0   | < 2.0   | < 2.0   | < 2.0   |
| TPHCWG - Aliphatic >EC16 - EC21 <sub>EH_CU_1D_AL</sub>   | mg/kg | 8    | MCERTS | < 8.0   | < 8.0   | < 8.0   | < 8.0   | < 8.0   |
| TPHCWG - Aliphatic >EC21 - EC35 <sub>EH_CU_1D_AL</sub>   | mg/kg | 8    | MCERTS | < 8.0   | < 8.0   | 19      | < 8.0   | < 8.0   |
| TPHCWG - Aliphatic >EC35 - EC40 <sub>EH_CU_1D_AL</sub>   | mg/kg | 10   | NONE   | -       | -       | < 10    | -       | < 10    |
| TPHCWG - Aliphatic >EC5 - EC35 <sub>EH_CU+HS_1D_AL</sub> | mg/kg | 10   | NONE   | < 10    | < 10    | -       | < 10    | -       |
| TPHCWG - Aliphatic >EC5 - EC40 <sub>EH_CU+HS_1D_AL</sub> | mg/kg | 10   | NONE   | -       | -       | 19      | -       | < 10    |

|                                                         |       |      |        |         |         |         |         |         |
|---------------------------------------------------------|-------|------|--------|---------|---------|---------|---------|---------|
| TPHCWG - Aromatic >EC5 - EC7 <sub>HS_1D_AR</sub>        | mg/kg | 0.01 | MCERTS | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aromatic >EC7 - EC8 <sub>HS_1D_AR</sub>        | mg/kg | 0.01 | MCERTS | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aromatic >EC8 - EC10 <sub>HS_1D_AR</sub>       | mg/kg | 0.02 | MCERTS | < 0.020 | < 0.020 | < 0.020 | < 0.020 | < 0.020 |
| TPHCWG - Aromatic >EC10 - EC12 <sub>EH_CU_1D_AR</sub>   | mg/kg | 1    | MCERTS | < 1.0   | < 1.0   | < 1.0   | 3.5     | < 1.0   |
| TPHCWG - Aromatic >EC12 - EC16 <sub>EH_CU_1D_AR</sub>   | mg/kg | 2    | MCERTS | 2.3     | 3.5     | < 2.0   | 8.6     | < 2.0   |
| TPHCWG - Aromatic >EC16 - EC21 <sub>EH_CU_1D_AR</sub>   | mg/kg | 10   | MCERTS | < 10    | 25      | < 10    | 12      | < 10    |
| TPHCWG - Aromatic >EC21 - EC35 <sub>EH_CU_1D_AR</sub>   | mg/kg | 10   | MCERTS | 13      | 47      | < 10    | 17      | < 10    |
| TPHCWG - Aromatic >EC35 - EC40 <sub>EH_CU_1D_AR</sub>   | mg/kg | 10   | NONE   | -       | -       | < 10    | -       | < 10    |
| TPHCWG - Aromatic >EC5 - EC35 <sub>EH_CU+HS_1D_AR</sub> | mg/kg | 10   | NONE   | 16      | 76      | -       | 41      | -       |
| TPHCWG - Aromatic >EC5 - EC40 <sub>EH_CU+HS_1D_AR</sub> | mg/kg | 10   | NONE   | -       | -       | < 10    | -       | < 10    |

|                                                    |       |    |      |   |   |    |   |      |
|----------------------------------------------------|-------|----|------|---|---|----|---|------|
| TPH Total >EC5 - EC40 <sub>EH_CU+HS_1D_TOTAL</sub> | mg/kg | 10 | NONE | - | - | 19 | - | < 10 |
|----------------------------------------------------|-------|----|------|---|---|----|---|------|

#### VOCs

|                                    |       |   |        |       |       |       |       |       |
|------------------------------------|-------|---|--------|-------|-------|-------|-------|-------|
| MTBE (Methyl Tertiary Butyl Ether) | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Benzene                            | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Toluene                            | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Ethylbenzene                       | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| p & m-Xylene                       | µg/kg | 8 | MCERTS | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| o-Xylene                           | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |

#### Pesticides (GC-MS)

|          |       |    |      |   |   |   |      |   |
|----------|-------|----|------|---|---|---|------|---|
| O,p'-DDT | µg/kg | 10 | NONE | - | - | - | < 10 | - |
| P,p'-DDT | µg/kg | 10 | NONE | - | - | - | < 10 | - |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-009985

Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA1

Your Order No: 19458

|                                         |               |                            |                              |               |               |
|-----------------------------------------|---------------|----------------------------|------------------------------|---------------|---------------|
| Lab Sample Number                       | 467709        | 467710                     | 467711                       | 467712        | 467713        |
| Sample Reference                        | WS3           | WS3                        | WS4                          | WS4           | WS5           |
| Sample Number                           | None Supplied | None Supplied              | None Supplied                | None Supplied | None Supplied |
| Water Matrix                            | N/A           | N/A                        | N/A                          | N/A           | N/A           |
| Depth (m)                               | 0.10          | 0.60                       | 0.20                         | 0.60          | 0.10          |
| Date Sampled                            | 27/02/2025    | 27/02/2025                 | 27/02/2025                   | 27/02/2025    | 27/02/2025    |
| Time Taken                              | None Supplied | None Supplied              | None Supplied                | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units         | Test Limit of<br>detection | Test Accreditation<br>Status |               |               |

|                               |    |      |      |   |       |      |      |      |
|-------------------------------|----|------|------|---|-------|------|------|------|
| Stone Content                 | %  | 0.1  | NONE | - | < 0.1 | 59.5 | 40.7 | 45.4 |
| Moisture Content              | %  | 0.01 | NONE | - | 17    | 8.7  | 15   | 7.7  |
| Total mass of sample received | kg | 0.1  | NONE | - | 0.6   | 0.6  | 0.5  | 0.6  |

#### Asbestos

|                                        |      |     |           |              |              |              |              |              |
|----------------------------------------|------|-----|-----------|--------------|--------------|--------------|--------------|--------------|
| Asbestos in Soil Detected/Not Detected | Type | N/A | ISO 17025 | Not-detected | Not-detected | Not-detected | Not-detected | Not-detected |
| Asbestos Analyst ID                    | N/A  | N/A | N/A       | WEM          | WEM          | WEM          | WEM          | WEM          |
| Analysis completed                     | N/A  | N/A | N/A       | 10/03/2025   | 10/03/2025   | 10/03/2025   | 10/03/2025   | 10/03/2025   |

#### General Inorganics

|                          |          |     |        |   |   |   |   |   |
|--------------------------|----------|-----|--------|---|---|---|---|---|
| pH (L099)                | pH Units | N/A | MCERTS | - | - | - | - | - |
| Loss on Ignition @ 450°C | %        | 0.2 | MCERTS | - | - | - | - | - |

#### Total Phenols

|                            |       |   |        |   |       |       |       |   |
|----------------------------|-------|---|--------|---|-------|-------|-------|---|
| Total Phenols (monohydric) | mg/kg | 1 | MCERTS | - | < 1.0 | < 1.0 | < 1.0 | - |
|----------------------------|-------|---|--------|---|-------|-------|-------|---|

#### Speciated PAHs

|                        |       |      |           |   |        |        |        |   |
|------------------------|-------|------|-----------|---|--------|--------|--------|---|
| Naphthalene            | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 0.06   | 0.06   | - |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 0.08   | 0.06   | - |
| Acenaphthene           | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 0.05   | < 0.05 | - |
| Fluorene               | mg/kg | 0.05 | MCERTS    | - | < 0.05 | < 0.05 | < 0.05 | - |
| Phenanthrene           | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 0.77   | 0.33   | - |
| Anthracene             | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 0.21   | 0.05   | - |
| Fluoranthene           | mg/kg | 0.05 | MCERTS    | - | 0.09   | 2.6    | 0.82   | - |
| Pyrene                 | mg/kg | 0.05 | MCERTS    | - | 0.08   | 2.4    | 0.75   | - |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 1.2    | 0.35   | - |
| Chrysene               | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 1.5    | 0.47   | - |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | ISO 17025 | - | < 0.05 | 1.7    | 0.68   | - |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | ISO 17025 | - | < 0.05 | 0.88   | 0.23   | - |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 1.6    | 0.5    | - |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 0.84   | 0.24   | - |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 0.21   | < 0.05 | - |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS    | - | < 0.05 | 0.96   | 0.33   | - |

#### Total PAH

|                             |       |     |           |   |        |      |      |   |
|-----------------------------|-------|-----|-----------|---|--------|------|------|---|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | ISO 17025 | - | < 0.80 | 14.9 | 4.87 | - |
|-----------------------------|-------|-----|-----------|---|--------|------|------|---|

#### Heavy Metals / Metalloids

|                                    |       |      |           |   |       |       |       |   |
|------------------------------------|-------|------|-----------|---|-------|-------|-------|---|
| Antimony (aqua regia extractable)  | mg/kg | 1    | ISO 17025 | - | -     | -     | -     | - |
| Arsenic (aqua regia extractable)   | mg/kg | 1    | MCERTS    | - | 1.4   | 14    | 7.5   | - |
| Barium (aqua regia extractable)    | mg/kg | 1    | MCERTS    | - | -     | -     | -     | - |
| Beryllium (aqua regia extractable) | mg/kg | 0.06 | MCERTS    | - | 0.11  | 0.99  | 0.74  | - |
| Boron (total)                      | mg/kg | 1    | MCERTS    | - | 3.3   | 16    | 12    | - |
| Cadmium (aqua regia extractable)   | mg/kg | 0.2  | MCERTS    | - | 0.2   | < 0.2 | 0.6   | - |
| Chromium (hexavalent)              | mg/kg | 1.8  | MCERTS    | - | < 1.8 | < 1.8 | < 1.8 | - |
| Chromium (III)                     | mg/kg | 1    | NONE      | - | 2.9   | 23    | 18    | - |
| Chromium (aqua regia extractable)  | mg/kg | 1    | MCERTS    | - | 3.1   | 23    | 19    | - |
| Copper (aqua regia extractable)    | mg/kg | 1    | MCERTS    | - | 6.7   | 27    | 24    | - |
| Lead (aqua regia extractable)      | mg/kg | 1    | MCERTS    | - | 6.4   | 34    | 65    | - |
| Mercury (aqua regia extractable)   | mg/kg | 0.3  | MCERTS    | - | < 0.3 | < 0.3 | 0.4   | - |

Analytical Report Number: 25-009985

Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA1

Your Order No: 19458

| Lab Sample Number                       |       |                            |                              | 467709        | 467710        | 467711        | 467712        | 467713        |
|-----------------------------------------|-------|----------------------------|------------------------------|---------------|---------------|---------------|---------------|---------------|
| Sample Reference                        |       |                            |                              | WS3           | WS3           | WS4           | WS4           | WS5           |
| Sample Number                           |       |                            |                              | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Water Matrix                            |       |                            |                              | N/A           | N/A           | N/A           | N/A           | N/A           |
| Depth (m)                               |       |                            |                              | 0.10          | 0.60          | 0.20          | 0.60          | 0.10          |
| Date Sampled                            |       |                            |                              | 27/02/2025    | 27/02/2025    | 27/02/2025    | 27/02/2025    | 27/02/2025    |
| Time Taken                              |       |                            |                              | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Test Limit of<br>detection | Test Accreditation<br>Status |               |               |               |               |               |
| Molybdenum (aqua regia extractable)     | mg/kg | 0.25                       | MCERTS                       | -             | -             | -             | -             | -             |
| Nickel (aqua regia extractable)         | mg/kg | 1                          | MCERTS                       | -             | 3.5           | 19            | 17            | -             |
| Selenium (aqua regia extractable)       | mg/kg | 1                          | MCERTS                       | -             | < 1.0         | 1.2           | < 1.0         | -             |
| Vanadium (aqua regia extractable)       | mg/kg | 1                          | MCERTS                       | -             | 5.3           | 42            | 29            | -             |
| Zinc (aqua regia extractable)           | mg/kg | 1                          | MCERTS                       | -             | 17            | 130           | 130           | -             |

#### Petroleum Hydrocarbons

|                                                          |       |      |        |   |         |         |         |   |
|----------------------------------------------------------|-------|------|--------|---|---------|---------|---------|---|
| TPHCWG - Aliphatic >EC5 - EC6 <sub>HS_1D_AL</sub>        | mg/kg | 0.01 | MCERTS | - | < 0.010 | < 0.010 | < 0.010 | - |
| TPHCWG - Aliphatic >EC6 - EC8 <sub>HS_1D_AL</sub>        | mg/kg | 0.01 | MCERTS | - | < 0.010 | < 0.010 | < 0.010 | - |
| TPHCWG - Aliphatic >EC8 - EC10 <sub>HS_1D_AL</sub>       | mg/kg | 0.01 | MCERTS | - | < 0.010 | < 0.010 | < 0.010 | - |
| TPHCWG - Aliphatic >EC10 - EC12 <sub>EH_CU_1D_AL</sub>   | mg/kg | 1    | MCERTS | - | < 1.0   | < 1.0   | < 1.0   | - |
| TPHCWG - Aliphatic >EC12 - EC16 <sub>EH_CU_1D_AL</sub>   | mg/kg | 2    | MCERTS | - | < 2.0   | 2       | < 2.0   | - |
| TPHCWG - Aliphatic >EC16 - EC21 <sub>EH_CU_1D_AL</sub>   | mg/kg | 8    | MCERTS | - | < 8.0   | < 8.0   | < 8.0   | - |
| TPHCWG - Aliphatic >EC21 - EC35 <sub>EH_CU_1D_AL</sub>   | mg/kg | 8    | MCERTS | - | < 8.0   | 45      | < 8.0   | - |
| TPHCWG - Aliphatic >EC35 - EC40 <sub>EH_CU_1D_AL</sub>   | mg/kg | 10   | NONE   | - | -       | -       | -       | - |
| TPHCWG - Aliphatic >EC5 - EC35 <sub>EH_CU+HS_1D_AL</sub> | mg/kg | 10   | NONE   | - | < 10    | 47      | < 10    | - |
| TPHCWG - Aliphatic >EC5 - EC40 <sub>EH_CU+HS_1D_AL</sub> | mg/kg | 10   | NONE   | - | -       | -       | -       | - |

|                                                         |       |      |        |   |         |         |         |   |
|---------------------------------------------------------|-------|------|--------|---|---------|---------|---------|---|
| TPHCWG - Aromatic >EC5 - EC7 <sub>HS_1D_AR</sub>        | mg/kg | 0.01 | MCERTS | - | < 0.010 | < 0.010 | < 0.010 | - |
| TPHCWG - Aromatic >EC7 - EC8 <sub>HS_1D_AR</sub>        | mg/kg | 0.01 | MCERTS | - | < 0.010 | < 0.010 | < 0.010 | - |
| TPHCWG - Aromatic >EC8 - EC10 <sub>HS_1D_AR</sub>       | mg/kg | 0.02 | MCERTS | - | < 0.020 | < 0.020 | < 0.020 | - |
| TPHCWG - Aromatic >EC10 - EC12 <sub>EH_CU_1D_AR</sub>   | mg/kg | 1    | MCERTS | - | < 1.0   | < 1.0   | < 1.0   | - |
| TPHCWG - Aromatic >EC12 - EC16 <sub>EH_CU_1D_AR</sub>   | mg/kg | 2    | MCERTS | - | < 2.0   | 2.7     | < 2.0   | - |
| TPHCWG - Aromatic >EC16 - EC21 <sub>EH_CU_1D_AR</sub>   | mg/kg | 10   | MCERTS | - | < 10    | < 10    | < 10    | - |
| TPHCWG - Aromatic >EC21 - EC35 <sub>EH_CU_1D_AR</sub>   | mg/kg | 10   | MCERTS | - | < 10    | 26      | < 10    | - |
| TPHCWG - Aromatic >EC35 - EC40 <sub>EH_CU_1D_AR</sub>   | mg/kg | 10   | NONE   | - | -       | -       | -       | - |
| TPHCWG - Aromatic >EC5 - EC35 <sub>EH_CU+HS_1D_AR</sub> | mg/kg | 10   | NONE   | - | < 10    | 29      | < 10    | - |
| TPHCWG - Aromatic >EC5 - EC40 <sub>EH_CU+HS_1D_AR</sub> | mg/kg | 10   | NONE   | - | -       | -       | -       | - |

|                                                    |       |    |      |   |   |   |   |   |
|----------------------------------------------------|-------|----|------|---|---|---|---|---|
| TPH Total >EC5 - EC40 <sub>EH_CU+HS_1D_TOTAL</sub> | mg/kg | 10 | NONE | - | - | - | - | - |
|----------------------------------------------------|-------|----|------|---|---|---|---|---|

#### VOCs

|                                    |       |   |        |   |       |       |       |   |
|------------------------------------|-------|---|--------|---|-------|-------|-------|---|
| MTBE (Methyl Tertiary Butyl Ether) | µg/kg | 5 | MCERTS | - | < 5.0 | < 5.0 | < 5.0 | - |
| Benzene                            | µg/kg | 5 | MCERTS | - | < 5.0 | < 5.0 | < 5.0 | - |
| Toluene                            | µg/kg | 5 | MCERTS | - | < 5.0 | < 5.0 | < 5.0 | - |
| Ethylbenzene                       | µg/kg | 5 | MCERTS | - | < 5.0 | < 5.0 | < 5.0 | - |
| p & m-Xylene                       | µg/kg | 8 | MCERTS | - | < 8.0 | < 8.0 | < 8.0 | - |
| o-Xylene                           | µg/kg | 5 | MCERTS | - | < 5.0 | < 5.0 | < 5.0 | - |

#### Pesticides (GC-MS)

|          |       |    |      |   |   |   |   |      |
|----------|-------|----|------|---|---|---|---|------|
| O,p'-DDT | µg/kg | 10 | NONE | - | - | - | - | < 10 |
| P,p'-DDT | µg/kg | 10 | NONE | - | - | - | - | < 10 |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-009985

Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA1

Your Order No: 19458

|                                         |               |                              |
|-----------------------------------------|---------------|------------------------------|
| Lab Sample Number                       | 467714        | 467715                       |
| Sample Reference                        | WS5           | WS5                          |
| Sample Number                           | None Supplied | None Supplied                |
| Water Matrix                            | N/A           | N/A                          |
| Depth (m)                               | 0.60          | 0.90                         |
| Date Sampled                            | 27/02/2025    | 28/02/2025                   |
| Time Taken                              | None Supplied | None Supplied                |
| Analytical Parameter<br>(Soil Analysis) | Units         | Test Limit of<br>detection   |
|                                         |               | Test Accreditation<br>Status |

|                               |    |      |      |       |       |
|-------------------------------|----|------|------|-------|-------|
| Stone Content                 | %  | 0.1  | NONE | < 0.1 | < 0.1 |
| Moisture Content              | %  | 0.01 | NONE | 17    | 18    |
| Total mass of sample received | kg | 0.1  | NONE | 0.5   | 0.7   |

#### Asbestos

|                                        |      |     |           |              |              |
|----------------------------------------|------|-----|-----------|--------------|--------------|
| Asbestos in Soil Detected/Not Detected | Type | N/A | ISO 17025 | Not-detected | Not-detected |
| Asbestos Analyst ID                    | N/A  | N/A | N/A       | WEM          | WEM          |
| Analysis completed                     | N/A  | N/A | N/A       | 10/03/2025   | 10/03/2025   |

#### General Inorganics

|                          |          |     |        |   |   |
|--------------------------|----------|-----|--------|---|---|
| pH (L099)                | pH Units | N/A | MCERTS | - | - |
| Loss on Ignition @ 450°C | %        | 0.2 | MCERTS | - | - |

#### Total Phenols

|                            |       |   |        |       |       |
|----------------------------|-------|---|--------|-------|-------|
| Total Phenols (monohydric) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 |
|----------------------------|-------|---|--------|-------|-------|

#### Speciated PAHs

|                        |       |      |           |        |        |
|------------------------|-------|------|-----------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS    | 0.05   | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS    | 0.12   | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS    | 0.64   | < 0.05 |
| Anthracene             | mg/kg | 0.05 | MCERTS    | 0.14   | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS    | 1.5    | 0.09   |
| Pyrene                 | mg/kg | 0.05 | MCERTS    | 1.4    | 0.07   |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS    | 0.68   | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS    | 0.79   | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | ISO 17025 | 1      | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | ISO 17025 | 0.41   | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS    | 0.82   | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS    | 0.41   | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS    | 0.07   | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS    | 0.46   | < 0.05 |

#### Total PAH

|                             |       |     |           |      |        |
|-----------------------------|-------|-----|-----------|------|--------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | ISO 17025 | 8.52 | < 0.80 |
|-----------------------------|-------|-----|-----------|------|--------|

#### Heavy Metals / Metalloids

|                                    |       |      |           |       |       |
|------------------------------------|-------|------|-----------|-------|-------|
| Antimony (aqua regia extractable)  | mg/kg | 1    | ISO 17025 | -     | -     |
| Arsenic (aqua regia extractable)   | mg/kg | 1    | MCERTS    | 10    | 8.9   |
| Barium (aqua regia extractable)    | mg/kg | 1    | MCERTS    | -     | -     |
| Beryllium (aqua regia extractable) | mg/kg | 0.06 | MCERTS    | 1.3   | 0.98  |
| Boron (total)                      | mg/kg | 1    | MCERTS    | 14    | 11    |
| Cadmium (aqua regia extractable)   | mg/kg | 0.2  | MCERTS    | 0.6   | 0.4   |
| Chromium (hexavalent)              | mg/kg | 1.8  | MCERTS    | < 1.8 | < 1.8 |
| Chromium (III)                     | mg/kg | 1    | NONE      | 23    | 29    |
| Chromium (aqua regia extractable)  | mg/kg | 1    | MCERTS    | 23    | 29    |
| Copper (aqua regia extractable)    | mg/kg | 1    | MCERTS    | 35    | 14    |
| Lead (aqua regia extractable)      | mg/kg | 1    | MCERTS    | 99    | 20    |
| Mercury (aqua regia extractable)   | mg/kg | 0.3  | MCERTS    | 0.4   | < 0.3 |

Analytical Report Number: 25-009985

Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA1

Your Order No: 19458

| Lab Sample Number                       |       |                            |                              | 467714        | 467715        |
|-----------------------------------------|-------|----------------------------|------------------------------|---------------|---------------|
| Sample Reference                        |       |                            |                              | WS5           | WS5           |
| Sample Number                           |       |                            |                              | None Supplied | None Supplied |
| Water Matrix                            |       |                            |                              | N/A           | N/A           |
| Depth (m)                               |       |                            |                              | 0.60          | 0.90          |
| Date Sampled                            |       |                            |                              | 27/02/2025    | 28/02/2025    |
| Time Taken                              |       |                            |                              | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Test Limit of<br>detection | Test Accreditation<br>Status |               |               |
| Molybdenum (aqua regia extractable)     | mg/kg | 0.25                       | MCERTS                       | -             | -             |
| Nickel (aqua regia extractable)         | mg/kg | 1                          | MCERTS                       | 27            | 24            |
| Selenium (aqua regia extractable)       | mg/kg | 1                          | MCERTS                       | < 1.0         | < 1.0         |
| Vanadium (aqua regia extractable)       | mg/kg | 1                          | MCERTS                       | 44            | 41            |
| Zinc (aqua regia extractable)           | mg/kg | 1                          | MCERTS                       | 120           | 54            |

#### Petroleum Hydrocarbons

|                                                          |       |      |        |         |         |
|----------------------------------------------------------|-------|------|--------|---------|---------|
| TPHCWG - Aliphatic >EC5 - EC6 <sub>HS_1D_AL</sub>        | mg/kg | 0.01 | MCERTS | < 0.010 | < 0.010 |
| TPHCWG - Aliphatic >EC6 - EC8 <sub>HS_1D_AL</sub>        | mg/kg | 0.01 | MCERTS | < 0.010 | < 0.010 |
| TPHCWG - Aliphatic >EC8 - EC10 <sub>HS_1D_AL</sub>       | mg/kg | 0.01 | MCERTS | < 0.010 | < 0.010 |
| TPHCWG - Aliphatic >EC10 - EC12 <sub>EH_CU_1D_AL</sub>   | mg/kg | 1    | MCERTS | < 1.0   | < 1.0   |
| TPHCWG - Aliphatic >EC12 - EC16 <sub>EH_CU_1D_AL</sub>   | mg/kg | 2    | MCERTS | < 2.0   | < 2.0   |
| TPHCWG - Aliphatic >EC16 - EC21 <sub>EH_CU_1D_AL</sub>   | mg/kg | 8    | MCERTS | < 8.0   | < 8.0   |
| TPHCWG - Aliphatic >EC21 - EC35 <sub>EH_CU_1D_AL</sub>   | mg/kg | 8    | MCERTS | < 8.0   | < 8.0   |
| TPHCWG - Aliphatic >EC35 - EC40 <sub>EH_CU_1D_AL</sub>   | mg/kg | 10   | NONE   | -       | -       |
| TPHCWG - Aliphatic >EC5 - EC35 <sub>EH_CU+HS_1D_AL</sub> | mg/kg | 10   | NONE   | < 10    | < 10    |
| TPHCWG - Aliphatic >EC5 - EC40 <sub>EH_CU+HS_1D_AL</sub> | mg/kg | 10   | NONE   | -       | -       |

|                                                         |       |      |        |         |         |
|---------------------------------------------------------|-------|------|--------|---------|---------|
| TPHCWG - Aromatic >EC5 - EC7 <sub>HS_1D_AR</sub>        | mg/kg | 0.01 | MCERTS | < 0.010 | < 0.010 |
| TPHCWG - Aromatic >EC7 - EC8 <sub>HS_1D_AR</sub>        | mg/kg | 0.01 | MCERTS | < 0.010 | < 0.010 |
| TPHCWG - Aromatic >EC8 - EC10 <sub>HS_1D_AR</sub>       | mg/kg | 0.02 | MCERTS | < 0.020 | < 0.020 |
| TPHCWG - Aromatic >EC10 - EC12 <sub>EH_CU_1D_AR</sub>   | mg/kg | 1    | MCERTS | < 1.0   | < 1.0   |
| TPHCWG - Aromatic >EC12 - EC16 <sub>EH_CU_1D_AR</sub>   | mg/kg | 2    | MCERTS | < 2.0   | < 2.0   |
| TPHCWG - Aromatic >EC16 - EC21 <sub>EH_CU_1D_AR</sub>   | mg/kg | 10   | MCERTS | < 10    | < 10    |
| TPHCWG - Aromatic >EC21 - EC35 <sub>EH_CU_1D_AR</sub>   | mg/kg | 10   | MCERTS | < 10    | < 10    |
| TPHCWG - Aromatic >EC35 - EC40 <sub>EH_CU_1D_AR</sub>   | mg/kg | 10   | NONE   | -       | -       |
| TPHCWG - Aromatic >EC5 - EC35 <sub>EH_CU+HS_1D_AR</sub> | mg/kg | 10   | NONE   | < 10    | < 10    |
| TPHCWG - Aromatic >EC5 - EC40 <sub>EH_CU+HS_1D_AR</sub> | mg/kg | 10   | NONE   | -       | -       |

|                                                    |       |    |      |   |   |
|----------------------------------------------------|-------|----|------|---|---|
| TPH Total >EC5 - EC40 <sub>EH_CU+HS_1D_TOTAL</sub> | mg/kg | 10 | NONE | - | - |
|----------------------------------------------------|-------|----|------|---|---|

#### VOCs

|                                    |       |   |        |       |       |
|------------------------------------|-------|---|--------|-------|-------|
| MTBE (Methyl Tertiary Butyl Ether) | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 |
| Benzene                            | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 |
| Toluene                            | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 |
| Ethylbenzene                       | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 |
| p & m-Xylene                       | µg/kg | 8 | MCERTS | < 8.0 | < 8.0 |
| o-Xylene                           | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 |

#### Pesticides (GC-MS)

|          |       |    |      |   |   |
|----------|-------|----|------|---|---|
| O,p'-DDT | µg/kg | 10 | NONE | - | - |
| P,p'-DDT | µg/kg | 10 | NONE | - | - |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-009985

Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN

Your Order No: 19458

|                                         |       |                            |                              |               |
|-----------------------------------------|-------|----------------------------|------------------------------|---------------|
| Lab Sample Number                       |       |                            |                              | 474661        |
| Sample Reference                        |       |                            |                              | WS4           |
| Sample Number                           |       |                            |                              | None Supplied |
| Water Matrix                            |       |                            |                              | N/A           |
| Depth (m)                               |       |                            |                              | 0.20          |
| Date Sampled                            |       |                            |                              | 27/02/2025    |
| Time Taken                              |       |                            |                              | None Supplied |
| Analytical Parameter<br>(Bulk Analysis) | Units | Test Limit of<br>detection | Test Accreditation<br>Status |               |

#### Asbestos

|                        |      |     |           |              |
|------------------------|------|-----|-----------|--------------|
| Asbestos in bulks      | Type | N/A | ISO 17025 | Detected     |
| Asbestos Analyst ID    | N/A  | N/A | N/A       | WEM          |
| Analysis completed     | N/A  | N/A | N/A       | 10/03/2025   |
| Actinolite detected    | Type | N/A | ISO 17025 | Not-detected |
| Amosite detected       | Type | N/A | ISO 17025 | Not-detected |
| Anthophyllite detected | Type | N/A | ISO 17025 | Not-detected |
| Chrysotile detected    | Type | N/A | ISO 17025 | Detected     |
| Crocidolite detected   | Type | N/A | ISO 17025 | Not-detected |
| Tremolite detected     | Type | N/A | ISO 17025 | Not-detected |

|                                                   |      |     |           |                 |
|---------------------------------------------------|------|-----|-----------|-----------------|
| Asbestos Containing Material Types Detected (ACM) | Type | N/A | ISO 17025 | Asbestos Cement |
|---------------------------------------------------|------|-----|-----------|-----------------|

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

**Analytical Report Number : 25-009985**

**Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN**

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

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

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description *            |
|-------------------|------------------|---------------|-----------|---------------------------------|
| 467704            | WS1              | None Supplied | 0.2       | Brown gravelly sand with stones |
| 467705            | WS1              | None Supplied | 0.6       | Brown gravelly sand with rubble |
| 467706            | WS2              | None Supplied | 0.3       | Brown gravelly sand with stones |
| 467707            | WS2              | None Supplied | 0.7       | Brown clay with stones          |
| 467708            | WS2              | None Supplied | 1.2       | Brown clay                      |
| 467710            | WS3              | None Supplied | 0.6       | Brown clay with chalk           |
| 467711            | WS4              | None Supplied | 0.2       | Brown gravelly sand with stones |
| 467712            | WS4              | None Supplied | 0.6       | Brown clay with stones          |
| 467713            | WS5              | None Supplied | 0.1       | Brown gravelly sand with stones |
| 467714            | WS5              | None Supplied | 0.6       | Brown clay and gravel           |
| 467715            | WS5              | None Supplied | 0.9       | Brown clay                      |

**Analytical Report Number : 25-009985**

**Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN**

**Water matrix abbreviations:**

**Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)**

**Final Sewage Effluent (FSE) Landfill Leachate (LL)**

| Analytical Test Name                                                        | Analytical Method Description                                                                                                          | Analytical Method Reference                                                                            | Method number | Wet / Dry Analysis | Accreditation Status |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Asbestos identification in Bults                                            | Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with dispersion staining techniques | In-house method based on HSG 248, 2021                                                                 | A001B         | W                  | ISO 17025            |
| Asbestos identification in Soil                                             | Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques                  | In-house method based on HSG 248, 2021                                                                 | A001B         | D                  | ISO 17025            |
| Moisture Content                                                            | Moisture content, determined gravimetrically (up to 30°C)                                                                              | In-house method                                                                                        | L019B         | W                  | NONE                 |
| Stones content of soil                                                      | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight             | In-house method based on British Standard Methods and MCERTS requirements.                             | L019B         | D                  | NONE                 |
| Metals in soil by ICP-OES                                                   | Determination of metals in soil by aqua-regia digestion followed by ICP-OES                                                            | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil                    | L038B         | D                  | MCERTS               |
| Loss on ignition of soil @ 450°C                                            | Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace                         | In-house method                                                                                        | L047-PL       | D                  | MCERTS               |
| Pesticides by GC-MS/MS                                                      | Determination of Pesticides in soil by GC MS/MS                                                                                        | In-house method                                                                                        | L055B         | W                  | NONE                 |
| Speciated PAHs and/or Semi-volatile organic compounds in soil               | Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS | In-house method based on USEPA 8270                                                                    | L064B         | D                  | MCERTS               |
| BTEX and/or Volatile organic compounds in soil                              | Determination of volatile organic compounds in soil by headspace GC-MS                                                                 | In-house method based on USEPA 8260                                                                    | L073B         | W                  | MCERTS               |
| Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil | Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic                    | In-house method                                                                                        | L076B/L088-PL | D/W                | MCERTS               |
| Chromium III in soil                                                        | In-house method by calculation from total Cr and Cr VI                                                                                 | In-house method by calculation                                                                         | L080-PL/L130B | W                  | NONE                 |
| Hexavalent chromium in soil                                                 | Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazine followed by colorimetry       | In-house method                                                                                        | L080-PL       | W                  | MCERTS               |
| Monohydric phenols in soil                                                  | Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry                  | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton | L080-PL       | W                  | MCERTS               |
| pH in soil (automated)                                                      | Determination of pH in soil by addition of water followed by automated electrometric measurement                                       | In-house method                                                                                        | L099-PL       | D                  | MCERTS               |

**For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).**

**For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).**

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

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

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

**Analytical Report Number : 25-009985**

**Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN**

**Water matrix abbreviations:**

**Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)**

**Final Sewage Effluent (FSE) Landfill Leachate (LL)**

| Analytical Test Name | Analytical Method Description | Analytical Method Reference | Method number | Wet / Dry Analysis | Accreditation Status |
|----------------------|-------------------------------|-----------------------------|---------------|--------------------|----------------------|
|----------------------|-------------------------------|-----------------------------|---------------|--------------------|----------------------|

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Herts & Essex Site Investigations  
The Old Post Office  
Wellpond Green  
Standon  
Herts  
SG11 1NJ

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

t: 01920 822233

t: 01923 225404

e: rchamberlain@hesi.co.uk  
csgrey@hesi.co.uk  
dhudd@hesi.co.uk

f: 01923 237404

e: reception@i2analytical.com

## **Analytical Report Number : 25-009989**

|                             |                                                              |                                                        |            |
|-----------------------------|--------------------------------------------------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Brimstone Barn Brimstone Hill<br>Meopham Gravesend Kent DA13 | <b>Samples received on:</b>                            | 28/02/2025 |
| <b>Your job number:</b>     | 19458                                                        | <b>Samples instructed on/<br/>Analysis started on:</b> | 28/02/2025 |
| <b>Your order number:</b>   | 19458                                                        | <b>Analysis completed by:</b>                          | 10/03/2025 |
| <b>Report Issue Number:</b> | 1                                                            | <b>Report issued on:</b>                               | 10/03/2025 |
| <b>Samples Analysed:</b>    | 2 soil samples - 2 stage samples                             |                                                        |            |



**Signed:**

Adam Fenwick  
Key Account Executive  
**For & on behalf of i2 Analytical Ltd.**

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

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

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

|           |                                 |
|-----------|---------------------------------|
| soils     | - 4 weeks from reporting        |
| leachates | - 2 weeks from reporting        |
| waters    | - 2 weeks from reporting        |
| asbestos  | - 6 months from reporting       |
| air       | - once the analysis is complete |

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.  
Some records may be kept for longer according to other legal/best practice requirements.

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

Analytical Report Number: 25-009989

Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN

Your Order No: 19458

|                                         |       |                            |                              |               |               |
|-----------------------------------------|-------|----------------------------|------------------------------|---------------|---------------|
| Lab Sample Number                       |       |                            |                              | 467757        | 467758        |
| Sample Reference                        |       |                            |                              | WS2           | WS2           |
| Sample Number                           |       |                            |                              | None Supplied | None Supplied |
| Water Matrix                            |       |                            |                              | N/A           | N/A           |
| Depth (m)                               |       |                            |                              | 0.30          | 1.20          |
| Date Sampled                            |       |                            |                              | 27/02/2025    | 27/02/2025    |
| Time Taken                              |       |                            |                              | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Test Limit of<br>detection | Test Accreditation<br>Status |               |               |

|                               |    |      |      |      |       |
|-------------------------------|----|------|------|------|-------|
| Stone Content                 | %  | 0.1  | NONE | 62.3 | < 0.1 |
| Moisture Content              | %  | 0.01 | NONE | 9.1  | 22    |
| Total mass of sample received | kg | 0.1  | NONE | 2    | 2     |

#### General Inorganics

|                                     |                |       |        |     |     |
|-------------------------------------|----------------|-------|--------|-----|-----|
| pH (L005B)                          | pH Units       | N/A   | MCERTS | 7.9 | 8.1 |
| Total Organic Carbon (TOC) – Manual | %              | 0.1   | MCERTS | 0.8 | 0.9 |
| Loss on Ignition @ 450°C            | %              | 0.2   | MCERTS | 2.1 | 3.1 |
| Acid Neutralisation Capacity        | mmol/kg<br>+/- | -9999 | NONE   | 9.8 | 11  |

#### Speciated PAHs

|                        |       |      |           |        |        |
|------------------------|-------|------|-----------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS    | 0.07   | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS    | 0.36   | < 0.05 |
| Anthracene             | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS    | 0.82   | < 0.05 |
| Pyrene                 | mg/kg | 0.05 | MCERTS    | 0.74   | < 0.05 |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS    | 0.33   | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS    | 0.46   | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | ISO 17025 | 0.76   | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | ISO 17025 | 0.21   | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS    | 0.55   | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS    | 0.32   | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS    | 0.39   | < 0.05 |
| Coronene               | mg/kg | 0.05 | NONE      | 0.21   | < 0.05 |

#### Total PAH

|                   |       |      |      |      |        |
|-------------------|-------|------|------|------|--------|
| Total WAC-17 PAHs | mg/kg | 0.85 | NONE | 5.21 | < 0.85 |
|-------------------|-------|------|------|------|--------|

#### Petroleum Hydrocarbons

|                                       |       |    |      |    |      |
|---------------------------------------|-------|----|------|----|------|
| Mineral Oil (EC10 - EC40) EH_CU_1D_AL | mg/kg | 10 | NONE | 26 | < 10 |
|---------------------------------------|-------|----|------|----|------|

#### VOCs

|              |       |   |        |       |       |
|--------------|-------|---|--------|-------|-------|
| Benzene      | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 |
| Toluene      | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 |
| Ethylbenzene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 |
| p & m-Xylene | µg/kg | 8 | MCERTS | < 8.0 | < 8.0 |
| o-Xylene     | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 |

|            |       |    |        |      |      |
|------------|-------|----|--------|------|------|
| Total BTEX | µg/kg | 10 | MCERTS | < 10 | < 10 |
|------------|-------|----|--------|------|------|

#### PCBs by GC-MS

|                  |       |       |        |         |         |
|------------------|-------|-------|--------|---------|---------|
| PCB Congener 28  | mg/kg | 0.001 | MCERTS | < 0.001 | < 0.001 |
| PCB Congener 52  | mg/kg | 0.001 | MCERTS | < 0.001 | < 0.001 |
| PCB Congener 101 | mg/kg | 0.001 | MCERTS | < 0.001 | < 0.001 |
| PCB Congener 118 | mg/kg | 0.001 | MCERTS | < 0.001 | < 0.001 |

Analytical Report Number: 25-009989

Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN

Your Order No: 19458

| Lab Sample Number                       |       |                            |                              | 467757        | 467758        |
|-----------------------------------------|-------|----------------------------|------------------------------|---------------|---------------|
| Sample Reference                        |       |                            |                              | WS2           | WS2           |
| Sample Number                           |       |                            |                              | None Supplied | None Supplied |
| Water Matrix                            |       |                            |                              | N/A           | N/A           |
| Depth (m)                               |       |                            |                              | 0.30          | 1.20          |
| Date Sampled                            |       |                            |                              | 27/02/2025    | 27/02/2025    |
| Time Taken                              |       |                            |                              | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Test Limit of<br>detection | Test Accreditation<br>Status |               |               |
| PCB Congener 138                        | mg/kg | 0.001                      | MCERTS                       | < 0.001       | < 0.001       |
| PCB Congener 153                        | mg/kg | 0.001                      | MCERTS                       | 0.001         | < 0.001       |
| PCB Congener 180                        | mg/kg | 0.001                      | MCERTS                       | 0.002         | < 0.001       |
| Total PCBs                              | mg/kg | 0.007                      | MCERTS                       | < 0.007       | < 0.007       |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



4041



Environmental Science

**i2 Analytical**

7 Woodshots Meadow  
Croxley Green Business Park  
Watford, WD18 8YS

Telephone: 01923 225404  
Fax: 01923 237404  
email:reception@i2analytical.com

| Waste Acceptance Criteria Analytical Results                                                                         |                                                               |           |      |          |                                                   |                                                               |                          |  |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------|------|----------|---------------------------------------------------|---------------------------------------------------------------|--------------------------|--|
| Report No:                                                                                                           | 25-009989                                                     |           |      |          |                                                   |                                                               |                          |  |
|                                                                                                                      |                                                               |           |      |          |                                                   |                                                               |                          |  |
|                                                                                                                      |                                                               |           |      |          | Client: HESI                                      |                                                               |                          |  |
|                                                                                                                      |                                                               |           |      |          |                                                   |                                                               |                          |  |
| Location                                                                                                             | Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN |           |      |          |                                                   |                                                               |                          |  |
| Lab Reference (Sample Number)                                                                                        | 467757                                                        |           |      |          | Landfill Waste Acceptance Criteria                |                                                               |                          |  |
|                                                                                                                      |                                                               |           |      |          | Limits                                            |                                                               |                          |  |
| Sampling Date                                                                                                        | 27/02/2025                                                    |           |      |          | Inert Waste Landfill                              | Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill | Hazardous Waste Landfill |  |
| Sample ID                                                                                                            | WS2                                                           |           |      |          |                                                   |                                                               |                          |  |
| Depth (m)                                                                                                            | 0.30                                                          |           |      |          |                                                   |                                                               |                          |  |
| Solid Waste Analysis                                                                                                 |                                                               |           |      |          |                                                   |                                                               |                          |  |
| TOC (%)                                                                                                              | 0.8                                                           |           |      |          | 3%                                                | 5%                                                            | 6%                       |  |
| Loss on Ignition (%)                                                                                                 | 2.1                                                           |           |      |          | --                                                | --                                                            | 10%                      |  |
| BTEX (µg/kg)                                                                                                         | < 10                                                          |           |      |          | 6000                                              | --                                                            | --                       |  |
| Sum of PCBs (mg/kg)                                                                                                  | < 0.007                                                       |           |      |          | 1                                                 | --                                                            | --                       |  |
| Mineral Oil (mg/kg) EH_1D_CU_AL                                                                                      | 26                                                            |           |      |          | 500                                               | --                                                            | --                       |  |
| Total PAH (WAC-17) (mg/kg)                                                                                           | 5.21                                                          |           |      |          | 100                                               | --                                                            | --                       |  |
| pH (units)                                                                                                           | 7.9                                                           |           |      |          | --                                                | >6                                                            | --                       |  |
| Acid Neutralisation Capacity (mmol / kg)                                                                             | 9.8                                                           |           |      |          | --                                                | To be evaluated                                               | To be evaluated          |  |
| Eluate Analysis                                                                                                      |                                                               | 2:1       | 8:1  |          | Cumulative 10:1                                   | Limit values for compliance leaching test                     |                          |  |
| (BS EN 12457 - 3 preparation utilising end over end leaching procedure)                                              |                                                               | mg/l      | mg/l |          | mg/kg                                             | using BS EN 12457-3 at L/S 10 l/kg (mg/kg)                    |                          |  |
| Arsenic *                                                                                                            | 0.0037                                                        | 0.010     |      | 0.091    | 0.5                                               | 2                                                             | 25                       |  |
| Barium *                                                                                                             | 0.013                                                         | 0.018     |      | 0.17     | 20                                                | 100                                                           | 300                      |  |
| Cadmium *                                                                                                            | < 0.00010                                                     | < 0.00010 |      | < 0.0010 | 0.04                                              | 1                                                             | 5                        |  |
| Chromium *                                                                                                           | 0.0049                                                        | 0.0044    |      | 0.045    | 0.5                                               | 10                                                            | 70                       |  |
| Copper *                                                                                                             | 0.025                                                         | 0.034     |      | 0.33     | 2                                                 | 50                                                            | 100                      |  |
| Mercury *                                                                                                            | 0.0012                                                        | 0.0012    |      | 0.012    | 0.01                                              | 0.2                                                           | 2                        |  |
| Molybdenum *                                                                                                         | 0.0032                                                        | 0.0014    |      | 0.017    | 0.5                                               | 10                                                            | 30                       |  |
| Nickel *                                                                                                             | 0.0017                                                        | 0.0020    |      | 0.020    | 0.4                                               | 10                                                            | 40                       |  |
| Lead *                                                                                                               | 0.0023                                                        | 0.016     |      | 0.14     | 0.5                                               | 10                                                            | 50                       |  |
| Antimony *                                                                                                           | < 0.0020                                                      | < 0.0020  |      | < 0.020  | 0.06                                              | 0.7                                                           | 5                        |  |
| Selenium *                                                                                                           | < 0.0050                                                      | < 0.0050  |      | < 0.050  | 0.1                                               | 0.5                                                           | 7                        |  |
| Zinc *                                                                                                               | 0.012                                                         | 0.031     |      | 0.28     | 4                                                 | 50                                                            | 200                      |  |
| Chloride *                                                                                                           | 5.6                                                           | < 4.0     |      | 36       | 800                                               | 15000                                                         | 25000                    |  |
| Fluoride*                                                                                                            | 2.7                                                           | 1.0       |      | 12       | 10                                                | 150                                                           | 500                      |  |
| Sulphate *                                                                                                           | 17                                                            | 6.8       |      | 83       | 1000                                              | 20000                                                         | 50000                    |  |
| TDS*                                                                                                                 | 110                                                           | 65        |      | 710      | 4000                                              | 60000                                                         | 100000                   |  |
| Phenol Index (Monohydric Phenols) *                                                                                  | < 0.16                                                        | < 0.13    |      | < 0.50   | 1                                                 | -                                                             | -                        |  |
| DOC                                                                                                                  | 8.34                                                          | 11        |      | 104      | 500                                               | 800                                                           | 1000                     |  |
|                                                                                                                      |                                                               |           |      |          |                                                   |                                                               |                          |  |
| Leach Test Information                                                                                               |                                                               |           |      |          |                                                   |                                                               |                          |  |
|                                                                                                                      |                                                               |           |      |          |                                                   |                                                               |                          |  |
|                                                                                                                      |                                                               |           |      |          |                                                   |                                                               |                          |  |
| Stone Content (%)                                                                                                    | 62.3                                                          |           |      |          |                                                   |                                                               |                          |  |
| Sample Mass (kg)                                                                                                     | 2.0                                                           |           |      |          |                                                   |                                                               |                          |  |
| Dry Matter (%)                                                                                                       | 91                                                            |           |      |          |                                                   |                                                               |                          |  |
| Moisture (%)                                                                                                         | 9.1                                                           |           |      |          |                                                   |                                                               |                          |  |
| Stage 1                                                                                                              |                                                               |           |      |          |                                                   |                                                               |                          |  |
| Volume Eluate L2 (litres)                                                                                            | 0.318                                                         |           |      |          |                                                   |                                                               |                          |  |
| Filtered Eluate VE1 (litres)                                                                                         | 0.26                                                          |           |      |          |                                                   |                                                               |                          |  |
|                                                                                                                      |                                                               |           |      |          |                                                   |                                                               |                          |  |
| Results are expressed on a dry weight basis, after correction for moisture content where applicable.                 |                                                               |           |      |          | * = UKAS accredited (liquid eluate analysis only) |                                                               |                          |  |
| Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation |                                                               |           |      |          | ** = MCERTS accredited                            |                                                               |                          |  |

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3. This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Where colour coding is used on this report, this is for guidance purposes only. This does not constitute a statement of conformity of pass or fail.  
Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



4041



Environmental Science

**i2 Analytical**

7 Woodshots Meadow  
Croxley Green Business Park  
Watford, WD18 8YS

Telephone: 01923 225404

Fax: 01923 237404

email:reception@i2analytical.com

| Waste Acceptance Criteria Analytical Results                                                                                                                |                                                               |           |  |                 |                                            |                                                               |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------|--|-----------------|--------------------------------------------|---------------------------------------------------------------|--------------------------|
| Report No:                                                                                                                                                  | 25-009989                                                     |           |  |                 |                                            |                                                               |                          |
|                                                                                                                                                             |                                                               |           |  |                 |                                            |                                                               |                          |
|                                                                                                                                                             |                                                               |           |  |                 | Client: HESI                               |                                                               |                          |
|                                                                                                                                                             |                                                               |           |  |                 |                                            |                                                               |                          |
| Location                                                                                                                                                    | Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN |           |  |                 |                                            |                                                               |                          |
| Lab Reference (Sample Number)                                                                                                                               | 467758                                                        |           |  |                 | Landfill Waste Acceptance Criteria         |                                                               |                          |
|                                                                                                                                                             |                                                               |           |  |                 | Limits                                     |                                                               |                          |
| Sampling Date                                                                                                                                               | 27/02/2025                                                    |           |  |                 | Inert Waste Landfill                       | Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Sample ID                                                                                                                                                   | WS2                                                           |           |  |                 |                                            |                                                               |                          |
| Depth (m)                                                                                                                                                   | 1.20                                                          |           |  |                 |                                            |                                                               |                          |
| Solid Waste Analysis                                                                                                                                        |                                                               |           |  |                 |                                            |                                                               |                          |
| TOC (%)**                                                                                                                                                   | 0.9                                                           |           |  |                 | 3%                                         | 5%                                                            | 6%                       |
| Loss on Ignition (%) **                                                                                                                                     | 3.1                                                           |           |  |                 | --                                         | --                                                            | 10%                      |
| BTEX (µg/kg)**                                                                                                                                              | < 10                                                          |           |  |                 | 6000                                       | --                                                            | --                       |
| Sum of PCBs (mg/kg)**                                                                                                                                       | < 0.007                                                       |           |  |                 | 1                                          | --                                                            | --                       |
| Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>                                                                                                           | < 10                                                          |           |  |                 | 500                                        | --                                                            | --                       |
| Total PAH (WAC-17) (mg/kg)                                                                                                                                  | < 0.85                                                        |           |  |                 | 100                                        | --                                                            | --                       |
| pH (units)**                                                                                                                                                | 8.1                                                           |           |  |                 | --                                         | >6                                                            | --                       |
| Acid Neutralisation Capacity (mmol / kg)                                                                                                                    | 11                                                            |           |  |                 | --                                         | To be evaluated                                               | To be evaluated          |
| Eluate Analysis                                                                                                                                             |                                                               |           |  |                 |                                            |                                                               |                          |
| (BS EN 12457 - 3 preparation utilising end over end leaching procedure)                                                                                     | 2:1                                                           | 8:1       |  | Cumulative 10:1 | Limit values for compliance leaching test  |                                                               |                          |
|                                                                                                                                                             |                                                               |           |  |                 | using BS EN 12457-3 at L/S 10 l/kg (mg/kg) |                                                               |                          |
|                                                                                                                                                             | mg/l                                                          | mg/l      |  | mg/kg           |                                            |                                                               |                          |
| Arsenic *                                                                                                                                                   | 0.0057                                                        | 0.0051    |  | 0.052           | 0.5                                        | 2                                                             | 25                       |
| Barium *                                                                                                                                                    | 0.0066                                                        | 0.0042    |  | 0.043           | 20                                         | 100                                                           | 300                      |
| Cadmium *                                                                                                                                                   | < 0.00010                                                     | < 0.00010 |  | < 0.0010        | 0.04                                       | 1                                                             | 5                        |
| Chromium *                                                                                                                                                  | 0.0019                                                        | 0.0022    |  | 0.022           | 0.5                                        | 10                                                            | 70                       |
| Copper *                                                                                                                                                    | 0.013                                                         | 0.0023    |  | 0.029           | 2                                          | 50                                                            | 100                      |
| Mercury *                                                                                                                                                   | < 0.00070                                                     | < 0.0007  |  | < 0.0070        | 0.01                                       | 0.2                                                           | 2                        |
| Molybdenum *                                                                                                                                                | 0.0054                                                        | 0.0034    |  | 0.035           | 0.5                                        | 10                                                            | 30                       |
| Nickel *                                                                                                                                                    | 0.0013                                                        | 0.0016    |  | 0.016           | 0.4                                        | 10                                                            | 40                       |
| Lead *                                                                                                                                                      | < 0.0017                                                      | < 0.0017  |  | < 0.017         | 0.5                                        | 10                                                            | 50                       |
| Antimony *                                                                                                                                                  | < 0.0020                                                      | < 0.0020  |  | < 0.020         | 0.06                                       | 0.7                                                           | 5                        |
| Selenium *                                                                                                                                                  | < 0.0050                                                      | < 0.0050  |  | < 0.050         | 0.1                                        | 0.5                                                           | 7                        |
| Zinc *                                                                                                                                                      | 0.0058                                                        | 0.0032    |  | 0.034           | 4                                          | 50                                                            | 200                      |
| Chloride *                                                                                                                                                  | < 4.0                                                         | < 4.0     |  | 20              | 800                                        | 15000                                                         | 25000                    |
| Fluoride*                                                                                                                                                   | 0.26                                                          | 0.23      |  | 2.3             | 10                                         | 150                                                           | 500                      |
| Sulphate *                                                                                                                                                  | 1.7                                                           | 2.9       |  | 28              | 1000                                       | 20000                                                         | 50000                    |
| TDS*                                                                                                                                                        | 130                                                           | 84        |  | 870             | 4000                                       | 60000                                                         | 100000                   |
| Phenol Index (Monohydric Phenols) *                                                                                                                         | < 0.16                                                        | < 0.13    |  | < 0.50          | 1                                          | -                                                             | -                        |
| DOC                                                                                                                                                         | 11.8                                                          | 13        |  | 129             | 500                                        | 800                                                           | 1000                     |
|                                                                                                                                                             |                                                               |           |  |                 |                                            |                                                               |                          |
| Leach Test Information                                                                                                                                      |                                                               |           |  |                 |                                            |                                                               |                          |
|                                                                                                                                                             |                                                               |           |  |                 |                                            |                                                               |                          |
|                                                                                                                                                             |                                                               |           |  |                 |                                            |                                                               |                          |
| Stone Content (%)                                                                                                                                           | < 0.1                                                         |           |  |                 |                                            |                                                               |                          |
| Sample Mass (kg)                                                                                                                                            | 2.0                                                           |           |  |                 |                                            |                                                               |                          |
| Dry Matter (%)                                                                                                                                              | 78                                                            |           |  |                 |                                            |                                                               |                          |
| Moisture (%)                                                                                                                                                | 22                                                            |           |  |                 |                                            |                                                               |                          |
| Stage 1                                                                                                                                                     |                                                               |           |  |                 |                                            |                                                               |                          |
| Volume Eluate L2 (litres)                                                                                                                                   | 0.302                                                         |           |  |                 |                                            |                                                               |                          |
| Filtered Eluate VE1 (litres)                                                                                                                                | 0.11                                                          |           |  |                 |                                            |                                                               |                          |
|                                                                                                                                                             |                                                               |           |  |                 |                                            |                                                               |                          |
| Results are expressed on a dry weight basis, after correction for moisture content where applicable.      * = UKAS accredited (liquid eluate analysis only) |                                                               |           |  |                 |                                            |                                                               |                          |
| Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation      ** = MCERTS accredited            |                                                               |           |  |                 |                                            |                                                               |                          |

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3. This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Where colour coding is used on this report, this is for guidance purposes only. This does not constitute a statement of conformity of pass or fail.  
Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

**Analytical Report Number : 25-009989**

**Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN**

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

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

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description *            |
|-------------------|------------------|---------------|-----------|---------------------------------|
| 467757            | WS2              | None Supplied | 0.3       | Brown gravelly sand with stones |
| 467758            | WS2              | None Supplied | 1.2       | Brown clay                      |

**Analytical Report Number : 25-009989**

**Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN**

**Water matrix abbreviations:**

**Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)**

**Final Sewage Effluent (FSE) Landfill Leachate (LL)**

| Analytical Test Name                                          | Analytical Method Description                                                                                                                       | Analytical Method Reference                                                                           | Method number | Wet / Dry Analysis | Accreditation Status |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| pH at 20°C in soil                                            | Determination of pH in soil by addition of water followed by electrometric measurement                                                              | In-house method                                                                                       | L005B         | W                  | MCERTS               |
| Moisture Content                                              | Moisture content, determined gravimetrically (up to 30°C)                                                                                           | In-house method                                                                                       | L019B         | W                  | NONE                 |
| Stones content of soil                                        | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight                          | In-house method based on British Standard Methods and MCERTS requirements.                            | L019B         | D                  | NONE                 |
| Total organic carbon in soil                                  | Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method) | In-house method                                                                                       | L023B         | D                  | MCERTS               |
| PCB's By GC-MS in soil                                        | Determination of PCB by extraction with hexane followed by GC-MS                                                                                    | In-house method based on USEPA 8082                                                                   | L027B         | D                  | MCERTS               |
| TDS in WAC leachate (BS EN 12457-3 Prep)                      | Determination of total dissolved solids in leachate by electrometric measurement                                                                    | In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.      | L031B         | W                  | ISO 17025            |
| Fluoride in WAC leachate (BS EN 12457-3 Prep)                 | Determination of fluoride in leachate by 1:1 ratio with a buffer solution followed by Ion Selective Electrode                                       | In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.      | L033B         | W                  | ISO 17025            |
| DOC in WAC leachate (BS EN 12457-3 Prep)                      | Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser                                                                      | In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.      | L037B         | W                  | NONE                 |
| Metals in WAC leachate (BS EN 12457-3 Prep)                   | Determination of metals in leachate by acidification followed by ICP-OES                                                                            | In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed       | L039B         | W                  | ISO 17025            |
| Sulphate in WAC leachate (BS EN 12457-3 Prep)                 | Determination of sulphate in leachate by acidification followed by ICP-OES                                                                          | In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed       | L039B         | W                  | ISO 17025            |
| Preparation WAC leachate                                      |                                                                                                                                                     | In-house method                                                                                       | L043B         | W                  | NONE                 |
| Acid neutralisation capacity of soil                          | Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe                                            | In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance | L046B         | W                  | NONE                 |
| Loss on ignition of soil @ 450°C                              | Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace                                      | In-house method                                                                                       | L047-PL       | D                  | MCERTS               |
| Speciated PAHs and/or Semi-volatile organic compounds in soil | Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS              | In-house method based on USEPA 8270                                                                   | L064B         | D                  | MCERTS               |
| BTEX and/or Volatile organic compounds in soil                | Determination of volatile organic compounds in soil by headspace GC-MS                                                                              | In-house method based on USEPA 8260                                                                   | L073B         | W                  | MCERTS               |
| Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil       | Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS                                                                            | In-house method                                                                                       | L076B/L088-PL | D/W                | NONE                 |

**Analytical Report Number : 25-009989**

**Project / Site name: Brimstone Barn Brimstone Hill Meopham Gravesend Kent DA13 0BN**

**Water matrix abbreviations:**

**Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)**

**Final Sewage Effluent (FSE) Landfill Leachate (LL)**

| Analytical Test Name                              | Analytical Method Description                                               | Analytical Method Reference                                                                            | Method number | Wet / Dry Analysis | Accreditation Status |
|---------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Phenol Index in WAC leachate (BS EN 12457-3 Prep) | Determination of monohydric phenols in leachate by continuous flow analyser | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton | L080-PL       | W                  | ISO 17025            |
| Chloride in WAC leachate (BS EN 12457-3 Prep)     | Determination of Chloride colorimetrically by discrete analyser             | In-house based on MEWAM Method ISBN 0117516260                                                         | L082B         | W                  | ISO 17025            |

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

## Information in Support of Analytical Results

### List of HWOL Acronyms and Operators

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

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution