
PHASE III Site Investigation Report

at: Land East of Iwade,
Sittingbourne, Kent, ME9
8SJ

for: Bellway Homes Ltd.

Report Reference: 3741272

Report Date: 23 April 2025

LEAP ENVIRONMENTAL GENERAL NOTES

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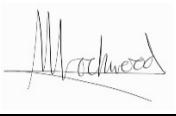
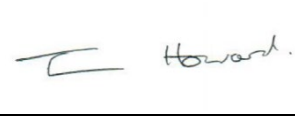
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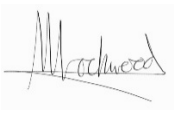
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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

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EXECUTIVE SUMMARY

The site comprises two agricultural fields, which extends to about 15.48Ha, and is situated to the east of Iwade, Sittingbourne, Kent ME9 8SJ. It is proposed to redevelop the site with up to 455 residential dwellings.

The site is mapped as being underlain by London Clay Formation. Head deposits are mapped overlying the London Clay Formation in the northern field of the southern development area. Alluvium is also mapped approximately 200 m to the north west of the eastern site boundary. The Lambeth Group is mapped c. 900 m to the south of the site.

Ground conditions comprise topsoil was to a depth of between 0.20-0.30 mbgl. Head deposits were recorded underlying the topsoil to depths of between 0.50-5.00 mbgl. Firm to very stiff thinly laminated dark grey slightly sandy clay of the London Clay Formation was recorded underlying the Head deposits to a depth of 14.00 m and to the full depth of BH201 (25.00 mbgl). Underlying sands of the Harwich Formation were encountered to a depth of 19.00mbgl and to the full depth of the investigation. Very stiff dark grey very sandy silty clay, with frequent shell fragments was encountered underlying the sands to the full depth of the investigation.

Groundwater was encountered within the Harwich Formation sands at depths of between 13.30 mbgl and 24.00 mbgl.

Preliminary pile designs indicate that a 10.00 m long 400 mm diameter cfa pile would have a design compressive strength of about 200kN, increasing to 600kN for a 20.00 m long pile.

Suspended floor slabs are recommended with piled foundations.

Soil sulphates in the London Clay Formation fall within BRE design class DS-4 and the site conditions fall within the ACEC class AC-3s. Assuming mobile groundwater for the Harwich Formation, these soils will have a ACEC class of AC-4.

A geo-environmental risk assessment has been carried out. Contamination testing of the soils identified elevated levels of lead within one subsoil sample (BH206 at 0.50 m), and one elevated concentration of benzo(a)pyrene within topsoil (HA209 at 0.15 m). Marginal exceedances of the GAC for beryllium were recorded in the subsoil, however these are considered to be below typical background concentrations and are not considered to pose a significant risk. No other exceedances of the GACs for a residential with home grown produce end use were recorded during the current or previous investigations.

The localised exceedances for lead and benzo(a)pyrene appear to be anomalous, therefore additional testing is recommended to confirm the extent of any contamination around BH206 and HA209.

Following the additional investigation a remediation strategy to mitigate risks to the proposed development from identified contamination may be required.

As with any redevelopment site, there is always the risk of hitherto undetected contamination, and further investigations should be carried out prior to redevelopment.

1 INTRODUCTION

1.1 Authority

RSK Environment Ltd trading as Leap Environmental (hereafter referred to as **LEAP**) were engaged by Bellway Homes Ltd (Kent Division) herein referred to as the “Client” to carry out a Phase III Site Investigation Report at Land East of Iwade, Sittingbourne, Kent ME9 8SJ.

The works were undertaken by means of **LEAP**’s fee proposal letter dated 7 January 2025, reference: TH/25/LPQ11935 including RSK Standard Terms and Conditions, which forms the appointment between **LEAP** and the Client.

References in this report to ‘we’, ‘us’ or ‘our’ shall mean Leap Environmental as a trading name of RSK Environment Limited (company no.SC115530) at registered address 65 Sussex Street Glasgow G41 1DX.

The report should be read and used in accordance with the limitations and constraints identified in the report text, and at **Appendix A** – Service Constraints.

The site is approximately 15.48Ha in size and is located at NGR TQ 90516 67665, with the nearest postcode being ME9 8SJ (Drawing No. 11101, **Appendix B**).

1.2 Objective

LEAP understands that the site it is proposed to redevelop the site with up to 455 residential dwellings as per the attached layout in Drawing No. 11601, **Appendix B**.

The proposed development is currently at a design phase and has been assessed in accordance with BS EN 1997¹, as being a Geotechnical Category 2 structure.

The objectives of this report are to:

- provide supplementary information on the geotechnical and environmental quality of the ground present on the site with respect to the proposed development
- assess the potential health and other environmental risks posed by the site to the proposed development and to other specifically identified receptors
- assess the potential for offsite contamination to adversely affect the proposed development.
- provide a preliminary pile design for proposed piled foundations on the site

¹ BS EN 1997-1(2004)+A1:2013 Eurocode 7:Geotechnical Design: General Rules

1.3 Previous studies

The site has been the subject of previous investigations by others. The following site investigation reports have been supplied by the Client and the reader is referred to these earlier reports which should be read in conjunction with this report.

- Ecologia Phase 1 land Contamination Assessment at Land East of Iwade, Sittingbourne, Kent, ME9 8UW, Reference: EES 19.286.1, Dated 24 October 2019.
- Ecologia Phase 2 Geo-Environmental Assessment at Land East of Iwade, Sittingbourne, Kent, ME9 8UW, Reference: EES 21.271.1, Dated 3 February 2022.
- Geo-Environmental Services Ltd. Land East of Iwade, Sittingbourne, Kent, ME9 8UW – Ground Investigation, Reference: GE20827-LRVB01/220614, Dated 14 June 2022.

1.4 Scope of works

This report describes a two stage process whereby the site is investigated and risks are assessed. The terms geotechnical and geoenvironmental are referred to throughout the report.

Geoenvironmental refers principally to the chemical nature of the ground and the degree of soil, water and/or land gas contamination and the impact that contamination may have on current or future development and also on the wider environment.

Geotechnical refers to all other aspects of the ground conditions and the impact they may have on the physical construction of existing or future development, principally foundations, slope stability, drainage, pavement and road design and groundwater control.

1.4.1 Intrusive investigation scope

The Phase III work comprises intrusive investigation and laboratory analysis. The results of this and previous investigation reports are used to validate and/or update the initial site conceptual model. This phase of site investigation comprised the following tasks:

- 6, 25.00 m deep Cable Percussion boreholes
- 13, 0.10 – 0.30 m deep hand excavated trial pits
- in-situ geotechnical testing including Standard Penetrometer Tests in the boreholes
- geotechnical Laboratory Testing including Atterberg Limit Tests, Sulphate Tests, and quick unconsolidated undrained triaxial tests
- chemical Laboratory tests including LEAP standard soil suite tests, Organochlorine pesticide test, LEAP Waste Suite tests and Waste Acceptance Criteria tests.

The intrusive works were completed by contractors who have been scrutinised and are on LEAP's approved contractor list. The cable percussion boreholes were carried out by ISJ Drilling Services, and supervised by LEAP.

Selected samples of soil were scheduled for laboratory testing for a wide range of potential contaminants including metals, non-metals, polyaromatic and petroleum hydrocarbons and volatile organic compounds. The laboratory testing has been carried out by Eurofins Chemtest Ltd., at their laboratory in Newmarket.

Selected soil samples have been classified by laboratory analysis for geotechnical design purposes. The laboratory testing has been carried out by Geolabs Ltd at its laboratories in Watford.

The final stage in the geoenvironmental assessment comprises a quantitative risk assessment and revision of the preliminary Conceptual Site Model. Preliminary recommendations for remediation have been provided, based on various development assumptions which are detailed in the following section and in the text of this report. The risk assessment has been carried out in accordance with UK industry standards and in particular in accordance with LCRM² and BS10175:2011+A2:2017.

The final stage of the geotechnical assessment is the provision of preliminary soil parameters for use in geotechnical design, and broad recommendations for appropriate foundation options. It is intended that the Geotechnical Information section of this report will fulfil the general requirements of the Ground Investigation Report as set out in Section 6 of BS EN 1997-2:2007³.

1.5 Sustainability considerations

1.5.1 Carbon reduction

There is an urgent need to optimise redevelopment to significantly reduce the carbon footprint of the process without compromising the requirement for delivering a safe and suitable use of the site. With that in mind, LEAP has worked in partnership with the University of Surrey to develop a series of carbon reduction design tools (CReDiT). These provide information on the embodied carbon cost of its report recommendations and encourage the conversation about carbon at an early stage in the design process.

Consideration has been taken throughout the report to align the recommendations with climate protection, circular economy and sustainable materials.

LEAP recognises the unique position that it occupies at the very beginning of development projects and the value of informing clients on the carbon cost of design recommendations. As such, headline information from the CReDiT tools are provided in site investigation reports without additional cost to the client. This is being done to engage furthermore detailed consultation where the full range of LEAP's sustainability capabilities can be deployed.

1.5.2 Potential for ground source heating and cooling

Most locations in the UK are suitable for the installation of ground source heating or cooling (GSHC) systems. The most appropriate type of installation is determined by the available space, heating and cooling demands of the proposed development and a number of geological and hydrogeological factors, and drilling risks (amongst other factors). LEAP can appraise these site-specific conditions through a desk-based feasibility study to assist in determining the viability of this sustainable source of heating/cooling energy at the site, should this be of interest to you. We also have in-house capability to undertake field assessments including soil thermal conductivity

² Environment Agency. Land Contamination Risk Management (LCRM), <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

³ BS EN 1997 Eurocode 7- Geotechnical Design- Part 2: Ground Investigation and Testing (2007)

surveys and soil thermal response test (TRT), as well as the design and installation of GSHC systems.

1.6 Limitations

This report is subject to the RSK service constraints given in **Appendix A** and limitations that may be described below and throughout this document.

This report was prepared in accordance with good practice guidance at the time of issue. Consideration should be considered in the light of changes in legislation, statutory requirements, or industry practices subsequent to the date of issue.

The opinions expressed in this report, and the comments and recommendations given, are based on the information obtained from the Phase III Site Investigation.

The comments given in this report and the opinions expressed include third party data and investigations, while RSK have undertaken a review of the information provided RSK cannot be held liable for the quality of the data provided. There may be conditions pertaining to the site that have not been disclosed by the investigations and therefore could not be taken into account.

In particular, it should be noted that there may be areas of made ground and potential contamination not detected due to the limited nature of the investigations or the thickness and quality of made ground and concentrations of contamination across the site may be variable. In addition, groundwater levels and groundwater concentrations may vary from those reported due to seasonal, or other, effects.

2 SITE SETTING

2.1 Environmental setting

2.1.1 Site location and description

The site is approximately 15.48 Ha in size and is located to the east of Iwade, Kent, as shown in Drawing No. 11101, **Appendix B**.

The approximate National Grid Reference of the site is TQ 90516 67665. The site lies at an estimated elevation of between 7.90 m and 12.48 m Above Ordnance Datum (mAOD).

2.1.1.1 General description and boundaries

A walkover survey was carried out on 6 March 2025.

At the time of the walkover the site was formed of three open agricultural fields with mature tree and hedge borders. During the site visit, archaeologists were present excavating slit trenches across the site. The most northern proposed development area is an agricultural field, east of The Street. This field is separated from the southern development area by two agricultural fields and the Iwade Stream. The southern proposed development area is situated to the east of Iwade Nature Park off Woodpecker Drive.

The site is bound to the north by Sheppey Way and agricultural fields beyond, with further agricultural fields to the east. An active construction site on the A249 Iwade roundabout was present immediately to the south of the site, while residential housing is located to the west.

A pond is located immediately adjacent to the west of the site, that is fed by the adjacent residential development of Iwade, likely an attenuation basin. A surface water feature bisects the northern and southern development areas, the Iwade stream. A number of tributaries of The Swale bound the agricultural fields of the boundary of the site, and cut across the southern development area.

The overall site generally falls to the south east (approximate 2 degree slope), and also falls at steeper gradients into the valley where the Iwade stream bisects the site (between the northern and southern development phases).

2.1.2 Geology

The geology of the site has been ascertained by reference British Geological Survey website (www.bgs.ac.uk). The site is mapped as being underlain by London Clay Formation. Head deposits are mapped overlying the London Clay Formation in the northern field of the southern development area. Alluvium is also mapped approximately 200 m to the north west of the eastern site boundary. The Lambeth Group is mapped c. 900 m to the south of the site.

2.1.2.1 Head Deposits

Head deposits accumulated largely by solifluction (the slow downslope movement of soil in response to the seasonal freezing and thawing of ground) and hillwash, mainly under periglacial conditions during the Quaternary glaciations. In general it occurs beneath concave slopes on the

flanks and floors of valleys. It is locally derived and its content reflects the base geology, in this instance it comprises of variable deposits of impure clays, silts and sands, locally gravelly.

2.1.2.2 London Clay Formation

London Clay is found extensively throughout the London Basin. The Formation mostly comprises thoroughly bioturbated, slightly calcareous silty clay to very silty clay. Beds of clayey silt and silty fine grained sand are found increasingly towards the west of its subcrop towards Reading.

At outcrop The London Clay Formation is weathered to brown and may contain secondary carbonate nodules. This weathered or oxidized zone varies from about 3.00-6.00 m in depth and may be less than 1.00 m thick where the clay is overlain by superficial deposits. Below this it is generally blue grey in colour and fissured. The top few metres of unweathered clay and bottom of the weathered zone often contain gypsum crystals a source of sulphates.

London Clay is classified by the Environment Agency as a non aquifer. It is generally quite plastic and its volume change potential varies from medium to very high depending on the clay content.

2.1.2.3 Harwich Formation

The Harwich Formation typically comprises glauconitic silty or sandy clays, silts and fine- to coarse-grained glauconitic sands, some gravelly, varying to flint gravel beds. Thin beds of grey clay occur in some parts, as do shell-rich beds and thin beds of argillaceous limestone.

They overlie the variable soils of the Lambeth Group (formerly the Woolwich Beds).

2.1.2.4 Lambeth Group

The Lambeth Group (formerly known as Woolwich and Reading Beds) tend to consist of grey and grey-brown interbedded fine sands silts and clays. There are sometimes shelly beds at the top and bottom of the formation. Some very strong bands of weakly cemented shells and limestone can be encountered, particularly in the area between Lewisham and Bermondsey.

2.1.2.5 BGS boreholes

The online BGS Geoindex (<http://www.bgs.ac.uk/geoindex/>) has been reviewed for detailed local geological and hydrogeological information. 16 Boreholes have been identified within 250 m of the southern site boundary. Borehole ref TQ96NW319, located c. 50.00 m to the south of the site of the site indicates ground conditions comprise topsoil to a depth of 0.20 mbgl overlying stiff grey mottled yellow brown slightly gravelly clay to a depth of 4.00 mbgl. Very stiff grey to dark grey slightly sandy silty clay with selenite crystals was recorded to a depth of 12.80 mbgl. Below 12.80 mbgl, very dense dark grey fine to medium sand was recorded to the base of the borehole (13.45 mbgl).

Groundwater was encountered within the borehole at a depth of 12.80 mbgl (0.30 mAOD).

2.1.3 Hydrogeology

The geology of the site is mapped as being underlain primarily by the London Clay Formation and Head deposits, with Alluvium mapped to the east of the site. The London Clay Formation and Head deposits are classified as Unproductive Strata and the Alluvium deposits are classified as a Secondary (undifferentiated) aquifer.

The site is not situated in a groundwater Source Protection Zone.

2.1.4 Hydrology

The nearest primary surface water feature to the site is The Swale, a tidal estuary of the Thames estuary, located around 1.50 km east of the site. An inland river, that feeds The Swale is also located between the northern and southern development area and ponds are present adjacent to the western boundary, that forms part of the Iwade Nature Park. A small stream is also located between the two southern fields and appears to flow east towards the Swale.

2.2 Previous Investigations

The site has been the subject of 3 reports undertaken by others, the findings of which are summarised below.

2.2.1 Ecologia Phase 1 land Contamination Assessment at Land East of Iwade, Sittingbourne, Kent, ME9 8UW, Reference: EES 19.286.1, Dated 24th October 2019

The report indicates that the site is not located in a Radon Affected Area, as less than 1% of the properties are above the Radon Action Level, Radon protection measures are there not considered necessary.

Historical mapping has shown that the site has been mapped as agricultural field from 1865, with a small orchard in the north west corner of the site. A 'windpump' was also mapped onsite from 1906 until 1955. Further orchards were mapped across much of the south and west of the site from 1955 until 1978 (south) and 1990 (west).

The Conceptual Site Model (CSM) identified the previous agricultural land use onsite as a source of contaminants including pesticides, herbicides, hydrocarbons and heavy metals. Off-site sources of contamination included: railway cuttings, potential infilled ground, electricity sub stations and neighbouring industrial usage. Ecologia reported a low risk associated with residential end users, The Swale, Secondary Aquifer and buildings and infrastructure. A moderate/ low risk was identified for surface water runoff to the onsite inland river.

2.2.2 Ecologia Phase 2 Geo-Environmental Assessment at Land East of Iwade, Sittingbourne, Kent, ME9 8UW, Reference: EES 21.271.1, Dated 3rd February 2022

Ecologia completed intrusive site works in December 2021, comprising 11 trial pits to a depth of 3.60 mbgl, 8 windowless sampling boreholes to a depth of 6.45 mbgl, 11 Transport Research Laboratory Dynamic Cone Penetration (TRL DCP) tests and 3 cable percussion boreholes to a depth of 10.45 mbgl.

Ground conditions encountered comprised topsoil to a depth of 0.30 mbgl overlying Head deposits comprising soft to firm orange brown slightly gravelly sandy clay to a depth of 0.20-2.20 mbgl. London Clay Formation, comprising soft to very stiff brown and blue grey mottled orange silty clay underlies the Head deposits. Groundwater was not encountered in any of the exploratory hole positions.

Shallow perched groundwater was encountered in three locations in the centre of the site at depths of between 3.00 m and 3.50 m.

Geo-environmental testing of soil samples recorded 4 slight exceedances for beryllium, no other contaminants were recorded above their respective GACs. Low soil leachate concentrations were identified with only slightly elevated concentrations of leachable copper, lead, nickel and zinc when compared against the EQS within 3 trial pits. A revised CSM assessed the geo-environmental risks a very low to low.

Head deposits were noted to be low to medium strength and it was therefore recommended that foundations are extended through these deposits into the underlying London Clay Formation. Undrained triaxial testing indicates a shear strength of 78-86 kPa, which should provide a suitable platform for typical two storey residential houses. For heavier loaded structures, piled foundations were recommended. Atterberg limit tests indicate that the clays onsite are of very high plasticity. Sulphate testing was undertaken on the soils, indications a design sulphate class of DS-2 and ACEC class of AC-2. Based on the results of the TRL DCP tests, a CBR of 3-12% was inferred.

2.2.3 Geo-Environmental Services Ltd. Land East of Iwade, Sittingbourne, Kent, ME9 8UW – Ground Investigation, Reference: GE20827-LRVB01/220614, Dated 14th June 2022

30 window sampling boreholes were undertaken to a depth of 4.00 mbgl. Ground conditions encountered were similar to the previous report, comprising topsoil to depths of 0.15-0.40 mbgl, overlying Head deposits to depths of 0.60-1.80 mbgl. London Clay Formation was encountered under the Head deposits to the full depth of the investigation.

A single groundwater strike was encountered within WS108 at 3.80 mbgl, rising to 3.66 mbgl after 20 minutes.

An allowable bearing capacity of 125kPa was given for conventional strip or trench fill foundations up to 1.00 m in width at a minimum depth of 1.00 mbgl.

3 PHASE III - INTRUSIVE INVESTIGATION

3.1 Investigation rationale

The key objective of the intrusive investigation was to aid the design and construction of 455 residential houses of the proposed development plan (Drawing No. 11601, **Appendix B**) and to determine any constraints associated with ground contamination and foundation design.

The main purpose of the site investigation was to collect supplementary geo-environmental and geotechnical information to support the redevelopment of the site.

To achieve the investigation rationale, the scope of works comprised a total of 19 investigation locations across the site: 13 hand excavated trial pits to a maximum depth of around 0.30 m and 6 cable percussion boreholes to depths of between 23.50 m and 25.00 m.

The hand excavated trial pits were non-targeted to give general coverage, and fill in gaps from previous geo-environmental testing.

The borehole locations were specified by the client, and are located where piled foundations are proposed.

The site investigation locations are provided in Drawing No. 22201, **Appendix B** and **Table 1** provides a summary of the rationale, proposed scope and what was achieved in the field:

Table 1 Rationale and scope for investigation locations

Trial Hole/Test Location	Rationale	Proposed Depth (m bgl)	Achieved Depth (m bgl)	Additional Comments
BH201 - BH206	Located in areas where piled foundations are proposed. Provide information on ground conditions and geotechnical parameters for pile design. Investigate potential soil contamination.	25.00	23.50 – 25.00	BH205 terminated at 23.50 m due to slow progress in very dense sands and gravels below 23.00mbgl
HA201 – HA218	Investigate potential soil contamination within topsoil	0.30	0.10 – 0.30	

3.2 Site work

3.2.1 Date and weather conditions

The intrusive investigations were undertaken in a single phase between 25 February and 11 March 2025. At the time of the investigations, the weather had highs between 1 and 14 degrees, with occasional showers.

3.2.2 Site work methods

3.2.2.1 Borehole drilling

Boreholes were drilled using a cable percussion rig. The boreholes were excavated at 200 mm diameter, reducing to 150 mm with depth. A water flush was added as the boreholes progressed. Borehole diameters and volumes of flush used are recorded on the borehole logs in **Appendix D**.

3.2.2.2 Hand pitting

Hand pits were excavated using hand tools. Spoil was placed on plastic sheeting to prevent cross contamination and was reinstated in reverse order.

3.2.2.3 Soil logging and sampling

Soil samples were recovered from the boreholes and trial pits for field screening, logging and sampling.

Boreholes were logged in general accordance with the requirements of BS 5930:⁴ and BS EN ISO 14688⁵. Borehole logs are presented in **Appendix D**.

Visual and olfactory evidence of contamination was noted if encountered. These observations were used to aid scheduling of samples for chemical laboratory analyses, and are included on the borehole logs in **Appendix D**.

Samples were collected by hand (using dedicated nitrile gloves for each sampling location). Samples were placed into laboratory supplied sampling containers, specific to the type of analyses required.

All sample containers were sealed and labelled with a unique location identity, depth and date of sampling.

⁴ BS5930:2015+A1:2020 Code of Practice for Ground Investigation

⁵ BS EN ISO 14688 Parts 1-2 (2018) Geotechnical Investigation and Testing. Identification and classification of soil

3.2.3 Sampling and field tests

3.2.3.1 Soil sampling

Geoenvironmental soil samples were selected to ensure that near-surface exposure of human health via direct contact was targeted, as well as to spatially and vertically delineate possible sources of contamination.

Geotechnical soil samples were targeted to characterise the geological sequence, and to obtain characteristic soils properties and specific geotechnical design parameters as per the proposed development.

3.2.3.2 Standard penetration tests

Standard penetration tests were undertaken in the boreholes at 1.00 m centres to a depth of 10.00 mbgl, and every 1.50 m thereafter. In cohesive soils, SPT testing alternated with U100 sampling, in accordance with BS EN ISO 22476-3;2005. Uncorrected blow counts, 'N values', are recorded on the borehole logs in **Appendix D**.

3.2.4 Laboratory analysis

3.2.4.1 Geotechnical laboratory testing

Selected samples of the soils have been classified by laboratory analysis for geotechnical design purposes. The laboratory testing has been carried out by Geolabs Ltd at its laboratories in Watford, in accordance with BS13776 and BS EN ISO178927. The sampling technique, type, storage and transport and the number of laboratory tests have been undertaken where possible in accordance with BS EN 1997-2:2007 and BS EN ISO 224758. The consistency of cohesive soils (stiff – very stiff) prohibit the use of undisturbed Class 1 (Category A) samples, as such conventional U100 sampling techniques have been used. As such, these samples are not suitable for shear strength testing in accordance with Eurocode specification and the results should be used for guidance only.

The following laboratory tests have been undertaken:

⁶ BS1377 Parts 1-9:1990 Methods of test for Soils for Civil Engineering Purposes

⁷ BS EN ISO 17892 Parts 1-12 Geotechnical Investigation and Testing. Laboratory testing of soil

⁸ BS EN ISO 22475 Parts1-3 Geotechnical Investigation and Testing. Sampling methods and groundwater measurements

Table 2 Geotechnical laboratory testing

Test	Number of tests		
	Head	London Clay Formation	Harwich Formation
Moisture Content	3	1	-
Atterberg Limit Test	3	1	-
Sulphate Determination	-	10	6
pH	-	10	6
Undrained Triaxial Test	1	13	-

The geotechnical laboratory test results are provided in **Appendix E**.

3.2.4.2 Chemical soil analysis

Selected samples of soil were subjected to laboratory testing.

The suite of soil contaminant analysis took into account the contamination identified previously and the potential contaminants of concern identified in the CSM (heavy metals, PAHs, asbestos, petroleum hydrocarbons, pesticides). Soil samples were also analysed for pH and total organic carbon (TOC) to support the selection of assessment criteria in the subsequent quantitative risk assessment (QRA) for human health.

The laboratory testing also included selected samples for waste classification purposes to support the client with future materials management options, the results of these test will be reported under separate cover.

Sampling techniques and storage have been undertaken as per BS 10175:2011+A1:2013 Code of Practice for Investigation of Potentially Contaminated Sites. The laboratory testing was carried out by Envirolab. Where available, the tests for soils procedures were UKAS and MCERTS accredited.

The following analyses were completed on selected soil samples based on field observations and for general vertical and lateral coverage:

- 8 metals (As, Cd, Cr, CrVI, Cu, Pb, Hg, Ni, Se, Zn)
- 8 USEPA 16 PAHs
- 8 asbestos identification
- 6 organochlorine pesticide suites
- 8 pH
- 8 TOC
- 4 Waste Classification suites
- 2 Waste Acceptance Criteria (WAC) tests

3.3 Ground conditions

The ground conditions are described in detail in the logs attached in **Appendix D**. In summary the soil conditions were as follows:

Table 3: Summary of soils encountered

Depth From (m)	Depth To (m)	Soil Type	Description
GL	0.25 - 0.30	TOPSOIL	Dark brown slightly sandy silty clay. Sand is fine to medium. With rare to occasional gravel of sub-angular to sub-rounded fine to medium flint and rare brick. With frequent rootlets.
0.25 – 0.30	0.50 – 5.00	CLAY	Soft to firm brown and orange brown slightly sandy slightly gravelly silty CLAY. Sand is fine to medium, gravel is sub-angular to rounded flint. [HEAD] (Not encountered in BH206)
0.30 – 5.00	14.00 - >25.00	CLAY	Firm to very stiff thinly laminated dark grey slightly sandy CLAY. Sand is fine to medium with occasional selenite crystals. [LONDON CLAY FORMATION] Weathered brown mottled grey to a depth of 6.00-9.00 m
14.00 – 24.00	19.00 - >25.00	SAND	Dense to very dense grey to green grey slightly clayey fine to coarse locally glauconitic SAND with rare rounded medium flint gravel. [HARWICH FORMATION] Beds of dark grey slightly sandy rounded medium to coarse GRAVEL of flint encountered in BH204 (20.7-21.00 m) (Not encountered in BH201)
19.00 – 23.00	>25.00	CLAY	Very stiff dark grey very sandy silty CLAY. Sand is fine to coarse. With frequent shell fragments. [WOOLWICH FORMATION – LAMBETH GROUP] (Only encountered in BH204 and BH206 and possibly BH205)

Topsoil was encountered across the entire site to a depth of between 0.20-0.30 mbgl. The topsoil comprised dark slightly sandy silty clay. With rare to occasional gravel of sub-angular to sub-rounded fine to medium flint and rare brick. Head deposits were recorded underlying the topsoil to depths of between 0.50-5.00 mbgl. The Head deposits consisted of soft to firm brown and orange brown slightly sandy slightly gravelly silty clay. Gravel was sub-angular to rounded flint. The

thickness of the Head deposits varied across the site, and typically were thicker in the centre of the site towards the valley, with Head deposits not encountered at all in the south of the site (BH206).

Firm to very stiff thinly laminated dark grey slightly sandy clay of the London Clay Formation was recorded underlying the Head deposits to a depth of 14.00 m and to the full depth of BH201 (25.00 mbgl). The clay contained occasional selenite crystals and was weathered to a brown mottled grey colour to a depth of approximately 6.00-9.00 mbgl.

In every borehole except BH201, the underlying sands of the Harwich Formation were encountered to a depth of 19.00 mbgl and to the full depth of the investigation. These soils were recorded as dense to very dense grey to green grey slightly clayey fine to coarse locally glauconitic sand with rare rounded medium flint gravel. Rounded medium to coarse gravel beds were also encountered within the sands.

Within BH204 and BH206, very stiff dark grey very sandy silty clay, with frequent shell fragments was encountered underlying the sands to the full depth of the investigation. These clays are considered representative of the Woolwich Formation, of the Lambeth Group.

3.3.1.1 Groundwater

Groundwater strikes were recorded in the following boreholes:

Table 4: Groundwater strikes

Trial Hole	Date of water strike	Depth to Groundwater strike (mbGL)	Comments
BH202	28/02/2025	24.00	Rose to 7.40 mbgl after 20 minutes. At 7.00 mbgl at end of drilling
BH203	04/03/2025	21.50	Rose to 10.50 mbgl after 20 minutes. At 8.50 mbgl at end of drilling
BH204	05/03/2025	17.80	Rose to 10.80 mbgl after 20 minutes. At 6.60 mbgl at end of drilling
BH205	06/03/2025	14.00	Rose to 8.70 mbgl after 20 minutes.
BH206	10/03/2025	13.30	Rose to 8.40 mbgl after 20 minutes. At 8.00 mbgl at end of drilling

Groundwater strikes were encountered at depths of between 13.30 mbgl and 24.00 mbgl, or between -2.53 mAOD and -13.35 mAOD (above ordnance datum). Based on groundwater elevations, the groundwater beneath the site is estimated to flow towards the north.

4 GEOTECHNICAL INFORMATION

4.1 Strata encountered

4.1.1 Head Deposits

The topsoil was underlain by firm plastic clays to 0.50 - 5.00 m. The results of the geotechnical laboratory testing (from both previous investigations and the current investigation) are summarised in **Table 5** below.

Table 5: Summary of geotechnical test results for Head

Test	Range	
	Previous Investigations	Current Investigation
SPT 'N value'	4 - 10	4 - 9
Moisture Content (%)	20 - 36	29.8 – 34.4
Liquid Limit (%)	47 - 77	77 - 86
Plastic Limit (%)	19 - 29	27 - 31
Plasticity Index (%)	15 - 62	49 - 55
Undrained shear strength (kN/m ²)	-	71

SPT N values within the Head deposits during previous and the current investigation were recorded between 4 and 10, with a shear strength of 71 kPa determined from unconsolidated undrained triaxial testing. These results indicate a firm to stiff consistency for the clays.

Liquid limits ranged between 77% and 86%, indicating very high plasticity. Previous investigations also recorded lower liquid limits suggesting the clays range from high to very high plasticity.

4.1.2 London Clay Formation

The Head was underlain by firm to very stiff plastic clays to 14.00 - >25.00 m. The results of the geotechnical laboratory testing completed on the London Clay Formation (from both previous investigations and the current investigation) are summarised in **Table 6** below.

Table 6: Summary of geotechnical test results for London Clay Formation

Test	Range	
	Previous Investigations	Current Investigation
SPT 'N value'	7 - 26	7 - 50
Moisture Content (%)	23 - 37	28.6 – 33.3
Liquid Limit (%)	53 - 97	72 - 74
Plastic Limit (%)	22 - 34	24 - 29

Plasticity Index (%)	31 - 64	45 - 48
Undrained shear strength (kN/m ²)	78 - 171	83 - 290
Water soluble sulphate Content (g/l)	0.26 – 1.2	0.043 – 3.400
Total acid soluble sulphate (%)	-	0.068 – 0.56
pH	8.3 – 8.5	7.7 – 8.4

SPT N values ranged from between 7 - 50, with lab testing indicating shear strengths between 83-290 kPa. These results show the London Clay Formation soils range from firm to very stiff consistency, with shear strength increasing with depth.

Liquid limits between 53% and 74% indicate the clays are of high to very high plasticity.

4.1.3 Harwich Formation

The London Clay Formation was underlain by dense to very dense sands to 19.00 - >25.00 m across the southern part of the site. The results of the geotechnical laboratory testing completed on the Harwich Formation are summarised in **Table 7** below. The previous investigations did not progress into the underlying Harwich Formation.

Table 7: Summary of geotechnical test results for Harwich Formation

Test	Range
SPT 'N value'	33 - 50
Water soluble sulphate Content (g/l)	0.130 – 0.330
Total acid soluble sulphate (%)	0.031 – 0.062
pH	7.3 – 8.3

Within the sands of the Harwich Formation soils, SPT N values ranged between 33 and 50, indicating the sands were dense to very dense.

5 GEOTECHNICAL APPRAISAL

5.1 Geotechnical design

The foregoing geotechnical appraisal does not constitute a Geotechnical Design Report in accordance with BSEN1997. The following recommendations are for preliminary design purposes only.

For the detailed design, the short-term and long-term design situations must be considered. Where relevant, the following limit states should be considered:

- loss of equilibrium of the structure or the ground, considered as a rigid body, in which the strengths of structural material and the ground are significant in providing resistance (EQU)
- internal failure or excessive deformation of the structure or structural elements in which the strength of structural materials is significant in providing resistance (STR)
- failure or excessive deformation of the ground, in which the strength of soil or rock is significant in providing resistance (GEO)
- loss of equilibrium of the structure or the ground due to uplift by water pressure or other vertical actions (UPL)
- hydraulic heave, internal erosion and piping in the ground caused by hydraulic gradients (HYD).

The following factors should also be considered:

- overall stability and ground movements
- nature and size of the proposed construction including the design life
- conditions with regards to the surroundings (e.g. neighbouring structures, traffic, utilities, vegetation, contamination etc.)
- ground and groundwater conditions
- influence of the environment.

5.2 Geotechnical appraisal

5.2.1 Swelling and shrinkage

Based on the laboratory test results in Section 5, an overall classification of NHBC **HIGH** Volume Change Potential (VCP) is recommended for the clay soils.

Foundations will therefore require deepening in accordance with NHBC Chapter 4.2 where clay soils are encountered near trees. Foundation depths should be calculated based on the mature height of the tree, however, the existing height is relevant for trees which are to be removed.

The BGS GeoClimate study (UKCP18)⁹ indicates the potential change in subsidence due to changes in climate. The results project a 6.5% of properties will be affected by swelling and shrinkage by 2030, rising to 11% by 2070 (compared to 3% in 2020).

5.2.2 Sulphates

The potential for high levels of sulphates within the natural soils on site has been identified due to the underlying geology. In particular, construction activities that may substantially disturb previously unweathered strata and expose sulfur minerals such as pyrite to air, water and bacteria can result in the relatively rapid oxidation of such minerals producing high levels of sulphates. In accordance with the BRE¹⁰ methodology, 10 samples of the London Clay Formation and 6 samples of the Harwich Formation were therefore tested for water and acid soluble sulphate, total potential sulphate (TPS) and pH.

Based on the results of the testing, oxidisable sulphides (OS) are generally >0.3%, indicating pyrite is present. Using highest sulphate class calculated from both the water soluble sulphate and TPS, the soils are classified as Design Sulphate Class DS-4 and assuming static groundwater for the London Clay Formation, the ACEC class is AC-3s. Assuming mobile groundwater for the Harwich Formation, these soils will have a ACEC class of AC-4.

5.2.3 Groundwater

Groundwater strikes were encountered at depths of between 13.30 mbgl and 24.00 mbgl (-2.53 mAOD and -13.35 mAOD) within the sands of the Harwich Formation.

Long term groundwater monitoring was beyond the scope of works and would be required to fully assess the groundwater regime.

Winter groundwater levels are anticipated to rise in some areas of Southern England. Storage on site may be reduced and may make conventional soakaways inappropriate for this development.

5.2.4 Bearing capacity and foundations

5.2.4.1 Piling

For the ground conditions encountered on site, driven, bored or continuous flight augered (cfa) piles may be considered. However, given the proximity of adjacent buildings surrounding the site, driven piles may be excluded due to the vibrations induced during installation and the effect these may have on existing buildings. Therefore conventional bored or cfa piles may be more suitable.

If trees are to be removed, consideration of the effects of swelling of the clay soils and the potential for uplift should be considered. Allowance should be made for reinforcement of the upper half of the piles if uplift forces are anticipated.

⁹ <https://www.bgs.ac.uk/news/maps-show-the-real-threat-of-climate-related-subsidence-to-british-homes-and-properties/>

¹⁰ Building Research Establishment Special Digest 1: 2005. Concrete in aggressive ground. Part 1: Assessing the aggressive chemical environment.

It should be noted that for bored or cfa piles in dense granular soils, the method of installation can have a significant effect on the density of the surrounding soils and therefore the angle of shearing resistance that may be used for design. A reduction in angle of shearing resistance of in the region of 10-30% may occur, depending on the drilling techniques selected. The direct use of in-situ testing for design should therefore be carefully considered, particularly in accordance BS EN 1997. The most reliable method to obtain compliance with BS EN 1997 would be to use static load tests to obtain the ULS resistance.

Allowance should be made for negative skin friction loads where ground levels are to be raised.

Discussions should be held with the specialist piling contractors to assess the technical and financial merits of their various systems for the ground conditions encountered, and the depth and size of pile required, with an adequate safety margin.

The final pile design will be determined by the selected piling contractor as the method of pile formation will affect the bearing capacity. For the purpose of preliminary design, the following soil model may be adopted:

Table 8: Soil model for preliminary pile design

Depth to base (m)	Soil Type	Characteristic Shear Strength (kPa)	Angle of shearing resistance (°)
3.00	CLAY	-	-
7.00	CLAY	120	-
19.00	CLAY	195	-
24.00	SAND	-	41

The characteristic shaft resistance has been calculated from the average undrained shear strength, and for the purpose of preliminary calculations the top 3.00 m has been discounted. The characteristic base resistance has been calculated from the lower bound undrained shear strength relative to the pile length. Adopting the above model, example calculations suggest that a 10.00 m long 400 mm diameter cfa pile could have a design compressive resistance of around 200kN, with a 20.00 m long 400 mm diameter pile having a design compressive resistance of around 600kN. The final design must be carried out by the specialist contractor in accordance with their preferred method of formation.

5.2.5 Floor slabs

With reference to NHBC Standard 5.2, suspended floor slabs are recommended:-

- where the depth of fill exceeds 600 mm
- where foundations are deepened below 1.50 m in accordance with NHBC Standards Chapter 4.2

- where desiccated soils are encountered
- where vibratory ground improvement techniques have been used
- on sloping sites
- where foundations have been piled.

Suspended floor slabs are therefore recommended on site.

5.2.6 Excavations

Excavations in the silty clays should be stable in the short term. However, groundwater seepages should be anticipated along the more granular horizons and long term groundwater levels at or above 1.00 m below ground level should be anticipated. Excavations will therefore be unstable in the long term and should be backfilled as soon as possible. Allowance should be made for light pumping.

Appropriate Health and Safety precautions must be adhered to where man entry into excavations is required. Even stiff clay soils at shallow depth can collapse, particularly following wet weather. Alternative foundation methods may need to be adopted where trench footings cannot be safely or satisfactorily constructed.

5.2.7 Filling

The preliminary recommendations contained within this report assume that ground levels are to remain at a similar level across the site for the proposed development, and that no significant changes in level are proposed. In the event that ground levels are to be raised, this may induce significant settlement, which could adversely affect foundation design, drainage etc. Where significant changes in ground levels are proposed then further investigation will be required to assess the impact of such earthworks on the above recommendations. For residential developments where filling is proposed, further guidance on the technical requirements and recommendations for using engineered fill on the development is given in NHBC Standards Chapter 4.6¹¹.

5.2.8 Slope stability

The site development areas are relatively level, although it is noted slope gradients increase significantly (5-10°) outside the development area down to the Iwade stream. Provided no significant level changes are proposed and the development proposals remain as they are, no slope stability issues are anticipated. However, if significant levels changes are proposed or the proposed development extends towards the valley area, then global stability checks are recommended.

5.2.9 Settlement

Based on the presumed bearing resistance given in Section 5.2.4, settlements should be within typical tolerable limits for the low rise development proposed.

¹¹ NHBC Standards Chapter 4.6 Engineered Fill

If soft clays are encountered at formation level or below, significant settlement should be anticipated and serviceable limit state analyses will be required. For Geotechnical Category 2 and 3 structures, detailed settlement analyses are usually required.

At this stage it is assumed that ground levels will remain at the current level for the proposed development. If significant level raises are proposed, this may induce significant settlement in the natural soils and detailed settlement analyses will be required.

Where foundations are stepped or span different soil types, differential settlement should be anticipated and allowance should be made for nominal reinforcement.

5.2.10 Heave and uplift

In accordance with NHBC Standards Chapter 4.2, precautions against heave should be used where foundations are within the influence of trees and the resulting foundation depth is greater than 1.50 m. Compressible material must be provided against the inside faces of all external wall foundations greater than 1.50 m in depth. For pier and beam foundations, additional voids are required below ring beams.

For piled foundations, the effect of uplift induced by heave must be included in the pile design. Piles should be reinforced for the length of pile governed by the heave design, and allowance should be made for the inclusion of void former or similar on the underside of ground beams.

5.3 Geotechnical recommendations

Further assessment including a geotechnical design report will be required once the details of the proposed construction are known.

6 GEO-ENVIRONMENTAL QUANTITATIVE RISK ASSESSMENT

6.1 Revised conceptual site model

6.1.1 Introduction

The preliminary conceptual site model presented in the previous report by Ecologia (EES 19.286.1) identified a number of plausible contaminant linkages. The intrusive investigation works have been designed to confirm the site conditions.

Following completion of the site investigation no revisions to the CSM are considered necessary before carrying out the generic quantitative risk assessment (GQRA).

6.2 Human health risk assessment

6.2.1 Rationale and approach

The generic quantitative risk assessment (GQRA) for human health was conducted in line with the CLEA methodology by comparing the soil analytical results from the ground investigation with Generic Assessment Criteria (GAC). The GACs were selected using the rationale and assumptions provided in **Appendix G**.

Sets of soil GACs are available for SOMs of 1%, 2.5% and 6%. Using the conversion of SOM = TOC x 1.72.

As a conservative approach and given the number of samples tested, GACs have been selected based on 1% SOM for each soil population.

For some contaminants of concern, direct contact will be the dominant pathway for exposure. In order to support with development options, human exposure to all unsaturated soils, irrespective of depth, has been considered for the purpose of this assessment. This will maximise the information available to the design team on the suitability of all unsaturated material and can support with their materials management options.

The risk assessment did not include statistical analysis. CL:AIRE 2020¹² provides guidance on the appropriate sample sizes for particular statistical distributions of data and non-targeted soil sampling approaches. The number of soil samples collected in the site investigation indicates that statistics are not appropriate to use in this case.

The focus of the GQRA was chronic risks to human health because these often occur at lower doses than acute responses to exposure. Groundworkers during construction and future maintenance may be exposed to unacceptable levels of contamination. The CLEA assessment approach is designed to evaluate long term chronic exposure to contaminants and therefore, this approach is not appropriate for groundworkers who will be exposed for short durations on a site.

¹² CL:AIRE, 2020 'Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration.' CL:AIRE, Buckinghamshire. ISBN 978-1-905046-35-5.

As such, a GQRA was not undertaken to evaluate the potential for unacceptable exposure to groundworkers and future maintenance workers. A qualitative evaluation is however, provided in Section 6.2.3.

6.2.2 Evaluation of potential risks to future residents

The soils that were analysed comprised 13 topsoil and 7 subsoil samples. The laboratory analytical results were assessed to determine the potential risks to future site users under a generic residential land use scenario assuming that homegrown produce are consumed (resi HGP). The laboratory certificates are provided in **Appendix F**. A summary table is provided in **Table 9** below.

Table 9: Summary of soil contamination test results

Determinand	Number of samples	Number >LOD	Maximum Conc. (mg/kg unless otherwise stated)	Generic Assessment Criteria (mg/kg)	Number of Exceedances
METALS					
Arsenic	12	12	31	37	0
Beryllium	4	4	2.2	1.7	2 (BH201 at 0.40m and BH203 at 0.3m)
Cadmium	12	12	0.60	22	0
Chromium	12	12	55	910	0
Hexavalent Chromium	12	0	N/a	21	0
Copper	12	12	66	2,500	0
Lead	12	12	400	200	1 (BH206 at 0.50m)
Mercury ¹	12	11	0.69	39	0
Nickel	12	12	61	130	0
Selenium	12	12	2.9	258	0
Zinc	12	12	330	3,900	0
ASBESTOS					
Asbestos	12	0	N/a	Presence	0
HYDROCARBONS					
Benzo(a)pyrene	12	1	6.9	5	1 (HA209 at 0.15m)

Determinand	Number of samples	Number >LOD	Maximum Conc. (mg/kg unless otherwise stated)	Generic Assessment Criteria (mg/kg)	Number of Exceedances
Naphthalene	12	1	0.69	13	0
Total PAHs	12	0	79	n.v.	-
Total petroleum hydrocarbons	4	4	Various per carbon fraction	Various per carbon fraction	0
Pesticides					
Organochlorine Pesticides	6	1	0.87	n.v.	0

Notes to table

1. Assessment criterion based on inorganic mercury
2. As n.v. – no appropriate value

One exceedance of the GAC for lead (200mg/kg) was recorded within BH206 at a depth of 0.50 m in the natural clay. A concentration of 400 mg/kg was recorded within the sample. No other exceedances for lead were recorded in any of the other samples from the current investigation or previous investigations.

A marginal exceedance of the GAC for beryllium was recorded in 2 samples of natural subsoil, with a maximum concentration of 2.20 mg/kg, however this is below typical background soil concentrations of between 3.00 mg/kg and 6.00 mg/kg.¹³

The remaining samples tested for heavy metals did not record any other exceedances of their respective GAC values for a residential with home grown produce end use.

One other sample recorded a marginal elevated concentration (6.90 mg/kg) of the PAH, Benzo(a)pyrene, within the topsoil in HA209 at a depth of 0.15 m, compared to the GAC of 5.00 mg/kg for residential with home grown produce end use. No other samples from the current or previous investigations recorded elevated levels of PAHs, with the majority below the limit of detection.

The ratio of soil contaminant concentrations of genotoxic PAHs (benz(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(ah)anthracene, indeno(123-cd)pyrene and benzo(ghi)perylene) against benzo(a)pyrene have been compared against lower and upper limits set out in C4SL project methodology (CL:AIRE, 2014). All genotoxic PAH ratios were within the upper and lower bounds of the underlying toxicological study. Therefore, and in accordance with HPA guidance (HPA, 2010), the assessment of genotoxic PAHs has been based on the use of

¹³ Environment Agency, A Review of the Toxicity of Beryllium in Air, Science Report – SC020104/SR1, June 2008.

benzo(a)pyrene as a surrogate marker. Therefore, a risk from genotoxic PAHs is only considered likely if the respective benzo(a)pyrene concentrations exceed the relevant GAC.

6.2.3 Evaluation of potential risks to groundworkers

There is a legal duty for employers to ensure that suitable health and safety controls should be in place to protect groundworkers and they should evaluate the potential for exposure including using data provided in this report which should be included in any future Health and Safety file for the site under The Construction (Design and Management) Regulations 2015.

6.3 Geo-environmental conclusions

A geo-environmental assessment has been completed based on the intrusive works and chemical analysis completed during this recent phase investigation, together with previous phases of assessment by others.

The investigation works recorded no made ground across the site.

Chemical analysis of samples reported elevated levels of lead within one subsoil sample (BH206 at 0.50 m), and one elevated concentration of benzo(a)pyrene within topsoil (HA209 at 0.15 m). Marginal exceedances of the GAC for beryllium were recorded in the natural subsoil, however the concentrations are below typical background concentrations and not considered to pose a significant risk. No other exceedances of the GACs for a residential with home grown produce end use were recorded during the current or previous investigations.

6.4 Geo-environmental recommendations

The localised exceedances for lead and benzo(a)pyrene appear to be anomalous, therefore additional testing may be required to confirm the extent of any contamination around BH206 and HA209.

Following the additional investigation a remediation strategy to mitigate risks to the proposed development from identified contamination may be required.

The scope for any additional investigation and remediation strategy should be approved through the planning process prior to their instigation.

A final remediation method statement may be required once the final site designs are complete. This method statement should be submitted to the appropriate regulatory authorities. It is advised that the local authority is informed of the intended build programme in order that they can phase the sign off of planning conditions as required.

Provision should also be made for dealing with further localised hotspots of contamination which may come to light during construction. Any such soils should be inspected by the validation engineers and appropriate remedial action taken as necessary.

6.5 Waste reduction

6.5.1 Soil retention

Soil contain approximately three times as much carbon as the atmosphere. As such minimising its disturbance on site not only minimises the loss of soil for carbon storage but retaining as much soil as possible allows for biodiversity net gain and reduces the risk of surface flooding.

Where possible disturbance of soil functionality during earthworks needs to be minimised. Poorly managed soils that has been compacted in storage will have a degraded physical structure and reduced capacity to maintain above and below ground biodiversity.

The proposed layout indicates public open space is proposed and where possible the excavation from soils in these areas should be avoided.

6.5.2 Soil reuse

Prior to development, consideration should be given to any on-site materials and their potential for re-use as part of, or during construction of, the proposed development.

6.5.3 Topsoil re-use

Site-won topsoil is a resource and should, where possible, be treated as such to prevent damage to the soil structure. Where topsoil is to be stripped, stockpiled and re-used such activities should be undertaken during dry weather (generally June to September). Once stockpiled topsoil should be kept dry. Significant working of topsoil whilst wet can damage the soil structure, reducing the soils' ability to drain and resulting in anaerobic rather an aerobic soil conditions.

Anaerobic soil conditions can have a negative impact on plants and their roots, which will impact the ability of plants to take root once the soil has been placed for its proposed end use. Machinery tracking over recently placed topsoil should be avoided. Should prolonged poor storage result in degradation of the soil some treatment is likely to be required. This may include sand amelioration to improve the soil structure or the addition of composts to reduce nutrient deficiency.

Re-use of made ground and contaminated natural materials at the site, as well as importation of uncontaminated natural materials will require a Materials Management Plan (MMP) to be produced and a declaration made to CL:AIRE under DoWCoP. The declaration is required before any material movements are made and requires the RMS to have been approved through planning.

6.6 Waste disposal

Where there is no further reuse options and soils are to be disposed off-site, it is the duty of the waste producer, in this case Bellway Homes, to ensure that all waste is disposed of appropriately and that any that is sent to landfill is sent to an appropriately licensed one. All waste sent to landfill must be classified and must be pre-treated. There are various forms of pre-treatment that are acceptable. In this case it could include "reduction in volume", which could be achieved by segregating the Made Ground and re-using part of it on site.

Where made ground soil is to be re-used on site then it is recommended that this is carried out under the CL:AIRE Definition of Waste Industry Code of Practice (DoWCoP) for re-use of soils¹⁴.

Further testing and inspection of soils will be required to confirm waste classification of material leaving the site.

It is strongly advised that detailed discussions be held with remediation/groundworks contractors and that receiving landfill sites are identified in advance of commencing any waste removal.

¹⁴ The Definition of Waste: Development Industry Code of Practice. Version 2 2011. CL:AIRE

APPENDIX A – SERVICE CONSTRAINTS

APPENDIX A

SERVICE CONSTRAINTS

1. Service Constraints for all Reports

1.1. This Report (the "Report") and any study, inspection, investigation, sampling, testing and or interpretation carried out in connection with the Report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) trading as Carbon Zero Consulting, Leap Environmental or RSK Geosciences, for the Client named in the first paragraph of the Report (the "Client") in accordance with the terms of an RSK Fee Proposal including RSK Environment Standard Terms and Conditions (the "Appointment") between RSK and the Client, unless otherwise stated in the first paragraph of the Report. The Services were performed by RSK with the reasonable skill and care ordinarily exercised by a geo-environmental consultant at the time the Services were performed. Nothing in this Report shall be construed as imposing any fitness for purpose obligation. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the Client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the Client.

1.2 Other than that, expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services. RSK shall not be liable in respect of any action or proceedings arising out of or in connection with this Report whether in contract, in tort, for breach of statutory duty or otherwise after the expiry of six (6) years from either (i) the date of the Report or (ii) such earlier date as prescribed by law, unless varied in the terms of the Appointment.

1.3 Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the Client. RSK is not aware of any interest of or reliance by any party other than the Client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent, or condone any party, other than the Client relying upon the Services. Should this Report or any part of this Report, or details of the Services or any part of the Services, be made known to any such party, and such party relies thereon, that party does so wholly at its own and sole risk, and RSK disclaims any liability to such parties. Any such party would be well advised to seek independent advice from a competent geo-environmental consultant and/or lawyer.

1.4 The Client shall not, without the prior written consent of RSK, assign, transfer, charge, mortgage, subcontract, or deal in any other manner with all or any of the benefits provided in this Report. Unless specified in the Appointment, RSK shall not be obliged to assign the benefit of the Report whether by collateral warranty, third party rights pursuant to the Contracts (Rights of Third Parties) Act 1999, letter of reliance or otherwise. If RSK agrees to any assignment of the benefit of this Report, in whatever form, benefits to third parties through collateral warranties, third party rights or letters of reliance shall not be provided unless a fee for each right, warranty or letter is agreed. The form of wording used in the warranty or letter shall be provided by RSK for agreement by the Client. Any reasonable changes to the form of wording will be implemented by mutual agreement, however the terms in the warranty or letter cannot offer the third party any greater benefit than the Appointment offered to the Client.

1.5 It is the understanding of RSK that this Report is to be used for the purpose described in the introduction to the Report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the Report is used, or the proposed use of the site change, this Report may no longer be valid and any further use of or reliance upon the Report in those circumstances by the Client without the review and advice of RSK shall be at the Client's sole and own risk. RSK shall not be liable for any use of this Report for any purpose other than that for which it was provided.

1.6 The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the Report inaccurate or unreliable. The information and conclusions contained in this Report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the Report in the future shall be at the Client's own and sole risk.

1.7 The observations and conclusions described in this Report are based solely upon the Services which were provided pursuant to the agreement between the Client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out, or required by the Appointment between the Client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this Report, RSK did not seek to evaluate the presence on or off site of asbestos, invasive plants, electromagnetic fields, lead paint, heavy metals, radon gas, fuel storage, persistent bio-accumulative or toxic chemicals (including PFAS and related compounds) or other radioactive or hazardous materials, unless specifically identified in the Services.

1.8 The Services are based upon RSK's observations of existing physical conditions at the Site gained from a visual inspection of the site together with RSK's interpretation of desk based publicly available information, including documentation, obtained from third parties and from the Client on the history and usage of the site, unless specifically identified in the Services and the limitations below:

- a. The Services were based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely.
- b. The Services were limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the visual inspection.
- c. The Services did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the Client or third parties, including laboratories and information services, during the performance of the Services.
- d. The Client has identified in writing to RSK, the information, reports, findings, surveys and preliminary works RSK may not rely upon when providing the Services.

RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK, and including the doing of any independent investigation of the information provided to RSK, save as otherwise provided in the terms of the Appointment between the Client and RSK.

1.9 Any site drawing(s) provided in this Report is (are) not meant to be an accurate base plan for scale measurement but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for accurate setting out and should be considered indicative only.

1.10 Should RSK be requested to review the Report after the date of issue of this Report, RSK shall be entitled to additional payment at the existing rates, or such other terms as agreed between RSK and the Client.

2. Service Constraints where the Report provides an intrusive assessment of ground conditions:

2.1 The intrusive environmental ground investigation aspects of the Services are a limited sampling of soil from the site, at pre-determined locations based on the known historic / operational configuration of the site. The conclusions given in this Report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the properties of the materials adjacent and local conditions, together

with the position of any current structures and underground utilities and facilities, and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters (as stipulated in the scope agreed between the Client and RSK, based on an understanding of the available operational and historical information) and it should not be inferred that other chemical species (not tested) are not present.

2.2 The comments given in this Report and the opinions expressed are based on the ground conditions encountered during the site work and on the results of tests made in the field and in the laboratory. The extent of the exploratory holes, laboratory testing and monitoring undertaken may have been restricted due to a number of factors including accessibility, the presence of buried or overhead services, current development, site usage, timescales or the Client's specification. The exploratory holes only assess a small proportion of the site area with respect to the site as a whole, and as such may only provide an indicative assessment of ground conditions on site. There may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account. In particular, it should be noted that there may be areas of made ground not detected due to the limited nature of the investigation or the thickness and quality of made ground across the site may be variable. In addition, groundwater levels and ground gas concentrations and flows, may vary from those reported due to seasonal, or other, effects and the limitations stated in the data should be recognised. The presence of hotspots of undisclosed contamination or exceptional and unforeseen ground conditions cannot be discounted.

2.3 Where the Services include Investigation of an exploratory nature or relating to physical ground works, any costings and prices provided in the Report are estimated and provided for guidance purposes only. The actual cost and time quantities shall be remeasured and shall be dependent upon the ground or other conditions, constraints present, and number and depth of the investigation locations, which shall influence the number of samples and tests required, and the quantities of soil being classified.

2.4 Asbestos is often observed to be present in soils in discrete areas. Whilst asbestos-containing materials may have been locally encountered during the fieldworks or supporting laboratory analysis, the history of brownfield and demolition sites indicates that asbestos fibres may be present more widely in soils and aggregates, which could be encountered during more extensive ground works. However, this Report does not constitute an asbestos survey. On this basis, the presence of asbestos on site cannot be discounted and a full asbestos survey should be undertaken.

2.5 Unless stated otherwise, only preliminary geotechnical recommendations are presented in this Report and these should be verified in a Geotechnical Design Report, once proposed construction and structural design proposals are confirmed. Eurocode 7 gives guidance on the type of sampling, sample quality, number and spacing of intrusive investigations, and number of laboratory tests required. It is intended that the Geotechnical Information section of this Report will fulfil the general requirements of the Ground Investigation Report as set out in section 6 of Eurocode7, although this is subject to the restrictions imposed on the investigation, as listed above. For geotechnical design, Eurocode 7 requires the Geotechnical Design Report to address both the geotechnical and structural aspects of the geotechnical design for both the limit and serviceability states. The Geotechnical Appraisal section of this Report will not meet the requirements of a Geotechnical Design Report (GDR) and should therefore be used for preliminary guidance only.

3. Service Constraints where the Report relates to Surface Water Management:

3.1 The Surface Water Management Inspection (SWMI) Report, documents provided, observations, actions, and recommendations, with respect to the management of potential pollution issues to surface waters, made during the site Inspection visit, are those present at the time of the visit, and may not represent those recorded by others on the same day.

3.2 The comments given in this Report and the opinions expressed are based on the weather, ground and ground water conditions encountered during the site work and on the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not

been disclosed by the inspection and therefore could not be taken into account. In addition, groundwater levels and flows, may vary from those Reported due to seasonal, or other, effects and the limitations stated in the data should be recognised.

3.3 RSK places a degree of dependence upon oral information provided by site representatives, which is not readily verifiable through visual inspection, or supported by any available written documentation. RSK shall not be held responsible for conditions or consequences arising from relevant facts that were not fully disclosed by facility or site representatives at the time this Report was prepared.

3.4 This Report is a live document, to be continually reviewed and updated as the development progresses or other changes occur on site. RSK can only maintain the currency of this Report through the Client requesting support with supplementary site visits or attendance at meetings ahead of key stages of the development in relation to surface water management. Our risk rating assesses a number of risk factors in line with the source-pathway- receptor model and is therefore subject to constant change.

3.5 Standard design drawings are indicative. Material types, dimensions and construction details will need to be adjusted by the Client to suit the specific conditions / flows on Site.

3.6 The full responsibility for implementing the site-specific protection and maintenance measures to protect the surface water system as stated in this Report, remains with the Client and their site management team. Additional control measures may be required to achieve the objectives set out in the Surface Water Management Plan to be implemented and financed by the Client.

4. Service Constraints where the Report relates to Waste Management:

4.1 In accordance with the definition provided in the Waste Framework Directive (WFD), materials are only considered waste if 'they are discarded, intended to be discarded or required to be discarded, by the holder'. Naturally occurring soils are not considered waste if re-used on the site of origin for the purposes of development. Soils such as made ground that are not of clean and natural origin (irrespective of whether they are contaminated or not) and other materials such as recycled aggregate, do not necessarily become waste until the criteria above are met. Excavation arisings from the development may therefore be classified as waste if surplus to requirements and/or unsuitable for re-use.

4.2 It is the duty of the waste producer, to ensure that all waste is accurately classified prior to waste disposal. Technical Guidance WM3 (EA, 2018) sets out in its Appendix D requirements for waste sampling. It is a legal requirement to correctly assess and classify waste. The level of sampling should be proportionate to the volume of waste and its heterogeneity. Unless otherwise stated, the waste assessment presented in this Report should be considered as preliminary and further testing and assessment of the waste under the provisions of a Waste Sampling Plan may be required to obtain the necessary level of data required for basic characterisation of the waste in support of disposal.

4.3 Unless stated otherwise in the Report, information relating to historical operations at the site was not reviewed as part of the assessment by RSK. In addition, unless otherwise stated in the Services, RSK was not present during the collection of the samples nor had any input on the chemical testing suite. Therefore, the waste assessment and classification detailed in this Report are based solely on any information that were provided to RSK (e.g., laboratory chemical data, exploratory hole records) and were completed without prejudice for our Client.

4.4 RSK assumes that any ground investigation data, chemical testing results etc., that were provided by the Client to inform the waste assessment and supporting review were carried out in accordance with current best practice and relevant guidance/ standards, where applicable. Thus, the comments given in this Report and the opinions expressed are based solely on the information provided by the Client. However, it is noted that there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account as part of the RSK assessment.

5. Service Constraints for Construction Environmental Management Plan Reports:

5.1 This Report should be considered in the light of any changes in legislation, statutory requirement or industry practices that may have occurred subsequent to the date of issue.

5.2 The measures and comments outlined in this Report and any opinions expressed are based on the plans provided at the time and discussions with relevant parties. However, there may be conditions pertaining to the site that have not been disclosed by investigations and therefore could not be taken into account.

5.3 This CEMP is a live document and is subject to change throughout the project, as and when necessary, to ensure management of environmental aspects remains relevant, and to ensure continued compliance with legislation and commitments as they may change. RSK understands that this CEMP will be reviewed by the Client every six months and updated as and when necessary.

5.4 It is the full responsibility of the Principal Contractor/ Client to ensure that their works do not contravene legal requirements, and adherence to this CEMP alone cannot be a full defence regarding legal action against the Principal Contractor.

6. Service Constraints where the Report relates to Ground Gas Membrane Verification:

6.1 This Report is limited to the verification of the gas resistant membrane/vapour membrane/radon barrier after installation and no inspections were undertaken of the substrate (i.e. prepared ground). The Report therefore does not constitute as a full verification of ground gas protection system.

6.2 The comments given in this Report and the opinions expressed, are based on the condition of the ground gas membrane as encountered at the time of inspection by suitably qualified personnel. RSK cannot accept liability for any subsequent change to the status of the gas membrane by follow-on trades or other construction activity.

6.3 Where not designed by RSK, the verification of protection measures is carried out with reference to the gas protection design provided by the Client. RSK assume the scope of gas protection measures as determined by third parties to be correct and to have achieved any required approval from authorities.

6.4 The Ground Gas Design Report/Remediation Strategy and Verification Plan contains details of the procedures to be adopted for inspection and validation of the works. However, it should be noted that responsibility for the correct implementation of the strategy lies with the appointed contractor. RSK cannot be held responsible for any remedial works that are carried out without the agreed procedures involving either direct supervision by RSK, or inspection and validation of the works by a representative from RSK.

7. Service Constraints for Environmental Due Diligence (EDD) Reports:

7.1 The comments given in this Report and the opinions expressed are based on the information obtained and reviewed as part of the desk-based assessment. However, there may be conditions pertaining to the Site that have not been disclosed by the assessment and therefore could not be taken into account. Furthermore, no intrusive investigations, monitoring or sampling have been undertaken to confirm the environmental status of the site, therefore any comments relating to ground conditions and subsurface contamination are based solely on a review of desk-based information.

7.2 This Report describes the results of the EDD exercise. The scope of this EDD Report, where appropriate, covers legal or regulatory compliance with respect to UK or international regulations associated with environmental matters.

7.3 As with any EDD exercise, there is a certain degree of dependence upon information provided by the target company. The EDD does not include a site walkover / visit or liaison with site representatives unless identified in the Services. Therefore, the assessment is based on the available desk study information. Also, there is a certain degree of dependence upon oral information provided

by site representatives, which is not readily verifiable through visual inspection, or supported by any available written documentation. RSK shall not be held responsible for conditions or consequences arising from relevant facts that were not fully disclosed by facility or site representatives at the time this EDD exercise was performed.

7.4 This Report, including all supporting data and notes (collectively referred to hereinafter as "information"), was prepared or collected by RSK for the benefit of its Client.

7.5 The comments given in this Report and the opinions expressed are based on the information obtained and reviewed as part of the desk-based assessment and the site inspection visit. However, there may be conditions pertaining to the Site that have not been disclosed by the assessment and therefore could not be taken into account. Furthermore, no intrusive investigations, monitoring or sampling have been undertaken to confirm the environmental status of the Site therefore any comments relating to ground conditions and subsurface contamination are based solely on a review of desk-based information and observations collected during the site inspection visit.

8. Service Constraints for Ground source heat energy Reports:

8.1 It is understood that this is a desktop survey only and that there are no requirements for a site walkover, service utility survey, or provision of service plans. These services can be provided upon request if required.

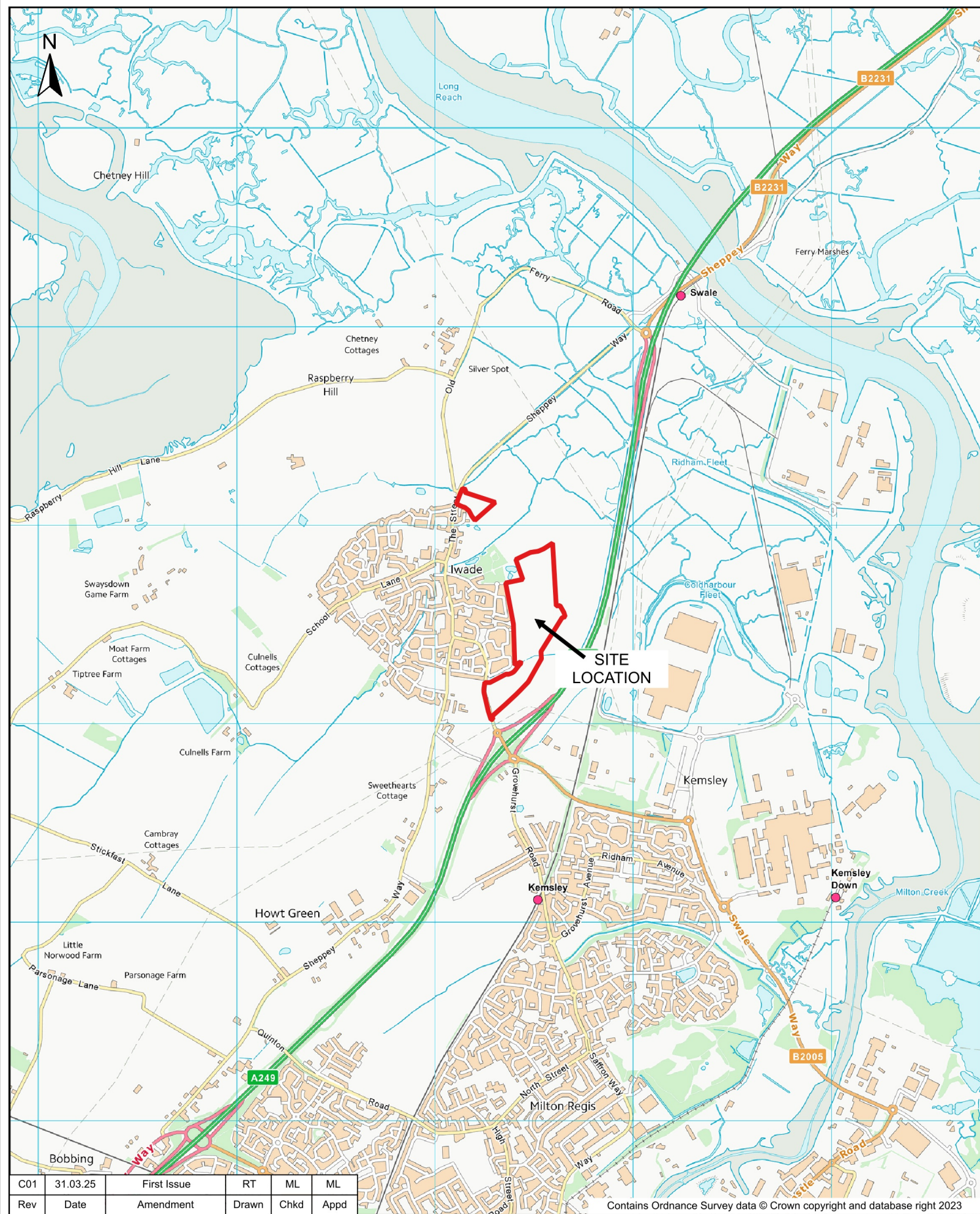
8.2 At a later stage, it is possible that a thermal response test (TRT) will need to be completed, for which a test borehole will have to be drilled, and these would be costed at the time. RSK can provide all aspects of subsequent site work for a GSHP system if required.

9. Service Constraints for Water Abstraction Borehole Reports:

9.1 The Report aims principally to only identify and assess the suitability of the site for a water abstraction borehole. This Report should be considered in the light of any changes in legislation, statutory requirements, and industry practices, that have occurred subsequent to the date of the Report.

9.2 Unless stated in the Report, the opinions expressed in this Report including all comments and recommendations provided are on the basis of the information obtained from a desk-based assessment.

APPENDIX B – FIGURES AND DRAWINGS



C01	31.03.25	First Issue	RT	ML	ML
Rev	Date	Amendment	Drawn	Chkd	Appd

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The Old Oast, Spelmonden Estate, Spelmonden Road,
Goudhurst, Kent, TN17 1HE

Client

Bellway Homes (South East)

Project Name

Land East of Iwade – Phase III Investigation

Description

Site Location Plan

Dimension	Size	Scale	Geolocation	Project ID	Drawing no	Rev	File name
m	A4	1:25,000	590522, 167656	3741272	11101	C01	3741272-LE-111-XX-D-G-11101-C01

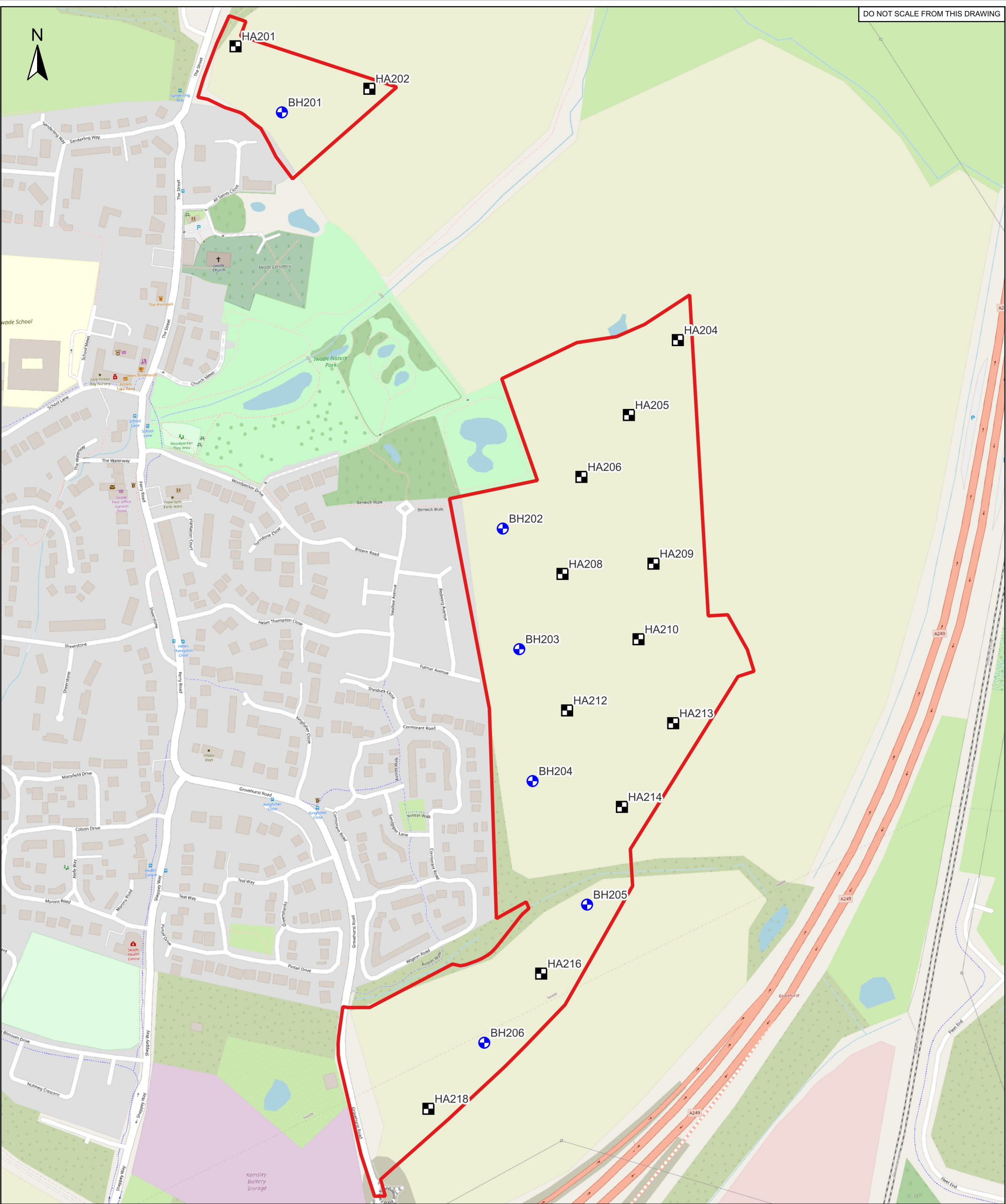


LEGEND

 Site Boundary

Notes:
Base plan provided by the Client
Drawing Ref: 4410 P003 'Site Layout Plan'

 leap environmental part of RSK Geosciences The Old Oast, Spelmonden Estate, Spelmonden Road, Goudhurst, Kent, TN17 1HE			Client			Bellway Homes (South East)																	
			Project Name			Land East of Iwade – Phase III Investigation						C01		31.03.25		First Issue		RT		ML		ML	
			Description			Proposed Development Plan						Rev		Date		Amendment		Drawn		Chkd		Appd	
Dimension		Scale		Size		Project ID		Drawing no.		Revision		File name		0306090120150 m 									
m		1:3,500		A4		3741272		11601		C01		3741272-LE-116-XX-D-G-11601-C01											



LEGEND

- Site Boundary
- Hand Dug Trial Pit Location
- Cable Percussion Borehole

Notes:
© OpenStreetMap contributors

 leap environmental part of RSK Geosciences The Old Oast, Spelmonden Estate, Spelmonden Road, Goudhurst, Kent, TN17 1HE	Client Bellway Homes (South East)										
	Project Name Land East of Iwade – Phase III Investigation					C01	07.04.25	First Issue	RT	ML	ML
	Description Exploratory Hole Location Plan					Rev	Date	Amendment	Drawn	Chkd	Appd
Dimension m	Scale 1:3,500	Size A4	Project ID 3741272	Drawing no. 22201	Revision C01	File name 3741272-LE-222-XX-D-G-22201-C01		0306090120150 m 			

APPENDIX C – PHOTOGRAPHIC RECORD



Plate 1: HA201 topsoil



Plate 2: HA209 topsoil



Plate 3: BH202 Head deposits



Plate 4: BH203 weathered London Clay



Plate 5: BH203 unweathered London Clay



Plate 6: BH203 Harwich Fm. sands



Plate 7: BH204 Harwich Formation gravels



Plate 8: BH204 Lambeth Group shelly clays

APPENDIX D – EXPLORATORY LOGS



Leap Environmental Ltd
The Atrium, Curtis Road
Dorking, Surrey RH4 1XA
Tel: 01306 646510
www.leapenvironmental.com

Borehole Log

Borehole No.

BH201

Sheet 1 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590192 - 168093

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Level: 9.32

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 26/02/2025 - 27/02/2025

Logged By
BK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES	N=05 (1,1/1,1,1,2)	0.30	9.02		TOPSOIL: Dark brown clay with frequent rootlets.	1
					0.50	8.82		Brown slightly sandy silty CLAY. Sand is fine to medium. With occasional sub-angular to sub-rounded fine to coarse gravels of flint.	
		1.00	D					Firm light brown CLAY with occasional pockets of sand sized fine to coarse selenite crystals.	
		1.20						Occasional fine sub-rounded gravels of flint between 0.50 and 1.00m depth.	
		1.20 - 1.65	SPTL S	N=10 (1,1/2,2,3,3)				No selenite crystals present between 0.50m and 2.00m depth.	2
		2.00	D						
		2.00 - 2.45	U					Becoming stiff from 2.00m depth.	
		2.50	D						
		3.00	D	N=15 (2,2/3,3,4,5)					3
		3.00							
		3.00 - 3.45	SPTL S						
		4.00	D						
		4.00 - 4.50	U	N=18 (2,2/3,4,5,6)					4
		4.50	D						
		5.00	D						
		5.00							
		5.00 - 5.45	SPTL S	N=15 (2,2/3,3,4,5)					5
		6.00	D						
		6.00 - 6.45	U						
		6.50	D						
		7.00	D	N=18 (2,2/3,4,5,6)					6
		7.00							
		7.00 - 7.45	SPTL S					Becoming very stiff from 7.00m depth.	
		8.00	D						
		8.00 - 8.45	U	N=15 (2,2/3,3,4,5)					7
		8.50	D		8.50	0.82			
		9.00	D					Stiff to very stiff dark grey slightly sandy CLAY. Sand is fine to medium. Occasional fine to medium selenite crystals.	
		9.00							
		9.00 - 9.45	SPTL S						
		10.00	D						8
									9
									10

Continued on next sheet

Remarks

Borehole cased to 25.00m in 150mm. Borehole remained dry and stable on completion. Backfilled with arisings.

AGS



Leap Environmental Ltd
The Atrium, Curtis Road
Dorking, Surrey RH4 1XA
Tel: 01306 646510
www.leapenvironmental.com

Borehole Log

Borehole No.

BH201

Sheet 2 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590192 - 168093

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

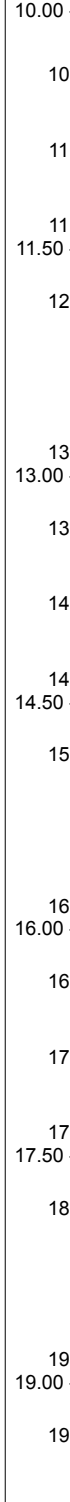
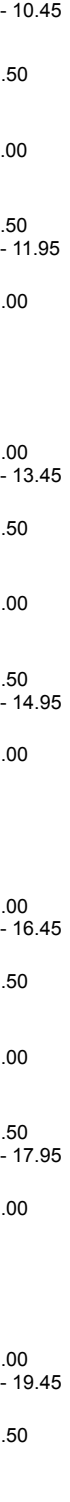
Level: 9.32

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 26/02/2025 - 27/02/2025

Logged By
BK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		10.00 - 10.45	U	N=20 (2,3/4,4,6,6)						
		10.50	D							
		11.00	D							
		11.50								
		11.50 - 11.95	SPTL S							Becoming very stiff from 11.50m depth.
		12.00	D							
		13.00	D	N=21 (2,3/4,4,6,7)						
		13.00 - 13.45	U							
		13.50	D							
		14.00	D							
		14.50								
		14.50 - 14.95	SPTL S							
		15.00	D	Hand Penetrometer UCS at 15.00m depth = 550kPa						
		16.00	D	N=27 (3,4/6,6,7,8)						
		16.00 - 16.45	U							
		16.50	D							
		17.00	D							
		17.50								
		17.50 - 17.95	SPTL S							
		18.00	D	Hand Penetrometer UCS at 18.00m depth = 530kPa						
		19.00	D							
		19.00 - 19.45	U							
		19.50	D							
		20.00	D							
		Continued on next sheet								

Becoming very stiff from 11.50m depth.

Hand Penetrometer UCS at 15.00m depth = 550kPa

Hand Penetrometer UCS at 18.00m depth = 530kPa

Continued on next sheet

Remarks

Borehole cased to 25.00m in 150mm. Borehole remained dry and stable on completion. Backfilled with arisings.





Leap Environmental Ltd
The Atrium, Curtis Road
Dorking, Surrey RH4 1XA
Tel: 01306 646510
www.leapenvironmental.com

Borehole Log

Borehole No.

BH201

Sheet 3 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590192 - 168093

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

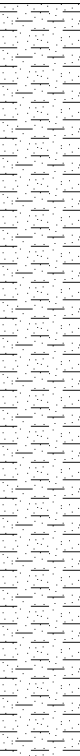
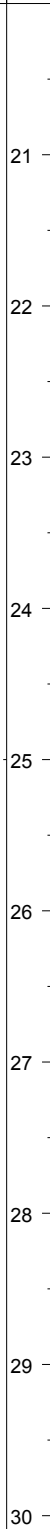
Level: 9.32

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 26/02/2025 - 27/02/2025

Logged By
BK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description									
		Depth (m)	Type	Results													
		20.50	SPTL S D	N=24 (3,4/5,6,6,7)	25.00	-15.68		<u>Hand Penetrometer UCS at 20.00m depth = >600kPa</u>									
		20.50 - 20.95															
		21.00															
		22.00	D U D	N=28 (3,4/6,7,7,8)				<u>Hand Penetrometer UCS at 22.00m depth = >600kPa</u>									
		22.00 - 22.45															
		22.50															
		23.00	SPTL S D														
		23.50															
		23.50 - 23.95															
		24.00	D U D														
		25.00															
		25.00 - 25.45	End of borehole at 25.00 m														
		25.50	D U D														
		25.50															
		25.50															
		25.50	D U D														
		25.50															
		25.50															
		25.50	D U D														
		25.50															
		25.50															
		25.50															

Remarks

Borehole cased to 25.00m in 150mm. Borehole remained dry and stable on completion. Backfilled with arisings.





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Borehole Log

Borehole No.

BH202

Sheet 1 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590410 - 167682

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Level: 10.65

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 27/02/2025 - 28/02/2025

Logged By
BK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.35	ES		0.30	10.35		TOPSOIL: Dark brown slightly sandy silty CLAY with frequent rootlets. Sand is fine to medium.	1
		1.00	D					Firm light brown mottled orange grey slightly gravelly slightly sandy CLAY. Sand is fine to medium. Gravel is sub-rounded to rounded flint. Occasional black organic inclusions.	
		1.20 - 1.65	SPTL S	N=05 (1,1/1,1,1,2)				Occasional rootlets between 0.3m and 1.0m depth.	
		2.00	D		2.00	8.65		Firm brown mottled grey slightly sandy CLAY. Sand is fine. Occasional black organic inclusions.	2
		2.00 - 2.45	SPTL S	N=07 (1,1/1,1,2,3)				Hand Penetrometer UCS at 2.00m depth = 206kPa.	
		3.00	D						3
		3.00 - 3.45	SPTL S						
		3.00 - 3.45	U						
		4.00	D						4
		4.00	SPTL S	N=12 (1,2/3,2,3,4)				Hand Penetrometer UCS at 4.00m depth = 286kPa. Becoming stiff from 4.00m depth.	
		4.00 - 4.50	SPTL S						
		5.00	D						5
		5.00	SPTL S	N=14 (1,2/2,3,4,5)					
		5.00 - 5.45	SPTL S						
		6.00	D						6
		6.00 - 6.45	U					Hand Penetrometer UCS at 6.00m depth = 383kPa. Potential sand sized fine selenite crystals at 6.00m depth.	
		6.50	D						
		7.00	D						7
		7.00	SPTL S	N=20 (1,2/4,4,6,6)				Becoming very stiff from 7.00m depth.	
		7.00 - 7.45	SPTL S						
		8.00	D						8
		8.00	SPTL S	N=19 (2,2/4,4,4,7)				Hand Penetrometer UCS at 8.00m depth = 433kPa.	
		8.00 - 8.45	SPTL S						
		9.00	D		9.00	1.65		Very stiff grey slightly sandy CLAY. Sand is fine to medium. with occasional selenite crystals.	9
		9.00 - 9.45	U						
		9.50	D						
		10.00	D						10

Continued on next sheet

Remarks

Borehole cased to 25.00m in 150mm. Groundwater encountered at 24.00m, rising to 7.20m after 20 minutes. Groundwater standing at 7.00m on completion. Backfilled with arisings.





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Borehole Log

Borehole No.

BH202

Sheet 2 of 3

Project Name:	Land East of Iwade - Phase 3	Project No.	3741272	Co-ords:	590410 - 167682	Hole Type	CP
Location:	Land East of Iwade, Sittingbourne, Kent, ME9 8SJ	Level:	10.65			Scale	1:50
Client:	Bellway Homes Ltd. (Kent)	Dates:	27/02/2025 - 28/02/2025			Logged By	BK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.00		N=18 (1,2/3,4,5,6)				Hand Penetrometer UCS at 10.00m depth = 550kPa.	
		10.00 - 10.45	SPTL S						
		11.00	D						11
		11.50		N=23 (2,4/4,5,6,8)					
		11.50 - 11.95	SPTL S						
		12.00	D					Hand Penetrometer UCS at 12.00m = 583kPa.	12
		13.00							
		13.00 - 13.45	D U						13
		13.50	D						
		14.00	D						14
		14.50		N=24 (2,4/5,6,6,7)					
		14.50 - 14.95	SPTL S						
		15.00	D					Hand Penetrometer UCS at 15.00m = >600kPa.	15
		16.00							
		16.00 - 16.45	D U					Becoming more brittle below 16.00m depth.	16
		16.50	D					Hand Penetrometer UCS at 16.50m depth = >600kPa.	
		17.00	D						17
		17.50		N=29 (2,5/6,7,7,9)					
		17.50 - 17.95	SPTL S						
		18.00	D						18
		19.00							
		19.00 - 19.45	D U					Pockets of coarse sand sized selenite crystals at 19.00m depth.	19
		19.50	D						
		20.00	D						20
								Continued on next sheet	

Remarks

Borehole cased to 25.00m in 150mm. Groundwater encountered at 24.00m, rising to 7.20m after 20 minutes.
Groundwater standing at 7.00m on completion. Backfilled with arisings.





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Borehole Log

Borehole No.

BH202

Sheet 3 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590410 - 167682

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Level: 10.65

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 27/02/2025 - 28/02/2025

Logged By
BK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		20.50		N=35 (3,7/7,8,9,11)				Hand Penetrometer UCS at 20.00m depth = >600kPa	
		20.50 - 20.95	SPTL S						
		21.00	D						21
		22.00	D	N=38 (3,6/7,9,9,13)					22
		22.00	SPTL S						
		22.00 - 22.45							
		23.00	D						23
		23.50		N=50 (5,9/12,16,22,0)					
		24.00	D		24.00	-13.35		Very dense grey clayey fine to coarse SAND. Occasional Pockets of grey clay at 24.00m depth. Hand Penetrometer UCS at 24.00m depth = >600kPa	24
		25.00	D	N=40 (3,4/5,6,11,18)	25.00	-14.35			25
		25.00	SPTL S					End of borehole at 25.00 m	
		25.00 - 25.45							26
									27
									28
									29
									30

Remarks

Borehole cased to 25.00m in 150mm. Groundwater encountered at 24.00m, rising to 7.20m after 20 minutes.
Groundwater standing at 7.00m on completion. Backfilled with arisings.





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Borehole Log

Borehole No.

BH203

Sheet 1 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590426 - 167563

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Level: 10.77

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 03/03/2025 - 04/03/2025

Logged By
BK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30			0.30	10.47		TOPSOIL: Dark brown slightly sandy silty clay with frequent rootlets and root material. Sand is fine. Rare sub-rounded medium flint gravels and wood fragments.	
		0.50	ES					Soft to firm orange brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is sub-rounded to rounded fine to coarse flint. With occasional black organic inclusions.	1
		1.00	D						
		1.20							
		1.20 - 1.65	SPTL S	N=04 (1,0/1,1,1,1)					
		2.00	D						2
		2.00 - 2.45	U					Hand Penetrometer UCS at 2.00m depth = 113kPa.	
		2.50	D						
		3.00	D						3
		3.00						Hand Penetrometer UCS at 3.00m depth = 186kPa.	
		3.00 - 3.45	SPTL S	N=09 (1,2/2,2,2,3)				Becoming stiff at 3.00m depth.	
		4.00	D		4.00	6.77			4
		4.00						Stiff dark brown mottled orange brown slightly sandy CLAY. Sand is fine to medium. With occasional selenite crystals.	
		4.00 - 4.45	SPTL S	N=09 (1,1/1,2,2,4)				Hand Penetrometer UCS at 4.00m depth = 316kPa.	
								Occasional light brown sandy pockets at 4.00m depth.	
		5.00	D						5
		5.00 - 5.45	U						
		5.50	D						
		6.00	D						6
		6.00						Hand Penetrometer UCS at 6.00m depth = 436kPa.	
		6.00 - 6.45	SPTL S	N=18 (1,2/3,4,5,6)				Becoming very stiff from 6.00m depth.	
		7.00	D						7
		7.00						Occasional black inclusions with potential white selenite crystals at 7.00m depth.	
		7.00 - 7.45	SPTL S	N=21 (2,2/4,5,5,7)					
		8.00	D		8.00	2.77			8
		8.00 - 8.45	U					Very stiff dark grey slightly sandy CLAY. Sand is fine to medium. With occasional selenite crystals.	
		8.50	D					Hand Penetrometer UCS at 8.00m depth = 453kPa.	
		9.00	D						9
		9.00						Hand Penetrometer UCS at 9.00m depth = 560kPa.	
		9.00 - 9.45	SPTL S	N=22 (2,3/4,5,6,7)					
		10.00	D						10

Continued on next sheet

Remarks

Borehole cased to 17.95m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 21.50m, risings to 10.50m after 20 minutes. Groundwater standing at 8.50m on completion. Backfilled with arisings.





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Borehole Log

Borehole No.

BH203

Sheet 2 of 3

Project Name:	Land East of Iwade - Phase 3	Project No.	3741272	Co-ords:	590426 - 167563	Hole Type	CP
Location:	Land East of Iwade, Sittingbourne, Kent, ME9 8SJ	Level:	10.77	Scale	1:50	Logged By	BK
Client:	Bellway Homes Ltd. (Kent)	Dates:	03/03/2025 - 04/03/2025				

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.00		N=22 (2,3/5,5,6,6)					
		10.00 - 10.45	SPTL S						
		11.00	D						11
		11.50 - 11.95	U						
		12.00	D						12
		13.00	D						
		13.00		N=27 (2,4/5,6,8,8)					13
		13.00 - 13.45	SPTL S						
		14.00	D						14
		14.00 - 14.45	U						
		15.00	D						15
		16.00	D						16
		16.00		N=30 (2,4/6,7,8,9)					
		16.00 - 16.45	SPTL S						
		17.00	D						17
		17.50 - 17.95	U						
		18.00	D						18
		19.00	D						19
		19.00		N=30 (2,4/6,6,8,10)					
		19.00 - 19.45	SPTL S						
		20.00	D						20

Hand Penetrometer UCS at 12.00m = 576kPa.

Hand Penetrometer UCS at 15.00m = >600kPa.
Occasional pockets of potential selenite crystals at 15.00m depth.

Continued on next sheet

Remarks

Borehole cased to 17.95m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 21.50m, risings to 10.50m after 20 minutes. Groundwater standing at 8.50m on completion. Backfilled with arisings.





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Borehole Log

Borehole No.

BH203

Sheet 3 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590426 - 167563

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

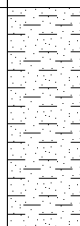
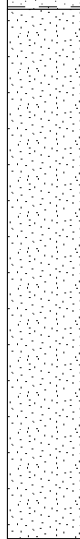
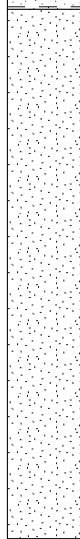
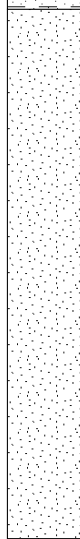
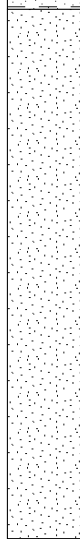
Level: 10.77

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 03/03/2025 - 04/03/2025

Logged By
BK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description					
		Depth (m)	Type	Results									
		20.50	SPTL S D	N=41 (5,6/8,8,12,13)	21.50	-10.73		Hand Penetrometer UCS at 20.00m depth = 600kPa.	21				
		20.50 - 20.95											
		21.00						Becoming sandy CLAY below 21.00m depth.					
		22.00	SPTL S D	N=33 (6,10/10,12,6,5)			25.00	-14.23		Dense dark grey clayey fine to coarse SAND.	22		
		22.00											
		22.00 - 22.45											
		23.00	SPTL S D	N=50 (10,15/30,20,0,0)					25.00	-14.23		Becoming very dense from 23.50m depth.	23
		23.50											
		23.50 - 23.95											
		24.00	SPTL S D	N=50 (10,15/30,20,0,0)							25.00	-14.23	
24.00													
24.00													
25.00	SPTL S D	N=50 (25,0/50,0,0,0)	25.00	-14.23		End of borehole at 25.00 m							25
25.00													
25.00 - 25.45													
										27			
										28			
										29			
										30			

Remarks

Borehole cased to 17.95m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 21.50m, risings to 10.50m after 20 minutes. Groundwater standing at 8.50m on completion. Backfilled with arisings.





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Borehole Log

Borehole No.

BH204

Sheet 1 of 3

Project Name:	Land East of Iwade - Phase 3	Project No.	3741272	Co-ords:	590439 - 167433	Hole Type	CP
Location:	Land East of Iwade, Sittingbourne, Kent, ME9 8SJ	Level:	9.77	Scale	1:50	Logged By	MCL
Client:	Bellway Homes Ltd. (Kent)	Dates:	04/03/2025 - 05/03/2025				

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES		0.30	9.47		TOPSOIL: Dark brown slightly sandy slightly gravelly silty clay with frequent rootlets and root material. Sand is fine to medium. Gravel is fine to coarse sub-angular to sub-rounded flint.	
		1.00	D					Firm orange brown mottled grey slightly gravelly slightly sandy CLAY. Sand is fine to medium. Gravel is sub-angular to sub-rounded fine to coarse flint.	1
		1.20 - 1.65	U						
		1.70	D						
		2.00	D						
		2.00		N=07 (1,1/1,2,2,2)				Hand Penetrometer UCS at 2.00m depth = 190kPa. Becoming less gravelly below 2.00m depth.	2
		2.00 - 2.45	SPTL S						
		3.00	D					Pocket of coarse sand sized potential selenite crystals at 3.00m to 4.00m depth.	3
		3.00		N=08 (1,1/1,2,2,3)					
		3.00 - 3.45	SPTL S						
		4.00	D						
		4.00 - 4.45	SPTL S					Hand Penetrometer UCS at 4.00m depth = 310kPa.	4
		4.50	D						
		5.00	D		5.00	4.77		Very stiff dark grey silty CLAY with frequent pockets of fine selenite crystals. With occasional orange iron staining between 5.00-6.00m depth	5
		5.00		N=19 (2,2/3,5,5,6)					
		5.00 - 5.45	SPTL S						
		6.00	D						
		6.00		N=15 (2,2/3,4,4,4)					6
		6.00 - 6.45	SPTL S						
		7.00	D						
		7.00 - 7.45	U						7
		7.50	D						
		8.00	D						
		8.00		N=16 (1,2/3,4,4,5)					8
		8.00 - 8.45	SPTL S						
		9.00	D						
		9.00		N=19 (2,2/4,4,5,6)					9
		9.00 - 9.45	SPTL S						
		10.00	D						10

Continued on next sheet

Remarks

Borehole cased to 17.95m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 17.80m depth, rising to 10.80m after 20 minutes. Groundwater standing at 6.60m on completion. Backfilled with arisings.





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Borehole Log

Borehole No.

BH204

Sheet 2 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590439 - 167433

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Level: 9.77

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 04/03/2025 - 05/03/2025

Logged By
MCL

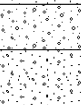
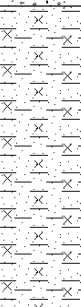
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description									
		Depth (m)	Type	Results													
		10.00 - 10.45	U	N=21 (2,2/4,4,5,8)	19.00	-9.23		Becoming slightly sandy from 10.00m depth. Sand is fine.	11								
		10.50	D														
		11.00	D														
		11.50	SPTL S														
		11.50 - 11.95															
		12.00	D					12									
		13.00	D	N=25 (2,3/5,5,7,8)					13								
		13.00 - 13.45	U														
		13.50	D														
		14.00	D						14								
		14.50	SPTL S														
		14.50 - 14.95															
		15.00	D						15								
		16.00	D	N=50 (5,9/30,20,0,0)					16								
		16.00 - 16.45	U														
		16.50	D														
		17.00	D						17								
		17.50	SPTL S														
		17.50 - 17.95															
		18.00	D						18								
		19.00	D	N=50 (12,13/35,15,0,0)					19								
		19.00															
		19.00 - 19.45	SPTL S														
		20.00	D						20								

Continued on next sheet

Remarks

Borehole cased to 17.95m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 17.80m depth, rising to 10.80m after 20 minutes. Groundwater standing at 6.60m on completion. Backfilled with arisings.



 Leap Environmental Ltd The Atrium, Curtis Road Dorking, Surrey RH4 1XA Tel: 01306 646510 www.leapenvironmental.com					Borehole Log			Borehole No. BH204 Sheet 3 of 3		
Project Name: Land East of Iwade - Phase 3					Project No. 3741272		Co-ords: 590439 - 167433		Hole Type CP	
Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ					Level: 9.77		Scale 1:50			
Client: Bellway Homes Ltd. (Kent)					Dates: 04/03/2025 - 05/03/2025		Logged By MCL			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		20.50		N=50 (25,0/18,23,9,0)	20.70	-10.93		Becoming very clayey with occasional shell fragments from 20.00m depth.		
	20.50 - 20.95	SPTL		21.00	-11.23			Dark grey slightly sandy rounded medium to coarse GRAVEL of flint with occasional rounded flint cobbles.	21	
	20.70 - 21.00	S							Very dense grey medium to coarse SAND with rare rounded medium flint gravel.	
	21.00	B								
	22.00	D							22	
	22.00			N=50 (10,15/50,0,0,0)						
	22.00 - 22.45	SPTL								
		S								
	23.00	D		23.00	-13.23		Very dense dark grey very sandy silty CLAY with frequent shell fragments.	23		
	23.50									
23.50 - 23.95	SPTL		N=50 (10,10/12,15,23,0)							
24.00	S								24	
		25.00	D		25.00	-15.23		End of borehole at 25.00 m	25	
	25.00			N=50 (6,10/22,28,0,0)						
	25.00 - 25.45	SPTL							26	
									27	
									28	
									29	
									30	
Remarks Borehole cased to 17.95m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 17.80m depth, rising to 10.80m after 20 minutes. Groundwater standing at 6.60m on completion. Backfilled with arisings.										



 Leap Environmental Ltd The Atrium, Curtis Road Dorking, Surrey RH4 1XA Tel: 01306 646510 www.leapenvironmental.com					Borehole Log			Borehole No. BH205 Sheet 1 of 3		
Project Name: Land East of Iwade - Phase 3					Project No. 3741272		Co-ords: 590493 - 167311		Hole Type CP	
Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ					Level: 7.90		Scale 1:50			
Client: Bellway Homes Ltd. (Kent)					Dates: 06/03/2025 - 07/03/2025		Logged By MCL			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.40	ES	N=04 (1,2/1,1,1,1)	0.30	7.60	 TOPSOIL: Dark brown silty clay. With frequent rootlets and rare fine flint gravel and brick fragments.  Firm orange brown slightly sandy silty CLAY. Sand is fine to medium. <i>Hand Penetrometer UCS at 0.50m = 250kPa.</i>	1		
		1.00	D		1.20	6.70			 Soft to firm blue grey mottled orange brown thinly laminated silty CLAY. <i>With occasional thin bands of fine carbonate gravel between 1.0-2.0m depth.</i> <i>Hand Penetrometer UCS at 1.50m = 260kPa.</i>	
		1.20	SPTL							
		1.20 - 1.65	S							
		2.00	D	N=08 (1,1/1,2,2,3)	6.00	 <i>Hand Penetrometer UCS at 2.50m = 340kPa.</i>	2			
		2.00 - 2.45	D							
		2.50	D							
		3.00	D							
		3.00	SPTL	N=12 (2,2/2,3,3,4)	6.00	 <i>Hand Penetrometer UCS at 3.50m = >600kPa.</i>	3			
		3.00 - 3.45	S							
		4.00	D							
		4.00 - 4.45	D							
		4.50	D	N=14 (1,2/2,3,4,5)	6.00	 Stiff grey silty CLAY with occasional fine selenite crystals.	4			
		5.00	D							
		5.00	SPTL							
		5.00 - 5.45	S							
6.00	D	N=17 (1,3/3,4,4,6)	6.00	 Stiff grey silty CLAY with occasional fine selenite crystals.	5					
6.00 - 6.45	D									
6.50	D									
7.00	D									
7.00	SPTL	N=17 (1,3/3,4,4,6)	6.00	 Stiff grey silty CLAY with occasional fine selenite crystals.	6					
7.00 - 7.45	S									
8.00	D									
8.00 - 8.45	D									
8.50	D	N=17 (1,3/3,4,4,6)	6.00	 Stiff grey silty CLAY with occasional fine selenite crystals.	7					
9.00	D									
9.00	SPTL									
9.00 - 9.45	S									
10.00	D	N=17 (1,3/3,4,4,6)	6.00	 Stiff grey silty CLAY with occasional fine selenite crystals.	8					
10.00	D									
							Continued on next sheet	10		

Remarks
Borehole cased to 14.50m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 14.00m depth, rising to 8.70m after 20 minutes. Groundwater standing at 2.10m on completion. Very dense sands stopped progress at 23.50m depth. Backfilled with arisings.





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Borehole Log

Borehole No.

BH205

Sheet 2 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590493 - 167311

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

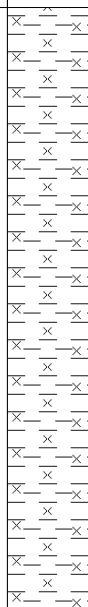
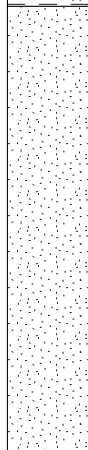
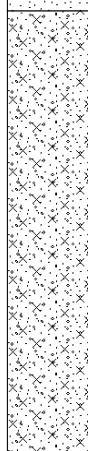
Level: 7.90

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 06/03/2025 - 07/03/2025

Logged By
MCL

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.00 - 10.45	U	N=23 (2,3/4,6,5,8)	14.00	-6.10			11
		10.00 - 10.45	U						
		10.50	D						
		11.00	D						
		11.50	SPTL S						
		11.50 - 11.95							
		12.00	D						12
		13.00	D						
		13.00 - 13.45	U						
		13.50	D						13
		14.00	D						
		14.50	SPTL S						
		14.50 - 14.95							
		15.00	D				14		
		16.00	D						
		16.00	SPTL S						
		16.00 - 16.45							
		17.00	D	17.00	-9.10		Very dense green grey fine to medium SAND.	14	
		14.50	N=50 (10,15/25,25,0,0)						
		14.50 - 14.95							
		15.00	D						15
		16.00	D						
		16.00	N=50 (12,13/25,25,0,0)						
		16.00		SPTL S					
		16.00 - 16.45							
		17.00	D	17.00	-9.10		Very dense grey green slightly gravelly silty fine to medium SAND. Gravel is sub-rounded to rounded fine to coarse flint with frequent shell fragments.	17	
		17.50	N=50 (9,16/50,0,0,0)						
17.50 - 17.95									
17.50 - 18.00	SPTL S								
18.00		D	18						
19.00	D								
19.00	N=50 (4,8/13,20,17,0)								
19.00 - 19.45									
19.00 - 19.45	SPTL S	19							
20.00	D		20						

Continued on next sheet

Remarks

Borehole cased to 14.50m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 14.00m depth, rising to 8.70m after 20 minutes. Groundwater standing at 2.10m on completion. Very dense sands stopped progress at 23.50m depth. Backfilled with arisings.





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Borehole Log

Borehole No.

BH205

Sheet 3 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590493 - 167311

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Level: 7.90

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 06/03/2025 - 07/03/2025

Logged By
MCL

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		20.50		N=50 (5,6/9,10,13,18)				With increasing amounts of shell fragments below 20.00m depth. Becoming occasional gravels of flint below 20.00m depth.	21
		20.50 - 20.95	SPTL						
		21.00	S						
			D						
		22.00	D						22
		22.00		N=50 (10,15/50,0,0,0)				With pockets of dark grey clay at 22.00m depth.	
		22.00 - 22.45	SPTL						
			S						
		23.00	D					Occasional sub-rounded medium to coarse gravels of sandstone at 23.00m depth.	23
		23.50		N=50 (14,11/50,0,0,0)	23.50	-15.60		End of borehole at 23.50 m	
		23.50 - 23.95	SPTL						24
			S						25
									26
									27
									28
									29
									30

Remarks

Borehole cased to 14.50m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 14.00m depth, rising to 8.70m after 20 minutes. Groundwater standing at 2.10m on completion. Very dense sands stopped progress at 23.50m depth. Backfilled with arisings.





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Borehole Log

Borehole No.

BH206

Sheet 1 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590392 - 167175

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Level: 10.77

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 10/03/2025 - 11/03/2025

Logged By
MCL

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30			0.30	10.47		TOPSOIL: Dark brown slightly sandy silty clay with frequent rootlets.	1
		0.50	ES					Firm orange brown slightly sandy silty CLAY.	
		1.00	D						
		1.20 - 1.65	U						2
		1.70	D						
		2.00	D						
		2.00 - 2.45	SPTL S	N=07 (1,1/1,2,2,2)	2.00	8.77		Firm blue grey mottled orange brown silty CLAY with occasional fine selenite crystals.	3
		3.00	D						
		3.00 - 3.45	U						
		3.50	D						4
		4.00	D						
		4.00 - 4.45	SPTL S	N=15 (1,2/2,4,4,5)				Very stiff dark grey silty CLAY with occasional fine selenite crystals.	
		5.00	D						5
		5.00 - 5.45	U						
		5.50	D						
		6.00	D						6
		6.00 - 6.45	SPTL S	N=24 (2,3/5,6,6,7)	6.00	4.77			
		7.00	D						7
		7.00 - 7.45	U						
		7.50	D						
		8.00	D						8
		8.00 - 8.45	SPTL S	N=20 (2,4/4,5,5,6)					
		9.00	D						
		9.00 - 9.45	U						9
		9.50	D						
		10.00	D						

Continued on next sheet

Remarks

Borehole cased to 14.50m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 13.30m depth, rising to 8.40m after 20 minutes. Groundwater standing at 8.00m on completion. Backfilled with arisings.





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Borehole Log

Borehole No.

BH206

Sheet 2 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590392 - 167175

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Level: 10.77

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 10/03/2025 - 11/03/2025

Logged By
MCL

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.00		N=18 (2,2/3,4,5,6)					
		10.00 - 10.45	SPTL S						
		11.00	D						11
		11.50 - 11.95	U						
		12.00	D						12
		13.00	D						
		13.00		N=50 (3,7/11,14,18,7)					13
		13.00 - 13.45	SPTL S						
		14.00	D		14.00	-3.23			14
		14.00		N=50 (10,15/25,25,0,0)				Very dense green grey fine to medium SAND.	
		14.50 - 14.95	SPTL S						
		15.00	D					With grey rounded coarse gravel between 15.00-16.00m depth.	15
		16.00	D		16.00	-5.23			16
		16.00 - 16.45	SPTL S					Very dense grey fine to medium SAND.	
		17.00	D						17
		17.50		N=50 (25,0/50,0,0,0)					
		17.50 - 17.95	SPTL S						18
		18.00	D						
		19.00	D		19.00	-8.23			19
		19.00		N=50 (5,11/13,17,20,0)				Hard grey very sandy CLAY. Sand is fine to coarse. With frequent shell fragments.	
		19.00 - 19.45	SPTL S						
		20.00	D						20

Continued on next sheet

Remarks

Borehole cased to 14.50m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 13.30m depth, rising to 8.40m after 20 minutes. Groundwater standing at 8.00m on completion. Backfilled with arisings.





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Borehole Log

Borehole No.

BH206

Sheet 3 of 3

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590392 - 167175

Hole Type
CP

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

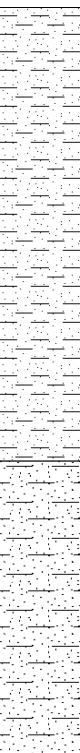
Level: 10.77

Scale
1:50

Client: Bellway Homes Ltd. (Kent)

Dates: 10/03/2025 - 11/03/2025

Logged By
MCL

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description					
		Depth (m)	Type	Results									
		20.50	SPTL S D	N=50 (4,5/8,12,18,12)	23.00	-12.23		Very dense green grey very clayey glauconitic fine to coarse SAND.	21				
		20.50 - 20.95											
		21.00											
		22.00	D SPTL S						22				
		22.00 - 22.45											
		23.00	D B						23				
		23.00 - 23.50											
		23.50	SPTL S D	N=50 (5,15/25,25,0,0)					24				
		23.50 - 23.95											
		24.00											
		25.00	D SPTL S	N=50 (5,12/25,25,0,0)	25.00	-14.23		End of borehole at 25.00 m	25				
		25.00 - 25.45											
									26				
									27				
									28				
									29				
									30				

Remarks

Borehole cased to 14.50m in 200mm. Borehole reduced to 150mm and cased to 25.00m. Groundwater encountered at 13.30m depth, rising to 8.40m after 20 minutes. Groundwater standing at 8.00m on completion. Backfilled with arisings.



Trial Pit Log

Trialpit No

HA201

Sheet 1 of 1

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords:	590147 - 168158
Level:	6.71

Date
26/02/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

Scale
1:10

Client: Bellway Homes Ltd. (Kent)

Depth
0.10

0.2

Logged
MCL

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.05	ES		0.10	6.61	 TOPSOIL: Dark brown slightly sandy silty clay with frequent rootlets.. Sand is fine to medium.	----- End of pit at 0.10 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.

AGS

Trial Pit Log

Trialpit No

HA202

Sheet 1 of 1

Project Name:	Land East of Iwade - Phase 3
---------------	------------------------------

Project No.
3741272

Co-ords: 590279 - 168116

Level: 8.73

Date _____

26/02/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

Depth
0.20

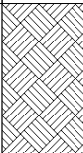
0.2

Scale

1:10

Logged
MCL

Client: Bellway Homes Ltd. (Kent)

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.15	ES		0.20	8.53	 TOPSOIL: Dark brown slightly sandy silty silty clay. Gravel is sub-angular to sub-rounded fine to medium of flint and brick. Sand is fine to medium.	End of pit at 0.20 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.

AGS

Trial Pit Log

Trialpit No

HA204

Sheet 1 of 1

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords:	590583 - 167868
Level:	8.20

Date
28/02/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

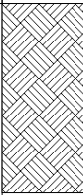
Scale
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Client: Bellway Homes Ltd. (Kent)

Depth
0.25

0.2

Logged
BK

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10	ES		0.25	7.95		TOPSOIL: Dark brown slightly sandy slightly gravelly silty clay with frequent rootlets. Sand is fine to medium. Gravel is sub-rounded fine to medium chalk. ----- End of pit at 0.25 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.



Trial Pit Log

Trialpit No

HA205

Sheet 1 of 1

Project Name:	Land East of Iwade - Phase 3
---------------	------------------------------

Project No.
3741272

Co-ords: 590534 - 167794

Level: 9.10

Date _____

28/02/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

Depth
0.30

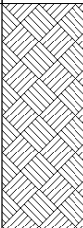
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Scale

1:10

Logged
BK

Client: Bellway Homes Ltd. (Kent)

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.25	ES		0.30	8.80		TOPSOIL: Dark brown slightly sandy silty clay with frequent rootlets. Sand is fine to medium. ----- End of pit at 0.30 m

Remarks: Hand dug pit remained dry. on completion Backfilled with arisings.

Stability: Stable.

AGS

Project Name:	Land East of Iwade - Phase 3
---------------	------------------------------

Project No.
3741272

Co-ords:	590488 - 167733
----------	-----------------

Level: 9.77

Date _____

28/02/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

Depth
0.20

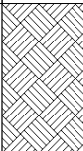
0.2

Scale

1:10

Logged
BK

Client: Bellway Homes Ltd. (Kent)

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.15	ES		0.20	9.57		TOPSOIL: Dark brown slightly sandy silty clay with a red frequent rootlets. Sand is fine to medium. Rare sub-rounded coarse gravels of flint. ----- End of pit at 0.20 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.

Project Name:	Land East of Iwade - Phase 3
---------------	------------------------------

Project No.
3741272

Co-ords: 590469 - 167638

Level: 10.46

Date _____

03/03/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

Depth
0.30

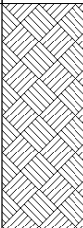
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Scale

1:10

Logged
BK

Client: Bellway Homes Ltd. (Kent)

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.25	ES		0.30	10.16		TOPSOIL: Slightly sandy slightly gravelly silty clay with frequent rootlets. Sand is fine. Gravel is sub-rounded to sub-angular fine to medium flint. ----- End of pit at 0.30 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.

Date
04/03/2025

Scale
1:10

Logged
BK

2

AGS

Stability: Stable.

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590544 - 167573

Level: 9.55

Date _____

04/03/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

02

Depth
0.20

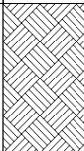
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Scale

1:10

Logged
BK

Client: Bellway Homes Ltd. (Kent)

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.05	ES		0.20	9.35		TOPSOIL: Dark brown slightly sandy silty clay with frequent rootlets and root material. Sand is fine to medium. With occasional sub-rounded to rounded fine to coarse gravels of flint. ----- End of pit at 0.20 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.

Project Name:	Land East of Iwade - Phase 3
---------------	------------------------------

Project No.
3741272

Co-ords: 590474 - 167503

Level: 10.03

Date _____

05/03/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

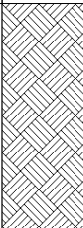
Depth
0.30

0.2

Scale
1:10

Logged
MCL

Client: Bellway Homes Ltd. (Kent)

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.20	ES		0.30	9.73		TOPSOIL: Dark brown slightly sandy silty clay. Sand is fine. With frequent rootlets and occasional fine to medium gravel of flint. ----- End of pit at 0.30 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.

Trial Pit Log

Trialpit No

HA213

Sheet 1 of 1

Project Name:	Land East of Iwade - Phase 3
---------------	------------------------------

Project No.
3741272

Co-ords:	590578 - 167490
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Level: 8.63

Date _____

05/03/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

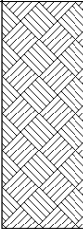
Depth
0.30

0.2

Scale
1:10

Logged
MCL

Client: Bellway Homes Ltd. (Kent)

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.15	ES		0.30	8.33		TOPSOIL: Dark brown slightly sandy silty clay with frequent rootlets. Sand is fine. ----- End of pit at 0.30 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.

AGS

Trial Pit Log

Trialpit No

HA214

Sheet 1 of 1

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords:	590528 - 167408
Level:	8.03

Date
06/03/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

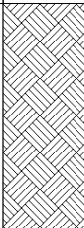
Scale
1:10

Client: Bellway Homes Ltd. (Kent)

Depth
0.30

0.2

Logged
MCL

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10	ES		0.30	7.73		TOPSOIL: Dark brown slightly sandy silty clay. With frequent rootlets and rare fine flint gravel. ----- End of pit at 0.30 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.

AGS

Trial Pit Log

Trialpit No

HA216

Sheet 1 of 1

Project Name:	Land East of Iwade - Phase 3
---------------	------------------------------

Project No.
3741272

Co-ords:	590448 - 167243
Level:	9.43

Date
07/03/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

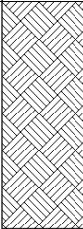
Scale
1:10

Client: Bellway Homes Ltd. (Kent)

Depth
0.30

0.2

Logged
JM

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.20	ES		0.30	9.13	 TOPSOIL: Brown sandy clay with occasional gravels. Gravel is sub-rounded to rounded fine to coarse flint and occasional fine chalk. Sand is fine to coarse.	End of pit at 0.30 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.

AGS

Project Name: Land East of Iwade - Phase 3

Project No.
3741272

Co-ords: 590337 - 167110

Level: 12.47

Date _____

07/03/2025

Location: Land East of Iwade, Sittingbourne, Kent, ME9 8SJ

Dimensions
(m):

0.2

Depth
0.30

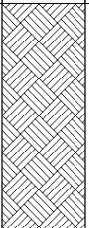
0.2

Scale

1:10

Logged
JM

Client: Bellway Homes Ltd. (Kent)

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.05	ES		0.30	12.17		TOPSOIL: Brown sandy clay with occasional gravels and rootlets. Gravel of sub-rounded to rounded fine to coarse flint and occasional fine chalk. Sand is fine to medium.
							End of pit at 0.30 m

Remarks: Hand dug pit remained dry on completion. Backfilled with arisings.

Stability: Stable.

APPENDIX E – GEOTECHNICAL LABORATORY TEST RESULTS

GEOLABS Limited
Bucknalls Lane
Garston
Watford
Hertfordshire
WD25 9XX
Tel: +44(0) 1923 892 190

email: admin@geolabs.co.uk
web: www.geolabs.co.uk

Leap Environmental
Spelmonden Old Oast
Spelmonden Farm
Goudhurst
Kent
TN17 1HE

07 April 2025

Report No : GEO/42166/01

Page 1 of 1

For the attention of Mr B King

Our ref	GEO / 42166	Date samples received	17/03/2025
Your ref	3741272	Date written instructions received	14/03/2025
Order ref	P02159929	Date testing commenced	18/03/2025
		Date of sample disposal	05/05/2025

Project **LAND EAST OF IWADE**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Liquid & Plastic Limits Summary
~	5	Water Content
~	5	Liquid & Plastic Limits
2	~	Geochemical Test Summary
~	16	BRE SD1 Suite B - Natural ground + pyrite
3	14	Unconsolidated Undrained Triaxial Compression

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional and may be subject to change unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**



S Burke
Senior Technician

BS EN ISO 17892-12 : 2018+A2:2022

SUMMARY OF LIQUID AND PLASTIC LIMIT TESTS

[illegible]

Test Type:	1 - 1 point 80g / 30° fall cone method.
------------	---

Sample condition:

- 1 - As Received
- 2 - Air Dried
- 3 - Washed & Air Dried

Checked and Approved by:

S Burke

S Burke - Senior Technician
07/04/2025

Project Number:

GEO / 42166

Project Name:

LAND EAST OF IWADE
3741272



SUMMARY OF CHEMICAL TESTS ON SOIL

Location	Depth m	Sample Ref	Sample Type	pH Value	Total Acid Soluble Sulphate as SO ₄ %	Water Soluble Sulphate as SO ₄ 2:1 Water:Soil Extract mg/l	Total Sulphur %	Water Soluble Chloride g/l	Water Soluble Nitrate g/l	Magnesium g/l	Organic Content %	Mass Loss on Ignition %	Carbonate Content %
BH201	2.00		D	8.1	0.068	43	0.034	-	-	-	-	-	-
BH201	8.00		D	7.9	0.41	2000	0.19	-	-	-	-	-	-
BH201	12.00		D	8.4	0.16	850	0.44	-	-	-	-	-	-
BH202	5.00		D	8.1	0.56	3400	0.20	-	-	-	-	-	-
BH202	12.00		D	8.2	0.16	960	0.61	-	-	-	-	-	-
BH203	1.00		D	8.3	0.039	84	0.034	-	-	-	-	-	-
BH203	19.00		D	8.0	0.12	660	0.93	-	-	-	-	-	-
BH204	3.00		D	7.1	0.089	330	0.037	-	-	-	-	-	-
BH204	10.00		D	7.7	0.26	1500	1.1	-	-	-	-	-	-
BH204	20.00		D	8.2	0.050	150	0.072	-	-	-	-	-	-
BH205	7.00		D	8.0	0.18	1100	0.98	-	-	-	-	-	-
BH205	15.00		D	8.3	0.031	130	0.072	-	-	-	-	-	-
BH205	19.00		D	7.3	0.062	330	0.56	-	-	-	-	-	-
BH206	13.00		D	8.0	0.043	230	0.18	-	-	-	-	-	-
BH206	14.00		D	7.9	0.050	190	0.14	-	-	-	-	-	-
BH206	20.00		D	7.8	0.056	320	0.90	-	-	-	-	-	-

Tested by i2 Analytical : MCERTS / UKAS No 4041

Checked and Approved by:



S Burke - Senior Technician
07/04/2025

Project Number:

GEO / 42166

Project Name:

**LAND EAST OF IWADE
3741272**

GEOLABS®

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location BH201
Sample Depth 2.00-2.45 m
Sample Type U

Description:

Firm to stiff fissured brown silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.7
Diameter	(mm)	100.3
Water content	(%)	33.3
Bulk density	(Mg/m ³)	1.92
Dry density	(Mg/m ³)	1.44
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	201.7
Membrane correction	(kPa)	0.5
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	50
Strain at failure	(%)	6.4
Maximum deviator stress	(kPa)	166
Shear Stress Cu	(kPa)	83

Mode of failure

Orientation of the sample

Vertical

Distance from top of tube mm

60

Tested by LH/XW
Checked and Approved by

S Burke - Senior Technician
07/04/2025

Project Number:

GEO / 42166

Project Name:

**LAND EAST OF IWADE
3741272****GEOLABS**

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

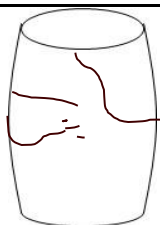
Location BH201
 Sample Depth 13.00-13.45 m
 Sample Type U

Description:

Firm dark brown silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	200.3
Diameter	(mm)	101.2
Water content	(%)	42.8
Bulk density	(Mg/m ³)	1.94
Dry density	(Mg/m ³)	1.36
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	200.1
Membrane correction	(kPa)	0.7
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	260
Strain at failure	(%)	10.0
Maximum deviator stress	(kPa)	71
Shear Stress Cu	(kPa)	36

Mode of failure

Orientation of the sample

Vertical

Distance from top of tube mm

65

Tested by LH/XW
 Checked and Approved by

S Burke - Senior Technician
 07/04/2025

Project Number:

GEO / 42166

Project Name:

LAND EAST OF IWADE
3741272

GEOLABS

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location BH201
Sample Depth 19.00-19.45 m
Sample Type U

Description:

Firm to stiff dark brown silty CLAY with mica.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.0
Diameter	(mm)	101.5
Water content	(%)	33.1
Bulk density	(Mg/m ³)	1.92
Dry density	(Mg/m ³)	1.44
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	201.8
Membrane correction	(kPa)	0.7
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	380
Strain at failure	(%)	11.4
Maximum deviator stress	(kPa)	177
Shear Stress Cu	(kPa)	88

Mode of failure

Orientation of the sample

Vertical

Distance from top of tube mm

50

Tested by LH/XW
Checked and Approved by

S Burke - Senior Technician
07/04/2025

Project Number:

GEO / 42166

Project Name:

**LAND EAST OF IWADE
3741272****GEOLABS**

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

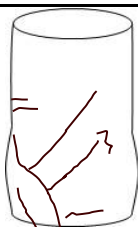
Location BH202
 Sample Depth 3.00-3.45 m
 Sample Type U

Description:

Stiff brown mottled grey slightly silty CLAY with occasional mudstone.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.7
Diameter	(mm)	101.6
Water content	(%)	31.8
Bulk density	(Mg/m ³)	1.99
Dry density	(Mg/m ³)	1.51
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	201.7
Membrane correction	(kPa)	0.7
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	60
Strain at failure	(%)	9.9
Maximum deviator stress	(kPa)	185
Shear Stress Cu	(kPa)	92

Mode of failure

Orientation of the sample

Vertical

Distance from top of tube mm

140

Tested by LH/XW
 Checked and Approved by

S Burke

S Burke - Senior Technician
 07/04/2025

Project Number:

GEO / 42166

Project Name:

LAND EAST OF IWADE
3741272

GEOLABS

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

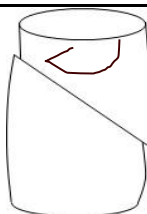
Location BH202
 Sample Depth 16.00-16.45 m
 Sample Type U

Description:

Very stiff dark brown silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.8
Diameter	(mm)	102.2
Water content	(%)	28.7
Bulk density	(Mg/m ³)	1.97
Dry density	(Mg/m ³)	1.53
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	201.0
Membrane correction	(kPa)	0.3
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	320
Strain at failure	(%)	3.2
Maximum deviator stress	(kPa)	465
Shear Stress Cu	(kPa)	232

Mode of failure

Orientation of the sample

Vertical

Distance from top of tube mm

180

Tested by LH
 Checked and Approved by

S Burke

S Burke - Senior Technician
 07/04/2025

Project Number:

GEO / 42166

Project Name:

LAND EAST OF IWADE
3741272

GEOLABS

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location BH202
 Sample Depth 19.00-19.45 m
 Sample Type U

Description:

Very stiff fissured dark brown slightly gravelly silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.5
Diameter	(mm)	102.5
Water content	(%)	27.5
Bulk density	(Mg/m ³)	2.02
Dry density	(Mg/m ³)	1.59
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	199.6
Membrane correction	(kPa)	0.4
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	380
Strain at failure	(%)	5.5
Maximum deviator stress	(kPa)	580
Shear Stress Cu	(kPa)	290

Mode of failure

Orientation of the sample

Vertical

Distance from top of tube mm

110

Tested by LH
 Checked and Approved by

S Burke

S Burke - Senior Technician
 07/04/2025

Project Number:

GEO / 42166

Project Name:

LAND EAST OF IWADE
3741272

GEOLABS

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location BH203
 Sample Depth 5.00-5.45 m
 Sample Type U

Description:

Stiff fissured brown silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	200.7
Diameter	(mm)	102.0
Water content	(%)	31.8
Bulk density	(Mg/m ³)	1.99
Dry density	(Mg/m ³)	1.51
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	200.4
Membrane correction	(kPa)	0.3
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	100
Strain at failure	(%)	4.2
Maximum deviator stress	(kPa)	211
Shear Stress Cu	(kPa)	105

Mode of failure

Orientation of the sample

Vertical

Distance from top of tube mm

60

Tested by LH/XW
 Checked and Approved by

S Burke - Senior Technician
 07/04/2025

Project Number:

GEO / 42166

Project Name:

LAND EAST OF IWADE
3741272

GEOLABS

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

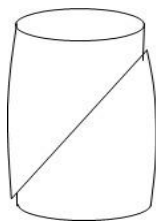
Location BH203
 Sample Depth 11.50-11.95 m
 Sample Type U

Description:

Very stiff laminated grey silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	200.2
Diameter	(mm)	102.3
Water content	(%)	30.4
Bulk density	(Mg/m ³)	1.96
Dry density	(Mg/m ³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	200.1
Membrane correction	(kPa)	0.2
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	220
Strain at failure	(%)	3.0
Maximum deviator stress	(kPa)	317
Shear Stress Cu	(kPa)	158

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	150

Tested by XW
 Checked and Approved by

S Burke

S Burke - Senior Technician
 07/04/2025

Project Number:

GEO / 42166

Project Name:

LAND EAST OF IWADE
3741272

GEOLABS

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

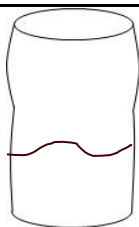
Location BH204
Sample Depth 1.20-1.65 m
Sample Type U

Description:

Firm brown mottled dark slightly sandy slightly gravelly silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.2
Diameter	(mm)	101.7
Water content	(%)	29.2
Bulk density	(Mg/m ³)	2.00
Dry density	(Mg/m ³)	1.54
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	201.2
Membrane correction	(kPa)	1.1
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	50
Strain at failure	(%)	18.4
Maximum deviator stress	(kPa)	143
Shear Stress Cu	(kPa)	71

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	175

Tested by XW
Checked and Approved by

S Burke

S Burke - Senior Technician
07/04/2025

Project Number:

GEO / 42166

Project Name:

**LAND EAST OF IWADE
3741272****GEOLABS**

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

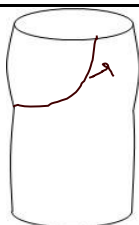
Location BH204
 Sample Depth 13.00-13.45 m
 Sample Type U

Description:

Very stiff fissured grey silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.1
Diameter	(mm)	102.5
Water content	(%)	28.7
Bulk density	(Mg/m ³)	1.97
Dry density	(Mg/m ³)	1.53
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	201.0
Membrane correction	(kPa)	0.4
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	260
Strain at failure	(%)	6.0
Maximum deviator stress	(kPa)	411
Shear Stress Cu	(kPa)	206

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	75

Tested by XW
 Checked and Approved by

S Burke

S Burke - Senior Technician
 07/04/2025

Project Number:

GEO / 42166

Project Name:

**LAND EAST OF IWADE
 3741272**

GEOLABS

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location BH205
Sample Depth 8.00-8.45 m
Sample Type U

Description:

Stiff fissured grey silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.2
Diameter	(mm)	102.3
Water content	(%)	29.6
Bulk density	(Mg/m ³)	1.93
Dry density	(Mg/m ³)	1.49
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	201.2
Membrane correction	(kPa)	0.5
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	160
Strain at failure	(%)	6.5
Maximum deviator stress	(kPa)	243
Shear Stress Cu	(kPa)	122

Mode of failure

Orientation of the sample

Vertical

Distance from top of tube mm

30

Tested by XW
Checked and Approved by



S Burke - Senior Technician
07/04/2025

Project Number:

GEO / 42166

Project Name:

LAND EAST OF IWADE
3741272

GEOLABS

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location BH205
 Sample Depth 13.00-13.45 m
 Sample Type U

Description:

Very stiff fissured brownish grey silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	200.7
Diameter	(mm)	102.2
Water content	(%)	27.2
Bulk density	(Mg/m ³)	2.06
Dry density	(Mg/m ³)	1.62
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	200.6
Membrane correction	(kPa)	0.6
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	260
Strain at failure	(%)	8.5
Maximum deviator stress	(kPa)	288
Shear Stress Cu	(kPa)	144

Mode of failure

Orientation of the sample

Vertical

Distance from top of tube mm

80

Tested by XW
 Checked and Approved by

S Burke

S Burke - Senior Technician
 07/04/2025

Project Number:

GEO / 42166

Project Name:

LAND EAST OF IWADE
3741272

GEOLABS

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

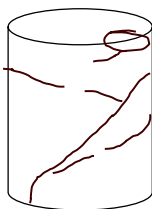
Location BH206
 Sample Depth 7.00-7.45 m
 Sample Type U

Description:

Stiff laminated brownish grey slightly sandy silty CLAY with gypsum and rare organics in pockets.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.1
Diameter	(mm)	102.0
Water content	(%)	30.8
Bulk density	(Mg/m ³)	1.93
Dry density	(Mg/m ³)	1.47
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	201.1
Membrane correction	(kPa)	0.5
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	140
Strain at failure	(%)	6.5
Maximum deviator stress	(kPa)	188
Shear Stress Cu	(kPa)	94

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	120

Tested by XW
 Checked and Approved by

S Burke

S Burke - Senior Technician
 07/04/2025

Project Number:

GEO / 42166

Project Name:

**LAND EAST OF IWADE
 3741272**

GEOLABS



UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location BH206
 Sample Depth 11.50-11.95 m
 Sample Type U

Description:

Very stiff fissured brownish grey silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	200.9
Diameter	(mm)	101.3
Water content	(%)	27.1
Bulk density	(Mg/m ³)	2.01
Dry density	(Mg/m ³)	1.58
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	200.8
Membrane correction	(kPa)	0.8
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	330
Strain at failure	(%)	12.0
Maximum deviator stress	(kPa)	353
Shear Stress Cu	(kPa)	176

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	60

Tested by XW
 Checked and Approved by

S Burke

S Burke - Senior Technician
 07/04/2025

Project Number:

GEO / 42166

Project Name:

**LAND EAST OF IWADE
 3741272**

GEOLABS

APPENDIX F – GEOENVIRONMENTAL ANALYTICAL LABORATORY CERTIFICATES



Final Report

Report No.: 25-07443-1

Initial Date of Issue: 21-Mar-2025

Re-Issue Details:

Client Leap Environmental Ltd

Client Address: The Old Oast
Spelmonden Estate
Spelmonden Road
Gouldhurst
Kent
TN17 1HE

Contact(s): Matt Lockwood

Project 3741272 Land East of Iwade

Quotation No.: Q25-36909

Date Received: 04-Mar-2025

Order No.: P02159616

Date Instructed: 04-Mar-2025

No. of Samples: 7

Turnaround (Wkdays): 5

Results Due: 10-Mar-2025

Date Approved: 21-Mar-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: 3741272 Land East of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-07443	25-07443	25-07443	25-07443	25-07443	25-07443	25-07443	25-07443
Quotation No.: Q25-36909		Chemtest Sample ID.:		1942154	1942155	1942156	1942157	1942273	1942274	1942275	
		Sample Location:		BH202	HA204	HA205	HA206	BH201	HA201	HA202	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.35	0.10	0.25	0.15	0.4	0.05	0.15	
		Date Sampled:		26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025	
		Asbestos Lab:		NEW-ASB		NEW-ASB		DURHAM		DURHAM	
Determinand	HWOL Code	Accred.	SOP	Units	LOD						
ACM Type		N	2192		N/A	-		-		-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected		No Asbestos Detected		No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	15	18	20	22	23	24
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A	None	Stones and Roots	Stones	Stones	Stones	Roots
Soil Texture		N	2040		N/A	Clay	Loam	Loam	Loam	Clay	Clay
pH at 20C		M	2010		4.0	8.8		8.0		> 12.0	7.7
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40					1.0	
Arsenic		M	2455	mg/kg	0.5	12		10		17	18
Barium		M	2455	mg/kg	0.5					110	
Beryllium		U	2455	mg/kg	0.5					2.2	
Cadmium		M	2455	mg/kg	0.10	0.24		0.32		0.28	0.40
Chromium		M	2455	mg/kg	0.5	43		27		55	40
Copper		M	2455	mg/kg	0.50	30		24		35	39
Mercury		M	2455	mg/kg	0.05	< 0.05		0.08		0.10	0.14
Nickel		M	2455	mg/kg	0.50	61		20		49	39
Lead		M	2455	mg/kg	0.50	19		32		34	64
Selenium		M	2455	mg/kg	0.25	1.2		0.82		1.4	1.2
Vanadium		U	2455	mg/kg	0.5					110	
Zinc		M	2455	mg/kg	0.50	77		77		100	130
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50		< 0.50		< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05					< 0.05	
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05					< 0.05	
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05					< 0.05	
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10					< 0.10	
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05					< 0.05	
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25					< 0.25	
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00					3.6	
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00					7.0	
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00					9.7	
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00					19	
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00					10	
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00					39	
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00					50	
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05					< 0.05	
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05					< 0.05	
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05					< 0.05	

Results - Soil

Project: 3741272 Land East of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:						25-07443	25-07443	25-07443	25-07443	25-07443	25-07443	25-07443
Quotation No.: Q25-36909		Chemtest Sample ID.:						1942154	1942155	1942156	1942157	1942273	1942274	1942275
		Sample Location:						BH202	HA204	HA205	HA206	BH201	HA201	HA202
		Sample Type:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):						0.35	0.10	0.25	0.15	0.4	0.05	0.15
		Date Sampled:						26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025
		Asbestos Lab:						NEW-ASB		NEW-ASB		DURHAM		DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD									
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25							< 0.25		
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00							4.8		
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00							16		
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00							21		
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00							37		
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00							12		
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00							79		
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00							91		
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50							< 0.50		
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00							120		
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00							140		
Diesel Present		N	2670		N/A							False		
Benzene		M	2760	µg/kg	1.0							< 1.0		
Toluene		M	2760	µg/kg	1.0							< 1.0		
Ethylbenzene		M	2760	µg/kg	1.0							2.8		
m & p-Xylene		M	2760	µg/kg	1.0							< 1.0		
o-Xylene		M	2760	µg/kg	1.0							2.4		
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0							< 1.0		
Naphthalene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Phenanthrene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Anthracene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Fluoranthene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		0.18
Pyrene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		0.19
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Chrysene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10		< 0.10				< 0.10		< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0		< 2.0				< 2.0		< 2.0
Alpha-HCH		N	2840	mg/kg	0.20			< 0.20			< 0.20		< 0.20	
Gamma-HCH (Lindane)		N	2840	mg/kg	0.20			< 0.20			< 0.20		< 0.20	
Beta-HCH		N	2840	mg/kg	0.20			< 0.20			< 0.20		< 0.20	
Delta-HCH		N	2840	mg/kg	0.20			< 0.20			< 0.20		< 0.20	

Results - Soil

Project: 3741272 Land East of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-07443	25-07443	25-07443	25-07443	25-07443	25-07443	25-07443
Quotation No.: Q25-36909		Chemtest Sample ID.:		1942154	1942155	1942156	1942157	1942273	1942274	1942275
		Sample Location:		BH202	HA204	HA205	HA206	BH201	HA201	HA202
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.35	0.10	0.25	0.15	0.4	0.05	0.15
		Date Sampled:		26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025	26-Feb-2025
		Asbestos Lab:		NEW-ASB		NEW-ASB		DURHAM		DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD					
Heptachlor		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Aldrin		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Heptachlor Epoxide		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Gamma-Chlordane		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Alpha-Chlordane		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Endosulfan I		N	2840	mg/kg	0.20		< 0.20		< 0.20	
4,4-DDE		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Dieldrin		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Endrin		N	2840	mg/kg	0.20		< 0.20		< 0.20	
4,4-DDD		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Endosulfan II		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Endrin Aldehyde		N	2840	mg/kg	0.20		< 0.20		< 0.20	
4,4-DDT		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Endosulfan Sulphate		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Methoxychlor		N	2840	mg/kg	0.20		< 0.20		< 0.20	
Endrin Ketone		N	2840	mg/kg	0.20		< 0.20		< 0.20	

TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
25-07443	1942273	S	BH201			0.4	No	N/A

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7–C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2840	Organochlorine (O-Cl) Pesticides in Soils by GC-MS	Organochlorine pesticide representative suite including DDT and its metabolites, 'drins' and HCH etc, plus client specific determinands	Dichloromethane extraction / GC-MS	



Final Report

Report No.: 25-07472-1

Initial Date of Issue: 25-Mar-2025

Re-Issue Details:

Client Leap Environmental Ltd

Client Address: The Old Oast
Spelmonden Estate
Spelmonden Road
Gouldhurst
Kent
TN17 1HE

Contact(s): Matt Lockwood

Project 3741272 Land East of Iwade

Quotation No.: Q25-36909

Date Received: 04-Mar-2025

Order No.: P02159616

Date Instructed: 04-Mar-2025

No. of Samples: 1

Turnaround (Wkdays): 7

Results Due: 12-Mar-2025

Date Approved: 25-Mar-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: 3741272 Land East of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-07472		
Quotation No.: Q25-36909		Chemtest Sample ID.:		1942277		
		Sample Location:		BH201		
		Sample Type:		SOIL		
		Top Depth (m):		0.40		
		Date Sampled:		26-Feb-2025		
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
Moisture		N	2030	%	0.020	23

Results - 2 Stage WAC

Project: 3741272 Land East of Iwade

Chemtest Job No: 25-07472							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 1942277							Limits			
Sample Ref:							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID:										
Sample Location: BH201										
Top Depth(m): 0.40										
Bottom Depth(m):										
Sampling Date: 26-Feb-2025										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				1.3	3	5	6
Loss On Ignition	2610	M	%				6.6	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg				< 2.0	100	--	--
pH at 20C	2010	M					> 12.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0040	--	To evaluate	To evaluate			
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic	1455	U	0.0011	0.0029	0.0022	0.027	0.5	2	25	
Barium	1455	U	< 0.005	0.006	< 0.0005	0.052	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	0.0028	0.0051	0.0055	0.049	0.5	10	70	
Copper	1455	U	0.0077	0.011	0.015	0.0066	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	0.0003	0.0007	0.0006	0.0064	0.5	10	30	
Nickel	1455	U	0.016	0.0056	0.032	0.065	0.4	10	40	
Lead	1455	U	0.0010	0.0022	0.0020	0.021	0.5	10	50	
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5	
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7	
Zinc	1455	U	0.015	0.011	0.031	0.11	4	50	200	
Chloride	1220	U	< 1.0	< 1.0	< 10	< 10	800	15000	25000	
Fluoride	1220	U	0.31	0.60	< 1.0	5.7	10	150	500	
Sulphate	1220	U	1.8	< 1.0	< 10	< 10	1000	20000	50000	
Total Dissolved Solids	1020	N	43	29	86	300	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	5.3	5.6	< 50	55	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	7.7
WAC Sample Weight	2019

Leachate Test Information	
Leachant volume 1st extract/l	0.335
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.151

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	TE LE SW GW
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW GW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW GW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW GW
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	
2010	pH Value of Soils	pH at 20°C	pH Meter	
2015	Acid Neutralisation Capacity	Acid Reserve	Titration	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	

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NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
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PL - Prepared Leachate
PW - Processed Water
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SA - Saline Water
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UL - Unspecified Liquid

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FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
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Amended Report

Report No.: 25-07657-2

Initial Date of Issue: 21-Mar-2025 **Date of Re-Issue:** 17-Apr-2025

Re-Issue Details: This report has been revised and directly supersedes 25-07657-1 in its entirety

Client: Leap Environmental Ltd

Client Address: The Old Oast
Spelmonden Estate
Spelmonden Road
Gouldhurst
Kent
TN17 1HE

Contact(s): Matt Lockwood

Project: 3741272 Land East Of Iwade

Quotation No.: Q25-36909 **Date Received:** 06-Mar-2025

Order No.: PO2159616 **Date Instructed:** 06-Mar-2025

No. of Samples: 4

Turnaround (Wkdays): 5 **Results Due:** 12-Mar-2025

Date Approved: 21-Mar-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: 3741272 Land East Of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-07657	25-07657	25-07657	25-07657
Quotation No.: Q25-36909		Chemtest Sample ID.:		1942915	1942916	1942917	1942918
		Sample Location:		HA208	BH203	HA209	HA210
		Sample Type:		SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.25	0.50	0.15	0.05
		Date Sampled:		03-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
ACM Type		N	2192		N/A	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	19	23
Soil Colour		N	2040		N/A	Brown	Brown
Other Material		N	2040		N/A	Stones, Roots and	Stones, Roots and
Soil Texture		N	2040		N/A	Clay	Clay
pH at 20C		M	2010		4.0	7.6	8.2
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	0.68	0.95
Arsenic		M	2455	mg/kg	0.5	13	25
Barium		M	2455	mg/kg	0.5	180	59
Beryllium		U	2455	mg/kg	0.5	2.1	0.8
Cadmium		M	2455	mg/kg	0.10	0.34	0.17
Chromium		M	2455	mg/kg	0.5	48	53
Copper		M	2455	mg/kg	0.50	39	29
Mercury		M	2455	mg/kg	0.05	0.24	0.07
Nickel		M	2455	mg/kg	0.50	24	40
Lead		M	2455	mg/kg	0.50	56	28
Selenium		M	2455	mg/kg	0.25	0.88	2.2
Vanadium		U	2455	mg/kg	0.5	100	41
Zinc		M	2455	mg/kg	0.50	87	88
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	< 0.10	< 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25	< 0.25
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0	< 2.0
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	< 1.0	< 1.0
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0	< 2.0
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	26	31
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	< 10	< 10
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00	26	33
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	26	33
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05

Results - Soil

Project: 3741272 Land East Of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-07657	25-07657	25-07657	25-07657
Quotation No.: Q25-36909		Chemtest Sample ID.:		1942915	1942916	1942917	1942918
		Sample Location:		HA208	BH203	HA209	HA210
		Sample Type:		SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.25	0.50	0.15	0.05
		Date Sampled:		03-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25	< 0.25
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0	< 1.0
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0	< 1.0
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	36	36
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	7.4	19
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00	11	12
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00	43	55
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00	54	67
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50	< 0.50
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00	69	87
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00	80	100
Diesel Present		N	2670		N/A	False	False
Benzene		M	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene		M	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene		M	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene		M	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene		M	2760	µg/kg	1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0	< 1.0	< 1.0
Naphthalene		M	2800	mg/kg	0.10	< 0.10	0.69
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	0.55
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	0.93
Fluorene		M	2800	mg/kg	0.10	< 0.10	1.0
Phenanthrene		M	2800	mg/kg	0.10	< 0.10	7.7
Anthracene		M	2800	mg/kg	0.10	< 0.10	2.4
Fluoranthene		M	2800	mg/kg	0.10	< 0.10	0.16
Pyrene		M	2800	mg/kg	0.10	< 0.10	0.13
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	6.1
Chrysene		M	2800	mg/kg	0.10	< 0.10	5.9
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	8.6
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	3.1
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	6.9
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	4.5
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	0.89
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	4.5
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	79
Alpha-HCH		N	2840	mg/kg	0.20		< 0.20
Gamma-HCH (Lindane)		N	2840	mg/kg	0.20		< 0.20
Beta-HCH		N	2840	mg/kg	0.20		< 0.20
Delta-HCH		N	2840	mg/kg	0.20		< 0.20

Results - Soil

Project: 3741272 Land East Of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-07657	25-07657	25-07657	25-07657
Quotation No.: Q25-36909		Chemtest Sample ID.:		1942915	1942916	1942917	1942918
		Sample Location:		HA208	BH203	HA209	HA210
		Sample Type:		SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.25	0.50	0.15	0.05
		Date Sampled:		03-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
Heptachlor		N	2840	mg/kg	0.20		< 0.20
Aldrin		N	2840	mg/kg	0.20		< 0.20
Heptachlor Epoxide		N	2840	mg/kg	0.20		< 0.20
Gamma-Chlordane		N	2840	mg/kg	0.20		< 0.20
Alpha-Chlordane		N	2840	mg/kg	0.20		< 0.20
Endosulfan I		N	2840	mg/kg	0.20		< 0.20
4,4-DDE		N	2840	mg/kg	0.20		< 0.20
Dieldrin		N	2840	mg/kg	0.20		< 0.20
Endrin		N	2840	mg/kg	0.20		< 0.20
4,4-DDD		N	2840	mg/kg	0.20		< 0.20
Endosulfan II		N	2840	mg/kg	0.20		< 0.20
Endrin Aldehyde		N	2840	mg/kg	0.20		< 0.20
4,4-DDT		N	2840	mg/kg	0.20		< 0.20
Endosulfan Sulphate		N	2840	mg/kg	0.20		< 0.20
Methoxychlor		N	2840	mg/kg	0.20		< 0.20
Endrin Ketone		N	2840	mg/kg	0.20		< 0.20

TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
25-07657	1942916	S	BH203			0.50	No	N/A
25-07657	1942917	S	HA209			0.15	No	N/A

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2840	Organochlorine (O-Cl) Pesticides in Soils by GC-MS	Organochlorine pesticide representative suite including DDT and its metabolites, 'drins' and HCH etc, plus client specific determinands	Dichloromethane extraction / GC-MS	

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#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



Final Report

Report No.: 25-07660-1

Initial Date of Issue: 22-Mar-2025

Re-Issue Details:

Client Leap Environmental Ltd

Client Address: The Old Oast
Spelmonden Estate
Spelmonden Road
Gouldhurst
Kent
TN17 1HE

Contact(s): Matt Lockwood

Project 3741272 Land East Of Iwade

Quotation No.: Q25-36909

Date Received: 06-Mar-2025

Order No.: PO2159616

Date Instructed: 06-Mar-2025

No. of Samples: 1

Turnaround (Wkdays): 7

Results Due: 14-Mar-2025

Date Approved: 22-Mar-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: 3741272 Land East Of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-07660		
Quotation No.: Q25-36909		Chemtest Sample ID.:		1942921		
		Sample Location:		BH204		
		Sample Type:		SOIL		
		Top Depth (m):		0.4		
		Date Sampled:		04-Mar-2025		
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
Moisture		N	2030	%	0.020	19

Results - 2 Stage WAC

Project: 3741272 Land East Of Iwade

Chemtest Job No: 25-07660							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 1942921							Limits			
Sample Ref:							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID:										
Sample Location: BH204										
Top Depth(m): 0.4										
Bottom Depth(m):										
Sampling Date: 04-Mar-2025										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				0.28	3	5	6
Loss On Ignition	2610	M	%				5.3	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg				2.5	100	--	--
pH at 20C	2010	M					8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.015	--	To evaluate	To evaluate			
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic	1455	U	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.5	2	25	
Barium	1455	U	0.028	0.027	0.054	0.27	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	0.0019	0.0016	0.0037	0.017	0.5	10	70	
Copper	1455	U	0.0011	0.0012	0.0021	0.0010	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	0.0003	0.0006	0.0005	0.0052	0.5	10	30	
Nickel	1455	U	0.0016	0.0021	0.0032	0.021	0.4	10	40	
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50	
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5	
Selenium	1455	U	0.0006	< 0.0005	0.0012	0.0005	0.1	0.5	7	
Zinc	1455	U	0.009	0.004	0.016	0.045	4	50	200	
Chloride	1220	U	5.5	1.0	11	14	800	15000	25000	
Fluoride	1220	U	1.0	2.2	1.9	21	10	150	500	
Sulphate	1220	U	44	20	85	220	1000	20000	50000	
Total Dissolved Solids	1020	N	120	86	230	890	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	3.3	2.7	< 50	< 50	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	23
WAC Sample Weight	[E] 1887

Leachate Test Information	
Leachant volume 1st extract/l	0.297
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.156

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1942921			BH204	04-Mar-2025	E	Amber Glass 250ml
1942921			BH204	04-Mar-2025	E	Amber Glass 60ml
1942921			BH204	04-Mar-2025	E	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	TE LE SW GW
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW GW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW GW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW GW
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	
2010	pH Value of Soils	pH at 20°C	pH Meter	
2015	Acid Neutralisation Capacity	Acid Reserve	Titration	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	

Report Information

Key

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SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

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Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



Interim Report

Report No.: 25-08280-0

Initial Date of Issue:

Re-Issue Details:

Client Leap Environmental Ltd

Client Address: The Old Oast
Spelmonden Estate
Spelmonden Road
Gouldhurst
Kent
TN17 1HE

Contact(s): Matt Lockwood

Project 3741272 Land East of Iwade

Quotation No.: Q25-36909

Date Received: 11-Mar-2025

Order No.: P02159752

Date Instructed: 11-Mar-2025

No. of Samples: 4

Turnaround (Wkdays): 5

Results Due: 17-Mar-2025

Date Approved:

Subcon Results Due: 01-Apr-2025

Approved By:

Details:

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Please note that the interim data available has passed our Quality Control Criteria but has not been verified by an approved signatory and may be subject to amendment on approval. Chemtest cannot therefore be held responsible for decisions made on interim data sets but only for the data submitted on a final report containing an approval date and signature.

Results - Soil

Project: 3741272 Land East of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-08280	25-08280	25-08280	25-08280
Quotation No.: Q25-36909		Chemtest Sample ID.:		1945063	1945064	1945065	1945066
		Sample Location:		HA212	HA213	HA214	BH205
		Sample Type:		SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.20	0.15	0.10	0.40
		Date Sampled:		05-Mar-2025	05-Mar-2025	06-Mar-2025	06-Mar-2025
		Asbestos Lab:		DURHAM	DURHAM		DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
ACM Type		N	2192		N/A	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	21	18
Soil Colour		N	2040		N/A	Brown	Brown
Other Material		N	2040		N/A	Roots	Stones and Roots
Soil Texture		N	2040		N/A	Clay	Clay
Organochlorine Pesticides		SN		mg/kg	0.00		To Follow
pH at 20C		M	2010		4.0	7.9	8.1
Arsenic		M	2455	mg/kg	0.5	12	13
Cadmium		M	2455	mg/kg	0.10	0.38	0.27
Chromium		M	2455	mg/kg	0.5	36	40
Copper		M	2455	mg/kg	0.50	29	35
Mercury		M	2455	mg/kg	0.05	0.16	0.17
Nickel		M	2455	mg/kg	0.50	22	22
Lead		M	2455	mg/kg	0.50	45	52
Selenium		M	2455	mg/kg	0.25	1.1	1.0
Zinc		M	2455	mg/kg	0.50	75	83
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	< 0.10	0.24
Anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	0.13	0.49
Pyrene		M	2800	mg/kg	0.10	0.12	0.38
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Chrysene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	< 2.0

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2840	Organochlorine (O-Cl) Pesticides in Soils by GC-MS	Organochlorine pesticide representative suite including DDT and its metabolites, 'drins' and HCH etc, plus client specific determinands	Dichloromethane extraction / GC-MS	

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A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

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#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
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Asbestos Tests LOD = LOQ

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customerservices@chemtest.com



Final Report

Report No.: 25-08280-1

Initial Date of Issue: 16-Apr-2025

Re-Issue Details:

Client Leap Environmental Ltd

Client Address: The Old Oast
Spelmonden Estate
Spelmonden Road
Gouldhurst
Kent
TN17 1HE

Contact(s): Matt Lockwood

Project 3741272 Land East of Iwade

Quotation No.: Q25-36909

Date Received: 11-Mar-2025

Order No.: P02159752

Date Instructed: 11-Mar-2025

No. of Samples: 4

Turnaround (Wkdays): 5

Results Due: 17-Mar-2025

Date Approved: 15-Apr-2025

Subcon Results Due: 01-Apr-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: 3741272 Land East of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-08280	25-08280	25-08280	25-08280
Quotation No.: Q25-36909		Chemtest Sample ID.:		1945063	1945064	1945065	1945066
		Sample Location:		HA212	HA213	HA214	BH205
		Sample Type:		SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.20	0.15	0.10	0.40
		Date Sampled:		05-Mar-2025	05-Mar-2025	06-Mar-2025	06-Mar-2025
		Asbestos Lab:		DURHAM	DURHAM		DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
ACM Type		N	2192		N/A	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	21	18
Soil Colour		N	2040		N/A	Brown	Brown
Other Material		N	2040		N/A	Roots	Stones and Roots
Soil Texture		N	2040		N/A	Clay	Clay
Organochlorine Pesticides		SN		mg/kg	0.00		See Attached
pH at 20C		M	2010		4.0	7.9	7.8
Arsenic		M	2455	mg/kg	0.5	12	16
Cadmium		M	2455	mg/kg	0.10	0.38	0.43
Chromium		M	2455	mg/kg	0.5	36	49
Copper		M	2455	mg/kg	0.50	29	48
Mercury		M	2455	mg/kg	0.05	0.16	0.32
Nickel		M	2455	mg/kg	0.50	22	32
Lead		M	2455	mg/kg	0.50	45	75
Selenium		M	2455	mg/kg	0.25	1.1	1.1
Zinc		M	2455	mg/kg	0.50	75	110
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	0.13	< 0.10
Pyrene		M	2800	mg/kg	0.10	0.12	< 0.10
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Chrysene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	< 2.0

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2840	Organochlorine (O-Cl) Pesticides in Soils by GC-MS	Organochlorine pesticide representative suite including DDT and its metabolites, 'drins' and HCH etc, plus client specific determinands	Dichloromethane extraction / GC-MS	

Report Information

Key

U	UKAS accredited
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N	Unaccredited
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SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

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Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



Interim Report

Report No.: 25-08476-0

Initial Date of Issue:

Re-Issue Details:

Client Leap Environmental Ltd

Client Address: The Old Oast
Spelmonden Estate
Spelmonden Road
Gouldhurst
Kent
TN17 1HE

Contact(s): Matt Lockwood

Project 3741272 Land East of Iwade

Quotation No.: Q25-36909

Date Received: 12-Mar-2025

Order No.: P02159752

Date Instructed: 12-Mar-2025

No. of Samples: 3

Turnaround (Wkdays): 5

Results Due: 18-Mar-2025

Date Approved: 12-Mar-2025

Approved By:

Details: Daniel Atkin, Booking In

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Please note that the interim data available has passed our Quality Control Criteria but has not been verified by an approved signatory and may be subject to amendment on approval. Chemtest cannot therefore be held responsible for decisions made on interim data sets but only for the data submitted on a final report containing an approval date and signature.

Results - Soil

Project: 3741272 Land East of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-08476	25-08476	25-08476
Quotation No.: Q25-36909		Chemtest Sample ID.:		1945866	1945867	1945868
		Sample Location:		HA216	HA218	BH206
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		0.20	0.05	0.50
		Date Sampled:		07-Mar-2025	07-Mar-2025	10-Mar-2025
		Asbestos Lab:		DURHAM		DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
ACM Type		N	2192		N/A	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected
Moisture		N	2030	%	0.020	19
Soil Colour		N	2040		N/A	Brown
Other Material		N	2040		N/A	None
Soil Texture		N	2040		N/A	Clay
Organochlorine Pesticides		SN		mg/kg	0.00	To Follow
pH at 20C		M	2010		4.0	7.6
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	
Arsenic		M	2455	mg/kg	0.5	22
Barium		M	2455	mg/kg	0.5	
Beryllium		U	2455	mg/kg	0.5	
Cadmium		M	2455	mg/kg	0.10	0.60
Chromium		M	2455	mg/kg	0.5	48
Copper		M	2455	mg/kg	0.50	66
Mercury		M	2455	mg/kg	0.05	0.69
Nickel		M	2455	mg/kg	0.50	30
Lead		M	2455	mg/kg	0.50	170
Selenium		M	2455	mg/kg	0.25	1.2
Vanadium		U	2455	mg/kg	0.5	
Zinc		M	2455	mg/kg	0.50	150
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00	
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	

Results - Soil

Project: 3741272 Land East of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-08476	25-08476	25-08476
Quotation No.: Q25-36909		Chemtest Sample ID.:		1945866	1945867	1945868
		Sample Location:		HA216	HA218	BH206
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		0.20	0.05	0.50
		Date Sampled:		07-Mar-2025	07-Mar-2025	10-Mar-2025
		Asbestos Lab:		DURHAM		DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	4.4
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	< 2.0
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00	1.2
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00	< 5.0
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00	< 10
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00	< 10
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00	< 10
Diesel Present		N	2670		N/A	False
Benzene		M	2760	µg/kg	1.0	< 1.0
Toluene		M	2760	µg/kg	1.0	< 1.0
Ethylbenzene		M	2760	µg/kg	1.0	< 1.0
m & p-Xylene		M	2760	µg/kg	1.0	< 1.0
o-Xylene		M	2760	µg/kg	1.0	< 1.0
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0	< 1.0
Naphthalene		M	2800	mg/kg	0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	0.14
Anthracene		M	2800	mg/kg	0.10	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	0.20
Pyrene		M	2800	mg/kg	0.10	0.24
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10
Chrysene		M	2800	mg/kg	0.10	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0

TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
25-08476	1945868	S	BH206			0.50	No	N/A

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	

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All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

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NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

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SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
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NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



Final Report

Report No.: 25-08476-1

Initial Date of Issue: 14-Apr-2025

Re-Issue Details:

Client Leap Environmental Ltd

Client Address: The Old Oast
Spelmonden Estate
Spelmonden Road
Gouldhurst
Kent
TN17 1HE

Contact(s): Matt Lockwood

Project 3741272 Land East of Iwade

Quotation No.: Q25-36909

Date Received: 12-Mar-2025

Order No.: P02159752

Date Instructed: 12-Mar-2025

No. of Samples: 3

Turnaround (Wkdays): 24

Results Due: 14-Apr-2025

Date Approved: 14-Apr-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: 3741272 Land East of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-08476	25-08476	25-08476
Quotation No.: Q25-36909		Chemtest Sample ID.:		1945866	1945867	1945868
		Sample Location:		HA216	HA218	BH206
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		0.20	0.05	0.50
		Date Sampled:		07-Mar-2025	07-Mar-2025	10-Mar-2025
		Asbestos Lab:		DURHAM		DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
ACM Type		N	2192		N/A	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected
Moisture		N	2030	%	0.020	19
Soil Colour		N	2040		N/A	Brown
Other Material		N	2040		N/A	Stones
Soil Texture		N	2040		N/A	Clay
Organochlorine Pesticides		SN		mg/kg	0.00	See Attached
pH at 20C		M	2010		4.0	7.6
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	
Arsenic		M	2455	mg/kg	0.5	22
Barium		M	2455	mg/kg	0.5	
Beryllium		U	2455	mg/kg	0.5	
Cadmium		M	2455	mg/kg	0.10	0.60
Chromium		M	2455	mg/kg	0.5	48
Copper		M	2455	mg/kg	0.50	66
Mercury		M	2455	mg/kg	0.05	0.69
Nickel		M	2455	mg/kg	0.50	30
Lead		M	2455	mg/kg	0.50	170
Selenium		M	2455	mg/kg	0.25	1.2
Vanadium		U	2455	mg/kg	0.5	
Zinc		M	2455	mg/kg	0.50	150
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00	
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	

Results - Soil

Project: 3741272 Land East of Iwade

Client: Leap Environmental Ltd		Chemtest Job No.:		25-08476	25-08476	25-08476
Quotation No.: Q25-36909		Chemtest Sample ID.:		1945866	1945867	1945868
		Sample Location:		HA216	HA218	BH206
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		0.20	0.05	0.50
		Date Sampled:		07-Mar-2025	07-Mar-2025	10-Mar-2025
		Asbestos Lab:		DURHAM		DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	4.4
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	< 2.0
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00	1.2
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00	< 5.0
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00	< 10
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00	< 10
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00	< 10
Diesel Present		N	2670		N/A	False
Benzene		M	2760	µg/kg	1.0	< 1.0
Toluene		M	2760	µg/kg	1.0	< 1.0
Ethylbenzene		M	2760	µg/kg	1.0	< 1.0
m & p-Xylene		M	2760	µg/kg	1.0	< 1.0
o-Xylene		M	2760	µg/kg	1.0	< 1.0
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0	< 1.0
Naphthalene		M	2800	mg/kg	0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	0.14
Anthracene		M	2800	mg/kg	0.10	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	0.20
Pyrene		M	2800	mg/kg	0.10	0.24
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10
Chrysene		M	2800	mg/kg	0.10	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0

TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
25-08476	1945868	S	BH206			0.50	No	N/A

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd

11 Depot Road
CB8 0AL NEWMARKET
UNITED KINGDOM

Certificate of analysis

Date: 14-Apr-2025

Please find enclosed the analytical results of the test carried out for the project.

Certificate number/Version	2025027708/1
Your project number	-
Your project name	Job No 25-08280
Your order number	
Your Sample delivery date	07-Apr-2025

This Certificate of Analysis shall not be reproduced except in full, without written approval of the laboratory. Interpretations and opinions are outside the scope of our accreditation, and all results relate only to samples supplied.

Soil samples will be stored for a period of 4 weeks and water samples for a period of 2 weeks after receipt of the samples at our laboratory. Without any additional request, samples will be disposed when the above mentioned periods have expired. If you require Eurofins Analytico to store the samples for a longer period, please complete this page and return it to Eurofins Analytico at least one businessday before the period is due to expire. The costs of prolonged storage periods may be found in our pricelist.

Storage period:

Date:

Name:

Signature:

We are confident that we have performed the order in accordance with your expectations. If you have any remaining questions concerning this Certificate of Analysis, please don't hesitate to contact our Customer Service.

Yours sincerely,

Eurofins Analytico B.V.



Ing. A. Veldhuizen
Technical Manager

Eurofins Analytico B.V.

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IBAN: NL71BNPA0227924525
BIC: BNPANL2A
KvK/CoC: 09088623
BTW/VAT: NL 8043.14.883.B01

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Certificate of analysis

Your project number -
 Your project name Job No 25-08280
 Your order number
 Your sample taker

Certificate number/Version 2025027708/1
 Start date 07-Apr-2025
 End date analysis 14-Apr-2025
 Report date 14-Apr-2025/15:26
 Annex A, C, D
 Page 1/1

Analysis	Unit	1
Characteristics		
Q Dry matter	% (w/w)	77.5
Phosphor pesticides		
Q Azinphos-ethyl	mg/kg dm	<0.005
Q Azinphos-methyl	mg/kg dm	<0.005
Q Bromophos-ethyl	mg/kg dm	<0.02
Q Bromophos-methyl	mg/kg dm	<0.02
Q Chloropyriphos-ethyl	mg/kg dm	<0.01
Q Chloropyriphos-methyl	mg/kg dm	<0.01
Q Cumaphos	mg/kg dm	<0.005
Q Demeton-S/demeton-O-ethyl	mg/kg dm	<0.02
Q Diazinone	mg/kg dm	<0.005
Q Disulphotone	mg/kg dm	<0.02
Q Fenitrothion	mg/kg dm	<0.005
Q Fenthion	mg/kg dm	<0.002
Q Malathion	mg/kg dm	<0.005
Q Parathion-ethyl	mg/kg dm	<0.005
Q Parathion-methyl	mg/kg dm	<0.01
Q Pyrazophos	mg/kg dm	<0.005
Q Triazophos	mg/kg dm	<0.02

No. Your sample description

1 1945065

Specified sample matrix

Soil, Sediment

Sample nr.

14627037

Eurofins Analytico B.V.

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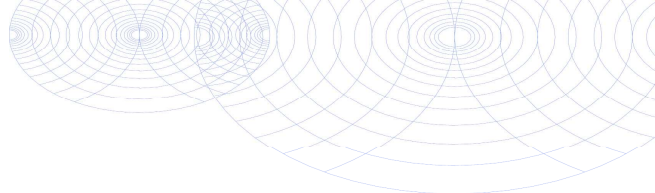
BNP Paribas S.A. 227 9245 25
 IBAN: NL71BNPA0227924525
 BIC: BNPANL2A
 KvK/CoC: 09088623
 BTW/VAT: NL 8043.14.883.B01

Q: Dutch Accreditation Council (RvA) accredited test
 A: AP04 accredited test
 S: AS SIKB recognized test
 V: VLAREL recognized test
 W: Walloon region recognized test

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 ASM





Appendix (A) with the specified sub-sample information belonging to the analysis certificate. 2025027708/

Page 1/1

Sample nr.		Your sample description		Your sampling date	Sample description/Sampling ID
Barcode	Drill-#	From	To		
14627037	1945065				
0904690428					

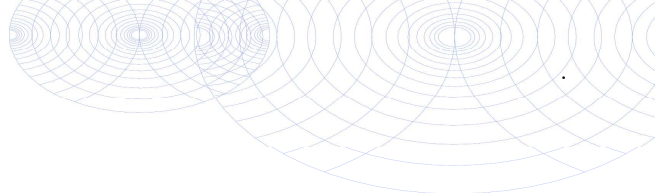


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 BIC: BNPA NL2A
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Annex (C) method references belonging to certificate of analysis 2025027708/1

Page 1/1

Analysis	Method	Technique	Method reference
Characteristics			
Dry matter	W0104	Gravimetry	NEN-EN 15934 & CMA 2/II/A.1
Phosphor pesticides			
Organo phosphorous pesticides (OPP 13)	W6331	GC-MS	In house method

Where appropriate additional information about the methods applied by eurofins analytico as well as the classification of the accuracy are listed in our supplement: "Specification of methods of analyses", version June 2024

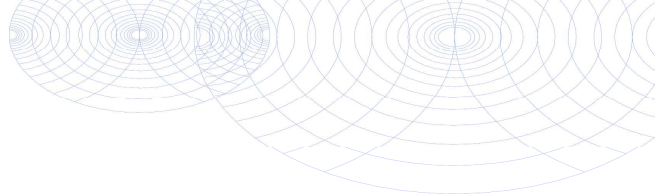


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**Annex (D) remarks concerning the sampling and preservation period 2025027708/1**

Page 1/1

Non compliance(s) of the criteria is(are) observed that may have influenced the accuracy of the test results of samples mentioned below.

Sample nr.

The temperature of the samples received at the laboratory, exceeded the limit.

14627037**Eurofins Analytico B.V.**

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Eurofins Chemtest Ltd

11 Depot Road
CB8 0AL NEWMARKET
UNITED KINGDOM

Certificate of analysis

Date: 14-Apr-2025

Please find enclosed the analytical results of the test carried out for the project.

Certificate number/Version	2025027710/1
Your project number	-
Your project name	Job No 25-08476
Your order number	
Your Sample delivery date	07-Apr-2025

This Certificate of Analysis shall not be reproduced except in full, without written approval of the laboratory. Interpretations and opinions are outside the scope of our accreditation, and all results relate only to samples supplied.

Soil samples will be stored for a period of 4 weeks and water samples for a period of 2 weeks after receipt of the samples at our laboratory. Without any additional request, samples will be disposed when the above mentioned periods have expired. If you require Eurofins Analytico to store the samples for a longer period, please complete this page and return it to Eurofins Analytico at least one businessday before the period is due to expire. The costs of prolonged storage periods may be found in our pricelist.

Storage period:

Date:

Name:

Signature:

We are confident that we have performed the order in accordance with your expectations. If you have any remaining questions concerning this Certificate of Analysis, please don't hesitate to contact our Customer Service.

Yours sincerely,

Eurofins Analytico B.V.



Ing. A. Veldhuizen
Technical Manager

Eurofins Analytico B.V.

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Certificate of analysis

Your project number -
 Your project name Job No 25-08476
 Your order number
 Your sample taker

Certificate number/Version 2025027710/1
 Start date 07-Apr-2025
 End date analysis 11-Apr-2025
 Report date 11-Apr-2025/14:45
 Annex A, C, D
 Page 1/1

Analysis	Unit	1
Characteristics		
Q Dry matter	% (w/w)	77.8
Organic Chlorinated Pesticides		
Q 4,4 -DDE	mg/kg dm	0.87
Q 2,4 -DDE	mg/kg dm	0.007
Q 4,4 -DDT	mg/kg dm	0.062
Q 4,4 -DDD + 2,4 -DDT	mg/kg dm	0.043
Q 2,4 -DDD	mg/kg dm	0.004
Q DDT/DDE/DDD (sum)	mg/kg dm	0.99
Q Aldrin	mg/kg dm	<0.002
Q Dieldrin	mg/kg dm	<0.002
Q Endrin	mg/kg dm	<0.005
Q Drins (sum)	mg/kg dm	<0.009
Q alfa-HCH	mg/kg dm	<0.05
Q beta-HCH	mg/kg dm	<0.005
Q gamma-HCH	mg/kg dm	<0.005
Q delta-HCH	mg/kg dm	<0.02
Q Sum 4 HCH-compounds	mg/kg dm	<0.08
Q a-Endosulfan	mg/kg dm	<0.01
Q alfa-Endosulfansulphate	mg/kg dm	<0.02
Q a-Chlordan	mg/kg dm	<0.002
Q y-Chlordan	mg/kg dm	<0.002
Q Chlordans (sum)	mg/kg dm	<0.004
Q Heptachlor	mg/kg dm	<0.002
Q Heptachloroepoxide	mg/kg dm	<0.002
Q Hexachlorobutadiene	mg/kg dm	<0.002
Q Isodrin	mg/kg dm	<0.005
Q Telodrin	mg/kg dm	<0.005
Q Tedion	mg/kg dm	<0.005

No. Your sample description

1 1945867

Specified sample matrix

Soil, Sediment

Sample nr.

14627060

Eurofins Analytico B.V.

Gildeweg 42-46 (lab.) Venecoweg 5
 NL-3771NB Barneveld B-9810 Nazareth
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 BIC: BNPANL2A
 KvK/CoC: 09088623
 BTW/VAT: NL 8043.14.883.B01

Q: Dutch Accreditation Council (RvA) accredited test
 A: AP04 accredited test
 S: AS SIKB recognized test
 V: VLAREL recognized test
 W: Walloon region recognized test

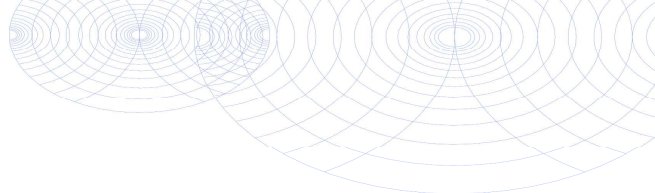
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Verified
 ASM

FZ



TESTING
 RvA L010



Appendix (A) with the specified sub-sample information belonging to the analysis certificate. 2025027710/

Page 1/1

Sample nr.		Your sample description		Your sampling date	Sample description/Sampling ID
Barcode	Drill-#	From	To		
14627060	1945867				
0904690432					

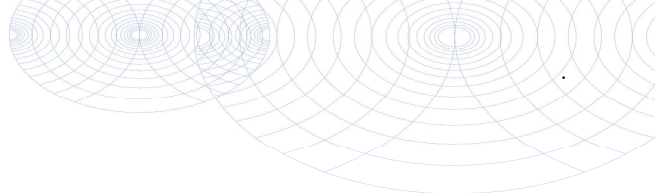


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 IBAN: NL71BNPA0227924525
 BIC: BNPPNL2A
 KvK/CoC: 09088623
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Annex (c) method references belonging to certificate of analysis 2025027710/1

Page 1/1

Analysis	Method	Technique	Method reference
Characteristics			
Dry matter	W0104	Gravimetry	NEN-EN 15934 & CMA 2/II/A.1
Organic Chlorinated Pesticides			
Chloropesticides	W6331	GC-MS	In house method

Where appropriate additional information about the methods applied by eurofins analytico as well as the classification of the accuracy are listed in our supplement: "Specification of methods of analyses", version June 2024

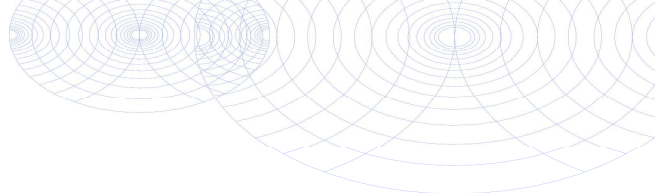


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 BIC: BNPANL2A
 KvK/CoC: 09088623
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**Annex (D) remarks concerning the sampling and preservation period 2025027710/1**

Page 1/1

Non compliance(s) of the criteria is(are) observed that may have influenced the accuracy of the test results of samples mentioned below.

Sample nr.

The temperature of the samples received at the laboratory, exceeded the limit.

14627060

**Eurofins Analytico B.V.**

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IBAN: NL71BNPA0227924525
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BTW/VAT: NL 8043.14.883.B01

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APPENDIX G – APPROACH TO THE SELECTION OF GENERIC ASSESSMENT CRITERIA

Chronic Risks to Human Health

Defra and the EA have published a limited number of Soil Guideline Values (SGVs)¹⁵ that represent minimal chronic risk to human health. CL:AIRE has published a limited number of Category Four Screening Levels (C4SLs)¹⁶ which represent a low but still strongly precautionary level of chronic risk to human health. Both the SGVs and C4SLs have both been derived for a Soil Organic Matter (SOM) content of 6%, which is not always representative of the low SOM that are encountered within Made Ground on brownfield sites.

Land Quality Management Ltd. (LQM) responded to the demand for a more comprehensive set of screening values and for a wider range of SOM by producing Suitable for Use Levels (S4ULs)¹⁷ which are a hybrid of SGVs and C4SLs. The S4ULs have been endorsed by the Chartered Institute of Environmental Health (CIEH).

A smaller set of 35 GACs was published by CL:AIRE in association with AGS and EIC in 2010. These were based on the exposure scenarios that were used to derive the SGVs. These exposure scenarios have since been superseded, in part, by the publication of the C4SLs and the S4ULs. A second phase of C4SLs is currently under development.

LEAP uses C4SLs where they are available as generic assessment criteria to quantitatively assess the potential chronic risks to human health. Where C4SLs are not available, the S4ULs or CL:AIRE GACs are used. It is noted that S4ULs are not equivalent to C4SLs in all their exposure assumptions but are generally more conservative. To ensure the greatest possible consistency in LEAP's human health GQRAs, the physicochemical and toxicological input parameters that were used to derive the CL:AIRE GACs have been remodelled using the exposure parameters selected by LQM to derive the S4ULs.

For the organic compounds benzene and benzo(a)pyrene for which C4SLs are available for a SOM of 6% only, LEAP has calculated equivalent C4SLs for 1% and 2.5% SOM. SOM does not affect the inorganic contaminants.

¹⁵ Environment Agency Science Report SC050021 series.

¹⁶ CL:AIRE Final Project Report. 'SPI010 – Development of Category 4 Screening Levels for assessment of land affected by contamination'. CL:AIRE, December 2013

¹⁷ 'The LQM/CIEH S4ULs for Human Health Risk Assessment', Nathaniel P et al, 2015. Copyright Land Quality Management Ltd, reproduced with permission: Publication Number S4UL3509.

In accordance with current Public Health England (PHE) guidance¹⁸, LEAP carries out the assessment of PAHs using a surrogate marker approach, whereby the assessment of risk from benzo(a)pyrene also captures potential risks from other carcinogenic PAHs that may be present. The alternative S4ULs for PAHs using the Toxic Equivalent Factor (TEF) approach are not used because this approach is likely to under predict the true carcinogenicity of PAHs and is not advocated by PHE. The threshold PAHs have been assessed similarly, by using naphthalene as a marker compound due to its high volatility relative to other PAHs.

Total phenols are assessed by LEAP against the S4UL for phenol and total chromium is assessed against the S4UL for trivalent chromium.

LEAP does not consider the theoretical soil saturations in the evaluation of organic compounds and as such, some of the S4ULs for the less sensitive exposure scenarios are lower than their more sensitive equivalents.

Risks to human health from inhalation of vapours derived from groundwater are evaluated by LEAP using the SoBRA groundwater $GAC_{gw vap}$ ¹⁹.

Acute Risks to Human Health

Cyanide has not been modelled using CLEA because it has high acute toxicity and CLEA is designed to evaluate chronic risks. Assuming an acute risk and based on a single dose of 3 g of soil, an assessment criterion of 33 mgkg^{-1} free inorganic cyanide and 544 mgkg^{-1} complex cyanide has been calculated by LEAP. At this stage LEAP has chosen to adopt a conservative screening value of 20 mgkg^{-1} for total cyanide (essentially the sum of free and complex cyanides) to highlight any potential risks to human health.

Risks to Controlled Waters

RTM (2006)²⁰ requires receptor-specific Water Quality Standards (WQS) to be used to determine potentially unacceptable risks to water bodies in England and Wales. It requires appropriate criteria to be taken from a hierarchy of sources, where they are available as follows:

1. UK published values

¹⁸ HPA 'Contaminated Land Information Sheet. Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)'. Public Health England, 2017.

¹⁹ Society of Brownfield Risk Assessment (SoBRA) 'Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater' Version 1.0. February 2017.

²⁰ EA 'Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination' 2006.

2. EU published values
3. WHO published values

Drinking Water Resources

For groundwater and surface waters that are abstracted for potable supply LEAP uses:

- UK Drinking Water Quality Standards (DWS) from *The Water Supply (Water Quality) Regulations 2016* (England)
- The Water Supply (Water Quality) Regulations 2010 (Wales) as amended in 2016
- World Health Organisation *Guidelines for Drinking Water Quality*, Fourth Edition, Volume 1, (2011).

Where the groundwater is not abstracted for potable supply, this is a precautionary approach which protects the potential future exploitation of the groundwater.

Surface Water (Ecological) Receptors

For surface waters as ecological receptors, LEAP uses the Environmental Quality Standards (EQS) from The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015. There are no appropriate EU or WHO standards available.

Petroleum Hydrocarbons

There are no current UK standards available for petroleum hydrocarbons, either for groundwater or surface water receptors, so an initial assessment criterion of 10µg/l, based on the former target concentration for dissolved or emulsified hydrocarbons, is used to represent a conservative preliminary screening value for total petroleum hydrocarbons.

Where considered appropriate, LEAP then follows the guidance of CL:AIRE 2017²¹ for the further assessment of the petroleum hydrocarbon fractions and derivatives. For a drinking water resource, the WHO guidelines are used. For surface waters as ecological receptors, proxy compounds are used to select appropriate EQS based on recommended indicator compounds, as follows:

- aromatic EC5-EC7 – benzene
- aromatic >EC7-EC8 – toluene
- aromatic >EC8-EC10 – ethylbenzene
- aromatic >EC10-EC12 – naphthalene

²¹ CL:AIRE, 2017. 'Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies'. CL:AIRE, London. ISBN 978-1-905046-31-7.

- aromatic >EC12-EC16 – no proxy
- aromatic >EC16-EC21 – anthracene
- aromatic >EC21-EC35 – benzo(a)pyrene.