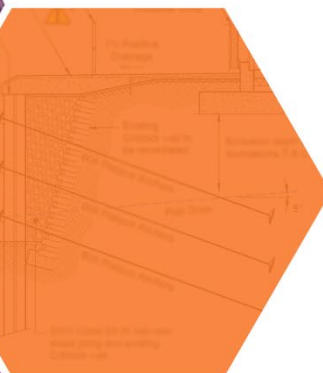
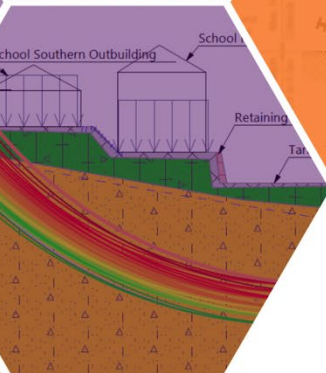
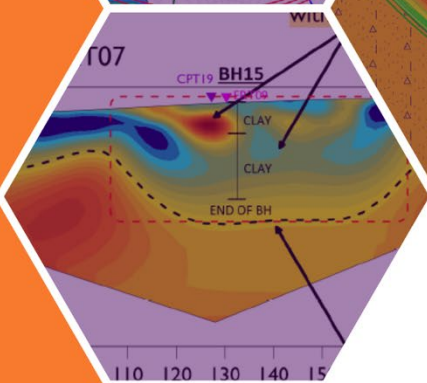
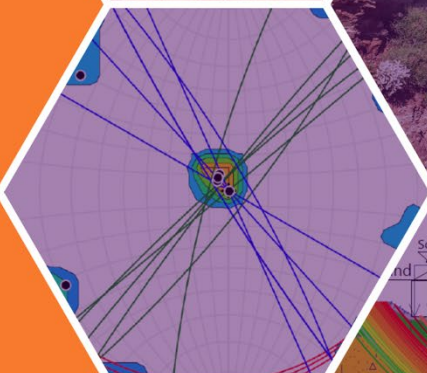


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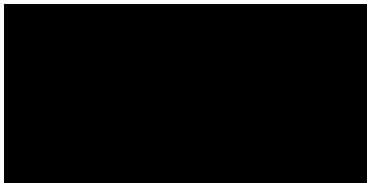


GROUND APPRAISAL REPORT

FOR THE SITE AT
Gatehouse Lane Industrial Estate,
Hassocks, BN6 9LE

ON BEHALF OF
Bedford Park Developments
Limited

JOB REFERENCE
ICE0422-GAR-MAR25

Report:	GROUND APPRAISAL REPORT
Site:	GATEHOUSE LANE INDUSTRIAL ESTATE, HAS SOCKS, BN6 9LE
Client:	BEDFORD PARK DEVELOPMENTS LIMITED
Date:	06/03/2025
Reference:	ICE0422-GAR-MAR25
Version:	1.0
Prepared by:	
	LEVENT DOGAN BSc, MSc, PGDip, CEng MCIHT, AMICE, AMIEnvSc DIRECTOR
IBEX Consulting Engineers Limited Abbey House, 25 Clarendon Road, Redhill, Surrey, RH1 1QZ +44(0)1737 452622 (ext.2622)	

AMENDMENT RECORD

Revision ref.	Date	Reasons for amendment	Prepared and Approved by
1.0	06/03/2025	First issue	LD

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FIGURES

FIGURE 1	Site Location Plan
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APPENDIX A	Exploratory Hole Logs and In-situ Testing Results
APPENDIX B	Geotechnical Laboratory Testing Results
APPENDIX C	Geochemical Laboratory Testing Results
APPENDIX D	HazWasteOnline™ Waste Classification Report

EXECUTIVE SUMMARY		
Site Details	Site Address	Gatehouse Industrial Estate, Hassocks, BN6 9LE
	National Grid Reference	528910, 119830
	Site Area (Approx.)	1.06Ha
	Current Site Use(s)	Undeveloped parcel of land
	Form of Development	The proposed development on the site comprises the construction new light industrial / commercial units with services, access roads and associated development infrastructure.
Encountered Conditions	Scope of Works	The investigation included an intrusive investigation and laboratory testing to inform a geotechnical and geo-environmental assessment.
	Ground Conditions	The ground conditions comprised a thickness of Topsoil and Made Ground, overlying Weald Clay Formation across the site.
	Groundwater	Groundwater was not encountered during the intrusive investigation.
Geotechnical Considerations	Foundations	Based on the ground and groundwater conditions encountered, conventional shallow foundations could be suitable for the proposed commercial redevelopment across the site, albeit taken through any topsoil, soft clay, root or desiccated zones, or disturbed ground and bear wholly into, or onto the medium strength clay of the Weald Clay Formation. The results of the laboratory analysis indicated the Weald Clay Formation to be medium to high volume change potential as defined by NHBC Standards, Chapter 4.2. Therefore, remote from trees, a minimum founding depth, within natural soils of suitable bearing capacity, would be 1.0m bgl. However, due to the presence of hedgerows, shrubs and mature/semi-mature trees along the site boundaries, foundations within the zone of influence of trees and hedgerows (existing, removed and/or proposed) may need to be deepened in accordance with the NHBC Standards, Chapter 4.2. Foundations should be taken down through any topsoil, soft clay, root or desiccated zones, or disturbed ground and bear wholly into or onto the medium strength clay of the Weald Clay Formation. An allowable bearing capacity of 75kPa is recommended for the medium strength Weald Clay Formation. Under this loading, total settlements should remain within tolerable limits, i.e. <25mm. Where any unexpected or soft ground conditions are encountered during the groundworks, works in that area should cease and the advice of a suitably qualified geotechnical engineer sought.
	Excavations	Both shallow and deeper excavations above the groundwater level within the cohesive soils are likely to remain relatively stable in the short to medium term though some spalling may be anticipated.
	Buried Concrete	Buried concrete for foundations should be designed to Class DS3 (AC2s).
	Pavement and Subgrade	Based on both the estimated CBR value and laboratory testing, it is recommended that CBR design values of 2.0% is adopted for cohesive soils.
Contamination Assessment	Human Health	The laboratory results have been screened against thresholds for a commercial end use without plant uptake. The results of the geochemical analyses undertaken compared against appropriate Tier 1 screening criteria for a commercial without plant uptake end use, which has demonstrated that all determinands were below the respective thresholds. As such, no remedial measures are required to protect future end users of the proposed redevelopment.
	Groundwater	Given the absence of any significant concentrations of potentially mobile contamination identified as part of the chemical analysis it is considered unlikely that the site poses any significant risk to groundwater chemical quality. Therefore, no remedial works are considered necessary to protect groundwater from on-site soil contamination concentrations identified.

EXECUTIVE SUMMARY		
	Ground Gases	No ground gas protection measures are required.
	Built Environment	The results of the relevant chemical analyses indicate that the results were below the specific thresholds, as such the use of PE or PVC piping or similar should be suitable for water supply pipes on the site laid within the natural soils. However, it is recommended that the results of this investigation be presented to the water utility company as soon as reasonably practicable to confirm the pipe material. Therefore, upgraded potable water supply pipe materials are unlikely to be required. The water supply pipe requirements for this site should be discussed at an early stage with the relevant Utility provider.
	Waste Disposal	The geochemical testing results of seven samples were uploaded to HazWasteOnline™ Waste Classification Tool which demonstrated that both two samples fall into ' Non-Hazardous Waste ' in accordance with European Waste Code WM3 (17 05 03 & 17 05 04). Natural uncontaminated soil arisings of the Weald Clay Formation are likely to be classified as 'inert' waste, and it is recommended that the chemical testing results should be forwarded to the proposed landfill facility to confirm the waste classification.
Further Action: • Submit chemical testing results to appropriate waste facility to confirm waste classification. • A discovery strategy should be maintained during development such that any abnormal conditions (geotechnical or potential contamination) are identified and their potential impact on the proposed development assessed prior to determining any potential mitigation measures.		
<i>This Executive Summary is intended to provide a brief summary of the main findings and conclusions of this report. For detailed information, the reader is referred to the main report ref. ICE0422-GAR-MAR25.</i>		

1. INTRODUCTION

1.1 General

IBEX Consulting Engineers Limited ('IBEX') was instructed by Bedford Park Developments Limited ('the Client') to undertake a ground investigation of the geotechnical and geo-environmental factors pertaining to the proposed commercial development at Gatehouse Lane Industrial Site, Hassocks, BN6 9LE ('the site'). The site's location is presented in Figure 1.

A Phase I Geo-Environmental Desk Study Report was undertaken by Environmental Protection Services Ltd (EPS) on behalf of Bedford Park Developments Limited, dated 6th April 2023, entitled 'Gatehouse Lane Industrial Estate, Gatehouse Lane, Goddards Green, Hassocks, BN6 9LE. Phase I Geo-Environmental Desk Study Report', reference no: UK23.6392.

A summary of this report is presented in Section 2. For full details reference should be made to the individual reports.

1.2 Proposed Development

It is understood that the site is proposed to be developed with commercial development with services, access roads and associated development infrastructure.

1.3 Objectives

The investigation was to comprise geotechnical and environmental factors pertaining to the site, including a review of available reports and an examination of other sources of geo-environmental and geotechnical information. Subject to the findings of the desk study, an intrusive investigation was to be undertaken into the geo-environmental conditions pertaining to the site.

The data from the geotechnical investigation was to form the basis of a preliminary interpretation with respect to foundation design, pavement design, concrete specification and excavation stability.

In terms of the environmental investigation, a Preliminary Risk Assessment (PRA) was undertaken as part of the desk study in accordance with LCRM by others, in order to provide a basis for the scope and rationale of the subsequent Phase II ground investigation. The data from Phase I and Phase II were then to form the basis of a subsequent preliminary Generic Quantitative Risk Assessment (GQRA). The objective of the risk assessments was to evaluate the risks posed to the proposed commercial development, adjacent land uses, and the wider environment, in the context of the development options, immediate liabilities under the Environmental Protection Act 1990, and risks posed to Controlled Waters under the Water Resources Act.

1.4 Standards

Where practicable, the geo-environmental assessment presented in this report was undertaken in accordance with the following documents and guidance:

- British Standards Institute - Code of Practice for Earth Retaining Structures (BS8002:2015).
- British Standards Institute - Code of Practice for Site Investigations (BS5930:2015).
- British Standards Institute - Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gasses for New Buildings (BS 8485:2015+A:2019).
- British Standards Institute - Eurocode 7 - Geotechnical Design - Parts 1 & 2 (BS EN1997-1:2004 & BS EN1997-2:2007).
- British Standards Institute - Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs) (BS8576:2013).
- British Standards Institute - Investigation of Potentially Contaminated Sites - Code of Practice (BS10175:2011).
- British Standards Institute - Soils for Civil Engineering Purposes (BS1377:1990).
- British Standards Institute - Specification for Topsoil and Requirements for Use (BS3882:2015).
- Building Research Establishment - The Performance of Building Materials in Contaminated Land (BRE255) (1994).

- Construction Industry Research and Information Association - Assessing risks posed by hazardous ground gases to buildings (C665) (2007).
- Department for Communities and Local Government - National Planning Policy Framework (2012).
- Department for Environment Food and Rural Affairs and CL:AIRE - Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination (SP1010) (2014).
- Department of Environment - Industry Profiles (1995 - 1996).
- Environment Agency - Guidance for waste destined for disposal in landfills (2006).
- Environment Agency - Guidance on Requirements for Land Contamination Reports (2005).
- Environment Agency – Land Contamination Risk Management (2020).
- National House Building Council, Environment Agency & Chartered Institute of Environmental Health - Guidance for the Safe Development of Housing on Land Affected by Contamination (R&D Publication 66) (2008).
- National House Building Council - Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present (10627-R01[04]) (2007).
- National House Building Council - Standards, Chapter 4.1 Land Quality - Managing Ground Conditions (2018).

1.5 Conditions

The data collected from the investigations have been used to provide an interpretation of the geotechnical conditions pertaining to the site. The recommendations and opinions expressed in this report are based on the data obtained. IBEX takes no responsibility for conditions that either have not been revealed in the available records, or that occurs between or under points of physical investigation. Whilst every effort has been made to interpret the conditions, such information is only indicative and liability cannot be accepted for its accuracy.

It should be noted that in particular the concentrations and levels of mobile liquid and gaseous materials are likely to vary with time. The results obtained may therefore only be representative of the conditions at the time of sampling. This report should not be taken as any guarantee that a site is free of hazardous or potentially contaminative materials.

Information contained in this report is intended for the use of the Client, and IBEX can take no responsibility for the use of this information by any party for uses other than that described in this report. IBEX makes no warranty or representation whatsoever express or implied with respect to the use of this information by any third party. IBEX does not indemnify the Client or any third parties against any dispute or claim arising from any finding or other result of this investigation report or any consequential losses.

Assessment criteria or other parameters developed for the evaluation of contamination on this site are based on a number of assumptions regarding exposure and toxicology, and exposure to contaminants and levels of adverse effects may therefore vary. Whilst every care and expertise has been employed in the development of such criteria, no liability is accepted in this respect. Other criteria or guidance on the development of assessment criteria may be published in the future, and no liability is accepted in this respect.

2. DESK STUDY

As previously noted, a Phase I Geo-Environmental Desk Study Report was undertaken by Environmental Protection Services Ltd (EPS) on behalf of Bedford Park Developments Limited, dated 6th April 2023, entitled 'Gatehouse Lane Industrial Estate, Gatehouse Lane, Goddards Green, Hassocks, BN6 9LE. Phase I Geo-Environmental Desk Study Report', reference no: UK23.6392. The findings of the Phase I desk study are presented in the following section. Reference should be made to the original reports and documents for further details. Comments made in the following section regarding possible ground conditions on the site and within the surrounding area are based purely on the desk study. Where appropriate, this information will be used in the later sections of this report as supplementary information to assist in the evaluation of the ground conditions and aid the identification of geotechnical and geochemical constraints and hazards that could impact on the scheme.

2.1 Summary of Site History

The third-party desk study reported that the earliest map studied, dated 1800s, showed the site to have comprised as undeveloped field and the site remained undeveloped until 1955, then appear to be developed with the existing buildings, yards and hardstanding areas. The remaining portion of the site is understood to be remained undeveloped over the mapped period.

The surrounding lands were reported to have been slowly developed with farmhouses, associated private gardens, farm outbuildings, roads, sewage fitters, ponds and undeveloped fields.

2.2 Site Description

The site location plan is presented in Figure 1.

Name of Site		Gatehouse Industrial Site
Address of Site		Gatehouse Industrial Site Hassocks BN6 9LE
National Grid Reference		528910, 119830
Site Area (Approx.)		1.06Ha
Current Site Use		Industrial estate consisted of several commercial buildings/units and tarmac hardstanding car parking areas
Local Authority		Middle Sussex District Council
Surfaces		Soft landscaping and tarmac/concrete hardstanding
Vegetation		Mature trees and shrubs along the site boundaries
Topography/Slope Stability		Topography of the site sloped gently towards the south
Drainage		Yes
Services		Yes
Controlled waters		None
Surrounding Land Uses	North	Gatehouse Lane, residential properties and associated private gardens
	East	Undeveloped open farmlands and associated farmhouses
	South	Woodland and undeveloped open farmlands
	West	Undeveloped open farmlands

2.3 Geology

With reference to British Geological Survey (BGS) mapping, the geology of the site was anticipated to comprise mudstone of the Weald Clay Formation. Topsoil is also anticipated to be present over the natural deposits. Given that the surrounding areas and boundaries of the site had been developed previously, there is the potential for a thickness of Made Ground to be present over the natural deposits.

BS5930:2015 defines **Made Ground** as anthropogenic ground in which the material has been placed without engineering control and/or manufactured by man in some way, such as through crushing or washing, or arising from an industrial process. Great variations in material type, thickness and degree of compaction invariably occur and there can be deleterious or harmful matter, as well as potentially methanogenic organic material.

The **Weald Clay Formation** consists of shales and mudstones with occasional thin beds of siltstones, sandstone, shelly limestone and clay ironstone. When fresh, the beds are normally dark grey weathering to mottled yellow and brown near the surface or at outcrop. Bands of red clay occur within the bed, usually in association with the sandstone.

2.4 Hydrogeology

With reference to the 2023 EPS Report, the underlying bedrock geology (Weald Clay Formation) on the site is designated as an Unproductive Strata.

Unproductive Strata Aquifers are defined as areas of rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow. The soil cover across the site was classified as being of low leaching potential, for soils which provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Source Protection Zones (SPZ)

The site was indicated to be outside of any Source Protection Zone (SPZ). An SPZ is a protection zone placed around a well or borehole that supplies groundwater of potable quality.

Several discharges of treated or untreated sewage effluent to controlled waters was recorded within a radius of 250m of the site boundary, the closest was located 83m to the north where final/treated effluent was discharged to land via a soakaway.

No licenced surface water abstractions and pollution incidents to controlled waters were recorded within a radius of 250m of the site boundary.

2.5 Hydrology

The nearest water feature (pond) was located c.77m to the north and southern and western site boundaries were lined with drainage ditches.

The desk study did not identify any pollution incidents to groundwater and licensed groundwater abstractions within a radius of 250m of the site boundary.

The site was indicated to be at risk of flooding (Flood Zone 1).

Feature		On Site	Off Site	Potential Receptor?
Aquifer	Weald Clay Formation	Unproductive	Unproductive	No
SPZ		None	None	No
Abstractions	Groundwater	None	None	No
	Surface Water	None	None	No
	Potable Water	None	None	No
Surface Water Features		None	Pond (77m N)	No
Flood Risk	Environment Agency (EA) Flood Zone 2	None	-	No
	EA Flood Zone 3	None	-	No
	Risk of Flooding from Rivers and Sea (RoFRaS)	N/A	-	No
	Historical Flood Events	None	-	No
	Flood Defences	There are no areas benefiting from Flood Defences within 250m of the study site.		No
	Surface Water Flooding	Low	Low	No
	Groundwater Flooding	Low	Low	No

Table 2.1 Summary of Hydrogeology and Hydrology

2.6 Previous Ground Investigations

This report has been prepared by IBEX Consulting Engineers Limited, as the Client's Geotechnical Engineer for the proposed development. The adjacent site and some part of the subject site has been the subject of a Phase I preliminary risk assessment as well as an intrusive investigation. The pertinent report(s) which relate to the proposed scheme, or have been used to inform the design comprise the following:

- EPS Phase I Geo-Environmental Desk Study Report for Gatehouse Lane Industrial Estate, Gatehouse Lane, Goddards Green, Hassocks, BN6 9LE, referenced UK23.6392, dated 6th April 2023.
- IBEX Ground Investigation Interpretive Report for Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE, referenced ICE0216-GIR-JAN24, dated 4th January 2024.

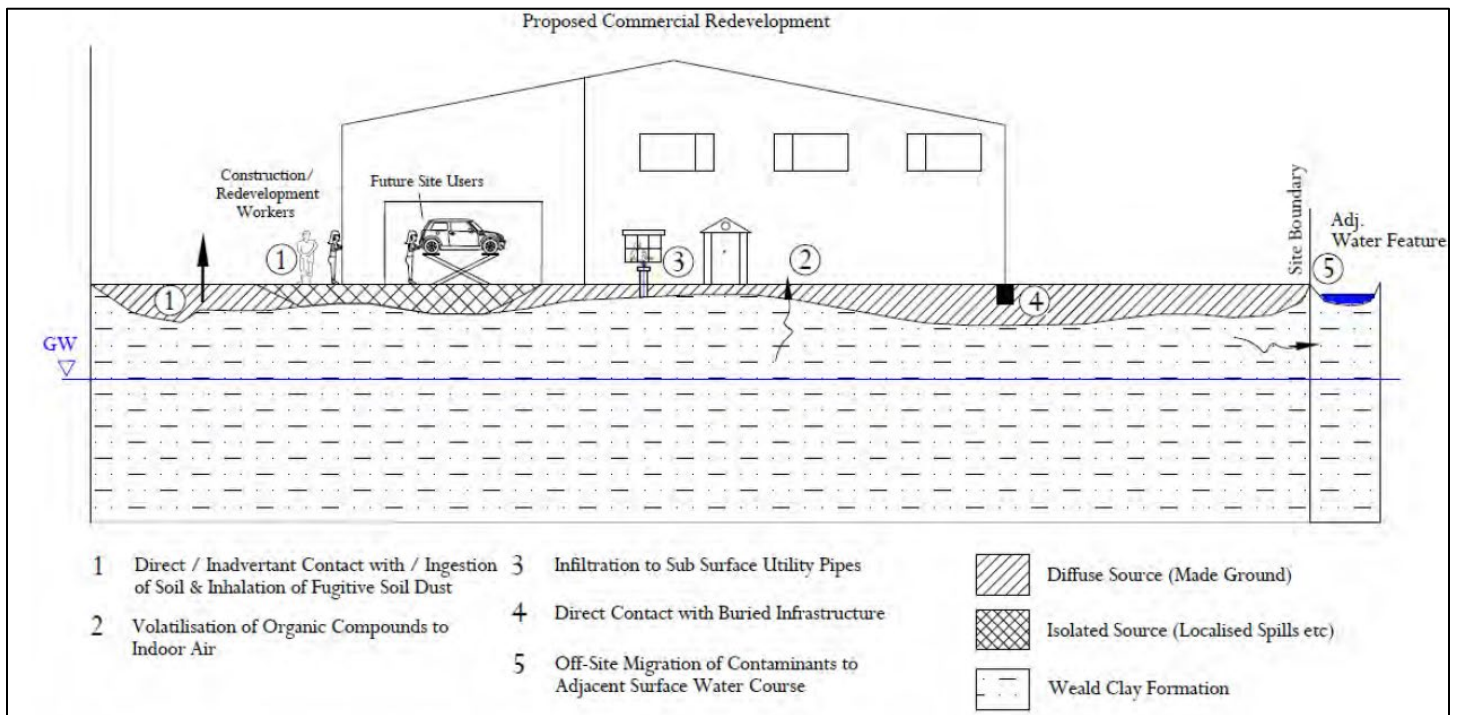
Reference should be made to the original report and associated documents for further details. The ground conditions encountered at the adjacent site are summarised below.

A Phase I Geo-Environmental Desk Study report was undertaken by EPS on behalf of Bedford Park Developments Limited, dated 6th April 2023, entitled 'Gatehouse Lane Industrial Estate, Gatehouse Lane, Goddards Green, Hassocks, BN6 9LE. Phase I Geo-Environmental Desk Study Report', reference no: UK23.6392. The 2023 EPS Phase I Desk Study Report suggested that the environmental sensitivity of the site itself was considered to be **moderate to low** due to current and historic industrial use of the area have been identified within the desk study, therefore further Phase II intrusive investigation was recommended to assess the potential contamination linkages (if any).

A ground investigation (GI) was undertaken by IBEX on behalf of Bedford Park Developments Limited, dated 4th January 2024, entitled 'Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE. Ground Investigation Interpretive Report', reference no: ICE0216-GIR-JAN24. The GI comprised ten boreholes to a maximum depth of 15.0m bgl. The GI indicated that the ground conditions beneath the adjacent site comprised a thickness of Topsoil and Made Ground over the Weald Clay Formation. Topsoil was reported to depths of between 0.15m and 0.40m underlain by Weald Clay Formation which were noted to be slightly variable in composition across the site but predominately comprising soft brown, grey mottled silty CLAY to stiff bluish grey, yellowish brown and orangish brown mottled slightly sandy silty CLAY with dark grey carbonaceous flecks. The Made Ground were previously reported to depths of between 0.10m and 1.30m beneath the site. It was noted that the composition of the Made Ground encountered was noted to be grass over brown clay with traces of bricks to soft brown clay with bricks and gravel.

2.7 Conceptual Site Model

An illustrative Conceptual Site Model (CSM) produced by ESP (which is generally concurred by IBEX) is presented below.



2.8 Investigation Rationale

The strategy comprised investigation locations to provide a general coverage of the site to assess ground and groundwater conditions and to support the geotechnical and geochemical assessment. The investigation included:

- Provision of a RAMS pack presenting a risk assessment and method statement(s) specific to the proposed monitoring works.
- Attendance of an Engineer to set out and supervise the intrusive investigation and logging of recovered soils from exploratory holes.
- Undertake Dynamic Cone Penetrometer (DCP) tests to determine the in-situ CBR profile in the upper metre of ground at 4No. locations along the proposed site access roads.
- Construction of up to 5No. window sampler boreholes to depths of up to 5.00m bgl, or maximum achievable depth depending on drilling conditions.
- Geotechnical Laboratory Testing to be carried out by a UKAS Accredited Laboratory in accordance with BS1377.
- Geochemical laboratory testing for IBEX Suite 4 of commonly occurring brownfield contaminants including speciated total petroleum hydrocarbons (TPH) and asbestos screening by a UKAS/MCERTS Accredited Laboratory where possible.
- Provision of a Waste Classification Report (in accordance with WM3) based on the findings of the geochemical soil laboratory testing results using HazWasteOnline® software.
- Provision of a Ground Appraisal Report.

Soil samples were collected and placed into amber jars and cool boxes on site for transit to the office, where they were stored under chilled conditions (<4°C) prior to final transportation in cool boxes to the laboratory by their in-house courier. Both the geotechnical and contamination testing were undertaken by UKAS accredited laboratories. Contamination testing of soil samples was also undertaken in accordance with accredited MCERTs protocols. Samples were stored in temperature controlled conditions from sampling until receipt at the laboratory from which time sample preparation and storage was determined by testing requirements and in line with laboratory's protocols.

3. ENCOUNTERED CONDITIONS

A factual record of the conditions encountered during the physical investigation of the site is presented in the following section.

For further details of the encountered ground conditions, reference should be made to the exploratory hole logs presented in Appendix A and the geochemical testing results in Appendix B.

The physical ground investigation works were undertaken on the 3rd February 2025.

Unless stated otherwise, all depths are reported as metres below ground level (m bgl).

3.1 Ground Conditions

A summary of the encountered soil conditions is presented in Table 3.1.

Top (m bgl)	Base (m bgl)	Geology
0.00	0.10-0.15	Topsoil: Grass over greyish brown sandy silty clay.
0.00-0.08	0.08-0.35	Made Ground: Varied from grass over greyish brown sandy silty clay with traces of bricks to dark grey black sandy silty clay with bricks, char coal, concrete and patio slabs.
0.10-3.50	>5.00	Weald Clay Formation: Varied from stiff to very stiff brown, greyish brown and grey mottled silty CLAY with traces of mica and rare light grey silt pockets to thinly laminated extremely weak CLAYSTONE.

Table 3.1 Summary of Ground Conditions

For more detailed descriptions of the ground conditions at specific locations, reference should be made to the exploratory hole logs presented in Appendix A.

During the investigation, a photo-ionisation detector (PID) screening was also undertaken to screen for volatiles in-situ at the locations during sampling round, using TIGER LT[®] VOC Gas Detector device. The recorded PID screening results during sampling round together with engineer logs are presented in Appendix A.

3.2 Groundwater

Groundwater was not encountered during the investigation.

Furthermore, it should also be noted that changes in groundwater levels do occur for a number of reasons including seasonal effects and variations in drainage. Such fluctuations may only be recorded by the measurement of the groundwater level within a series of standpipes or piezometers installed within appropriate response zones.

3.3 Obstructions

During the intrusive ground investigation, WS01, WS02, WS05 and WS4 were terminated prematurely at depths of between 2.50m and 4.50m bgl due to the presence of coarse materials (e.g. mudstone or claystone or the like) respectively. As such, the presence of natural and/or manmade obstructions elsewhere on site cannot be discounted.

3.4 Geotechnical Testing Results

The following laboratory geotechnical tests were undertaken:

Geotechnical Test	Methodology	Number of Tests
Natural Moisture Content	BS EN ISO 17892 Part 1: 2014+A1:2022	13
Atterberg Limits	BS EN ISO 17892 Part 12: 2018+A2:2022	3
Particle Size Distribution – Sieving	BS EN ISO 17892: Part 4: Clause 9: 2016	1
IBEX BRE D Suite		2

Table 3.2 Laboratory Geotechnical Tests Undertaken

The results of geotechnical laboratory testing undertaken from the recovered samples are summarised in Table 3.3.

Parameter	Weald Clay Formation
Moisture Content (%)	19.8 – 30.0
Liquid Limit (%)	63 – 71
Plastic Limit (%)	23 – 26
Plasticity Index (%)	38 – 45
Modified Plasticity Index (%)	38 – 45
Volume Change Potential [NHBC and BRE]	Medium to High
Particle Size Distribution	Gravel (%)
	Sand (%)
	Clay/Silt (%)
pH	7.5 – 8.3
Water soluble sulphate (mg/kg)	76 – 2900
Acid soluble sulphate (%)	0.038 – 0.110
Total Sulphur (%)	0.064 – 0.243
SPT 'N' Values	10 - >50+

Table 3.3 Summary of Geotechnical Testing Results

3.5 Summary of General Properties Derived for Weald Clay Formation

Based on the analysis of the ground investigation data and past experience with similar deposits, the following derived general parameters are given in Table 3.4.

Property*	Weald Clay Formation
Unit Weight	18
Drained Friction, ϕ' ($^{\circ}$) ¹⁾	20 - 22
Drained Cohesion, c' (kPa)	0
SPT 'N' Value	10 – >50+
Undrained Young's Modulus, E_u (MPa) ²⁾	12 – >60
Undrained Shear Strength, c_u (kPa) ³⁾	45 – >225
Plasticity Index (%)	38 – 45
Modified Plasticity Index (%)	38 – 45
Volume Change Potential [NHBC and BRE]	Medium to High
Modulus of Volume Compressibility, m_v (m ² /MN) ⁴⁾	0.044 – 0.222
¹⁾ Calculated from: $\phi' = (42^{\circ} - 12.5 \log 10 I_p)$ for $5\% \leq I_p \leq 100\%$ Where, I_p is the soil's plasticity index (BS8002:2015). ²⁾ Calculated from: $E_u = 1.2 \text{ N MPa}$, based on the guidance given in CIRIA Report 143. ³⁾ The undrained shear strength (c_u) of the cohesive soils was correlated to the SPT "N" values using Stroud (1974), where $c_u = f_1 N$ and f_1 is factor related to the Plasticity Index (PI) of the clay (a value of f_1 equal to 5.0 for $PI \leq 25\%$ and a value of f_1 value equal to 4.5 for $PI > 25\%$). ⁴⁾ Calculated from: $m_v = 1/f_2 \text{ N m}^2/\text{MN}$, f_2 is a coefficient proposed by Stroud and Butler (1975) and varies with Plasticity Index (PI) and presented in Figure 27 of CIRIA Report 27 or $10/c_u$. *These reported values are not considered as 'Characteristic Values'.	

Table 3.4 Derived Parameters for Weald Clay Formation

3.6 Chemical Analysis

In order to assess the general chemical quality of the strata encountered, samples of soils recovered from the exploratory holes were submitted for analysis for a range of potential contaminants selected on the basis of the findings of the desk study and supported by the joint National House Building Council (NHBC), Environment Agency (EA) and Chartered Institute of Environmental Health (CIEH) publication, 'Guidance for the Safe Development of Housing on Land Affected by Contamination' (2008).

Soil samples were placed into plastic containers for general inorganic analysis and into amber jars for organic analysis. Samples were stored in temperature-controlled conditions from sampling until receipt at the laboratory from which time sample preparation and storage was determined by testing requirements and in line with the laboratory's protocols.

Three samples of the encountered soils were submitted for analysis for a comprehensive suite of common zootoxic and phytotoxic elements based upon determinands listed within the above guidance including speciated petroleum hydrocarbon analysis and asbestos screens.

4. ENGINEERING ASSESSMENT

Subsequent to intrusive investigation of the site and receipt of the laboratory test results, the following geotechnical assessments have been made.

4.1 Foundations

Based on the ground and groundwater conditions encountered, conventional shallow foundations could be suitable for the proposed commercial redevelopment across the site, albeit taken through any topsoil, soft clay, root or desiccated zones, or disturbed ground and bear wholly into, or onto the medium strength clay of the Weald Clay Formation.

The results of the laboratory analysis indicated the Weald Clay Formation to be medium to high volume change potential as defined by NHBC Standards, Chapter 4.2. Therefore, remote from trees, a minimum founding depth, within natural soils of suitable bearing capacity, would be 1.0m bgl. However, due to the presence of hedgerows, shrubs and mature/semi-mature trees along the site boundaries, foundations within the zone of influence of trees and hedgerows (existing, removed and/or proposed) may need to be deepened in accordance with the NHBC Standards, Chapter 4.2.

Foundations should be taken down through any topsoil, soft clay, root or desiccated zones, or disturbed ground and bear wholly into or onto the medium strength clay of the Weald Clay Formation. An allowable bearing capacity of 75kPa is recommended for the medium strength Weald Clay Formation. Under this loading, total settlements should remain within tolerable limits, i.e. <25mm. Where any unexpected or soft ground conditions are encountered during the groundworks, works in that area should cease and the advice of a suitably qualified geotechnical engineer sought.

On the basis of the results of the Atterberg Limit tests in conjunction with the field observations it is considered that the Weald Clay Formation should be classified 'en-masse' as high-volume change potential, as defined by NHBC Standards, Chapter 4.2. It was not considered possible to zone the site based on volume change potential due to variability of both ground conditions and test results. Therefore, a minimum founding depth of 1.0m bgl is recommended. However, it is anticipated that a minimum foundation depth of 2.0-2.5m bgl would be more typical for the proposed development in order to accommodate services, floor construction and the like. Thus, remote from trees and hedgerows the likely foundation construction would exceed the minimum depth based on NHBC Standards. Within the zone of water demand of some of the trees on site, deeper piled foundations are likely to be required.

4.2 Floor Slabs

Given the presence of shrinkable soils, it is recommended that suspended floor slabs are used with an adequate void designed according to NHBC Standards. As a guide, initial modelling indicates a requirement for a sub-floor void of at least 300mm due to the presence of shrinkable soils of high-volume change potential.

4.3 Excavations

Both shallow and deeper excavations above the groundwater level within the cohesive soils are likely to remain relatively stable in the short to medium term though some spalling may be anticipated.

Ground works should always be designed in such a manner so as to avoid entry into excavations by construction or maintenance personnel. However, in the event that such works cannot be avoided or designed out, they should only be undertaken in accordance with a safe system of work, following an appropriate risk assessment and in accordance with any legislative requirements, e.g. Confined Spaces Regulations.

4.4 Sulphates

Sulphate attack on building foundations occurs where sulphate solutions react with the various products of hydration in Ordinary Portland Cement (OPC) or converted High-Alumina Cement (HAC). The reaction is expansive, and therefore disruptive, not only due to the formation of minute cracks, but also due to loss of cohesion in the matrix.

In accordance with BRE Special Digest 1, the characteristic values of sulphate used to determine the concrete classification are determined using the methodology summarised in the table below.

No Samples in the dataset	Method for determining the sulphate characteristic value
1 – 4	Highest Value
5 – 9	Mean of the top 2 No highest results
10 or greater	Mean of the top 20% highest results

Table 4.1 Concrete in the Ground Characteristic Value Determination

Based on the guidance given in BRE Special Digest 1, Part 1 (2005), the results of the laboratory tests correspond to design class DS-3. The pH analysis indicates that the ACEC Class corresponds to AC-2s. It is recommended that the advice of this publication be taken for the design and specification of all sub-surface concrete.

pH (2.5:1 water/soil)	Water Soluble Sulphate (mg/l as SO ₄)	Acid Soluble Sulphate (% SO ₄)	Total Sulphur (% SO ₄)	Total Potential Sulphate (% SO ₄)	Water Soluble Sulphate (mg/l as SO ₄)	Oxidisable Sulphates (% SO ₄)	OS > 0.3 %	DS	ACEC - Static Groundwater	ACEC - Mobile Groundwater
7.5	76							DS-1	AC-1s	AC-1
7.5	160							DS-1	AC-1s	AC-1
7.6	2900	0.243	0.110	0.33		0.087		DS-3	AC-2s	AC-3
8.3	480							DS-1	AC-1s	AC-1
8.2	300	0.064	0.038	0.114		0.05		DS-1	AC-1s	AC-1

Chart 1: Summary of ACEC Classification

4.5 Pavement and Subgrade

Four in-situ California Bearing Ratio (CBR) tests were undertaken along the proposed access roads using a Transport Research Laboratory (TRL) Dynamic Penetrometer (DCP or Mexe Cone). Table 4.2 summarises the results of the in-situ CBR testing at variable depths.

Reference	Start Level	Stratum*	Depth Range (mm)	Min. DCP CBR (%)	Average DCP CBR (%)	Max. DCP CBR (%)
CBR01	Ground Level	Superficial Deposits	162-995	3	5	6
CBR02	Ground Level	Superficial Deposits	212-1000	3	6	13
CBR03	Ground Level	Superficial Deposits	00-999	5	5	5
CBR04	Ground Level	Superficial Deposits	392-999	2	4	8

* Refers to the natural deposits beneath the Topsoil/Made Ground.

Table 4.2 Summary of CBR Results

If/where applicable, the engineering characteristics of Made Ground are variable and unpredictable and the CBR value of these materials does not predict the overall settlements that may occur. It would be prudent to assume a worst case CBR value of 1% for the preliminary design of pavements constructed upon the Made Ground and these materials should also be deemed frost susceptible throughout thus a minimum pavement thickness of 450mm would be appropriate.

In addition, CBR values were also estimated based on the Atterberg Limit Test results and the Transport and Road Research Laboratory Report (LR1132) entitled 'The Structural Design of Bituminous Roads' (1984) cites estimated equilibrium suction indices of between 2.5% and 3.0% for silty clay with a Plasticity Index values between 38% and 45%, such as those of the clayey soils at anticipated formation depth, under average construction conditions and a presumed low-water table.

Based on both the estimated CBR value and the results of the in-situ and laboratory testing, it is recommended that a CBR design value of 1.5% is adopted.

Any hard or soft spots in the formation level such may induce reflective cracking in the pavement and allowance should be made for localised treatment or removal.

5. CONTAMINATION ASSESSMENT

A Generic Quantitative Risk Assessment (GQRA) incorporating the results of the ground investigations were undertaken in accordance with LCRM, the findings of which are presented in the following sections.

5.1 Outline Risk Assessment

The presence of a possible contaminant does not necessarily imply that a site or area is contaminated or that there is any unacceptable risk to human health. A Preliminary Quantitative Risk Assessment has been undertaken in accordance with LCRM, in order to evaluate any unacceptable risks posed to human health with respect to the proposed commercial development. It should be noted that this assessment is protective of the chronic long-term effects of contaminants, which is also likely to be protective of any possible immediate acute effects.

Based on the findings of the previous reports and a visual assessment of the soils encountered, in conjunction with the proposed end use, three soil samples were submitted for general chemical contamination analysis.

A quantitative risk assessment has been undertaken by comparing the results of the laboratory chemical testing of shallow soils against the ATRISKSOIL Soil Screening Values (SSVs) derived by Atkins, or against the Suitable for Use Levels (S4ULs) published by LQM (Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3453. All rights Reserved) and Category 4 Screening Levels (C4SLs) published by DEFRA. Although the C4SLs were released for Part 2A use, the associated policy companion document for the C4SLs indicated that they may also be used for planning. Although the C4SLs represent a marginally higher risk level than the SSACs (low risk rather than minimal risk) it is considered that the risk levels remain very low. Therefore, the final C4SLs are considered to be suitable to assess soils under the planning regime.

Samples were selected for analysis to provide general coverage of the site. The analysis included metals, metalloids, inorganic compounds, TPH, PAH and asbestos screening and these are summarised in Table 5.1 below:

Substance Group	Determinand(s)	Assessment Criteria Selected
<i>Organic Substances</i>		
Non-halogenated Hydrocarbons	Total Petroleum Hydrocarbons (TPHCWG banded)	ATRISK SSV
	Total Phenols	ATRISK SSV
Polycyclic Aromatic Hydrocarbons (PAH-16)	Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(ghi)perylene	ATRISK SSV
Volatile Organic Compounds (VOCs/sVOCs).	Toluene, Ethylbenzene, Benzene, Xylenes	ATRISK SSV
<i>Inorganic Substances</i>		
Heavy Metals and Metalloids	Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel, Selenium, Copper, Zinc	ATRISK SSV
	Copper, Zinc, Nickel	ATRISK SSV
Cyanides	Free Cyanide	ATRISK SSV
Sulphates	Water Soluble Sulphate	BRE Special Digest 1:2005

Table 5.1 Selected Assessment Criteria – Contamination in Soils

5.2 Soil Contamination vs End Users

The laboratory results have been screened against thresholds for a commercial end use without plant uptake. The results of the geochemical analyses undertaken compared against appropriate Tier 1 screening criteria for a commercial without plant uptake end use, which has demonstrated that all determinands were below the respective thresholds as summarised in Table 5.2 and 5.3.

Determinand	Unit	No. samples tested	Screening Criteria (mg/kg)	GAC Exceedances	Pollution Locations
Arsenic	mg/kg	3	ATRISK SSV – 635.0 (1-6% SOM*)	No	-
Beryllium	mg/kg	3	ATRISK SSV – 14 (1-6% SOM*)	No	-
Cadmium	mg/kg	3	ATRISK SSV – 410 (1-6% SOM*)	No	-
Chromium III	mg/kg	3	ATRISK SSV – 208000 (1-6% SOM*)	No	-
Chromium VI	mg/kg	3	ATRISK SSV – 49.1 (1-6% SOM*)	No	-
Lead	mg/kg	3	ATRISK SSV – 2310 (1-6% SOM*)	No	-
Mercury	mg/kg	3	C4SL – 350 (1-6% SOM*)	No	-
Nickel	mg/kg	3	ATRISK SSV – 1770 (1-6% SOM*)	No	-
Copper	mg/kg	3	ATRISK SSV – 106000 (1-6% SOM*)	No	-
Zinc	mg/kg	3	ATRISK SSV – 110000 (1-6% SOM*)	No	-
Total Cyanide	mg/kg	3	ATRISK SSV – 373 (1-6% SOM*)	No	-
Selenium	mg/kg	3	ATRISK SSV – 13000 (1-6% SOM*)	No	-
Vanadium	mg/kg	3	ATRISK SSV – 7490 (1-6% SOM*)	No	-
Boron Water Soluble	mg/kg	3	C4SL – 5.00 (1-6% SOM*)	No	-
Phenols	mg/kg	3	ATRISK SSV – 685 (1-6% SOM*)	No	-
Naphthalene	mg/kg	3	ATRISK SSV – 90.1 (1-6% SOM*)	No	-
Benzo(a)pyrene	mg/kg	3	ATRISK SSV – 76.3 (1-6% SOM*)	No	-
Asbestos		3		No	-

**Based on Soil Organic Matter (SOM) = [(Average Value of Total Organic Carbon (TOC)) *1.72] which is 4% for this site.*

Table 5.2 Summary of Geochemical Testing Results (Heavy Metals, Metalloids, Boron, Phenol, Cyanide, Asbestos and Other)

As such, no remedial measures are required to protect future end users of the proposed development.

The TPH bands, were all returned as below the laboratory detection limits.

In addition, three samples were also submitted for asbestos screens which were returned with no asbestos fibres identified.

5.3 Soil Contamination vs Adjacent Land Users

Surrounding land uses were identified to comprise undeveloped open fields, commercial estates and limited residential properties within a semi-rural area. Elevated concentrations of contaminants of concern were not identified in relation to human health (end users) as part of the laboratory analysis. As such, no remedial measures are considered necessary to protect adjacent land users from soils on site.

However, it is recommended that dust suppression techniques, e.g. damping down exposed soils, are employed during the construction phases on site in order to minimise the potential for airborne migration of specific hazards and to manage potential nuisance issues for adjacent land users.

5.4 Soil Contamination vs Soft Landscaping

British Standard BS3882:2015 Specification for topsoil and requirements for use provides assessment criteria for a number of potentially phytotoxic contaminants in terms of new planting.

The results of the chemical analysis for determinants known to pose a potential phytotoxic risk to plant growth are summarised in Table 5.3 together with the respective adopted Generic Assessment Criteria (GAC) for plant growth. The compliance criteria set out in BS3882:2015 are pH dependent and thus the GAC used relate to the pH range measured on samples recovered from the site.

Determinant	Phytotoxicity GAC (mg/kg)			GAC Exceedances
	pH <6.0	pH 6.0-7.0	pH >7.0	
Zinc	200	200	300	No
Copper	100	135	200	No
Nickel	60	75	110	No

Table 5.3 Summary of Plant Phytotoxicity Assessment

The phytotoxicity assessment identified no exceedances of zinc, copper and nickel and therefore no remedial measures to protect plants from phytotoxic effects are considered necessary for the proposed development.

5.5 Soil Contamination vs Building Materials

Recommendations with respect to sulphate and buried concrete are made in Section 4.4.

The current guidance on selection of materials for water supply pipes to be laid in contaminated land is contained in UK Water Industry Research's (UKWIR) report reference 10/WM/03/21 (re-issued 2010). However, the guidance is not mandatory and there have been concerns raised by various industry technical associations regarding the document and the methodologies proposed.

The results of the relevant chemical analyses indicate that the results were below the specific thresholds, as such the use of PE or PVC piping or similar should be suitable for water supply pipes on the site laid within the natural soils. However, it is recommended that the results of this investigation be presented to the water utility company as soon as reasonably practicable to confirm the pipe material. Therefore, upgraded potable water supply pipe materials are unlikely to be required. The water supply pipe requirements for this site should be discussed at an early stage with the relevant Utility provider.

As a matter of good practice, and to maximise the protection to utilities, it is recommended that clean, granular backfill is used in service runs and that marker tapes are used for all buried services.

5.6 Soil Contamination vs Groundwater

Given the absence of any significant concentrations of potentially mobile contamination identified as part of the chemical analysis, it is considered unlikely that the site poses any significant risk to groundwater chemical quality. Therefore, no remedial works are considered necessary to protect groundwater from on-site soil contamination concentrations identified.

In addition, due to relatively 'impermeable' nature of the Weald Clay Formation, pathways for migration of leachable/mobile contamination were not considered to be present within the underlying bedrock.

5.7 Ground Gases & Vapours

Based on the findings of the desk study, no potentially infilled areas were recorded in close proximity of the site. In addition, given the 'impermeable' nature of the underlying Weald Clay Formation, it is now IBEX opinion that there is no '**credible pathway**' between the off-site infilled areas and the site itself. Therefore, no ground gas measures are required for this site.

5.8 Waste

5.8.1 Reuse of Material

In accordance with CL:AIRE Code of Practice (2011) materials are only considered waste if 'they are discarded, intended to be discarded or required to be discarded by the holder'.

The Code of Practice therefore allows soils to be reused on site where the following criteria are met:

- Pollution of the environment and harm to human health is prevented in reusing the excavated materials;
- The materials are suitable for use (without any further processing);
- There is certainty of use; and
- The quantity that is absolutely necessary (and no more) is used.

In order to comply with the Code of Practice, a material management plan that confirms the above criteria are met has to be prepared. The material management plan must be reviewed by a 'Qualified Person' who then issues a declaration to the Environment Agency. IBEX can provide this service should it be required.

Where materials do not meet the required criteria, it may be possible to treat them under an environmental permit so that they may be re-used on site.

5.8.2 Reuse of Waste

Where material is discarded as waste, it may still be possible to reuse the waste on site under a standard rules environmental permit or a U1 waste exemption. However, strict limits on the volumes that can be reused apply in these cases.

5.8.3 Disposal to Landfill

Under current legislation, where wastes are to be disposed of to landfill they may, depending on their classification, require pre-treatment. Pre-treatment shall comprise a chemical, physical (including sorting), thermal or biological process. The pre-treatment is required to change the characteristics of the waste, reduce its volume, reduce its hazardous nature, and facilitate its handling and enhance its recovery.

5.8.4 Waste Classification

The following information is provided for preliminary guidance purposes, as different facilities or operators may have differing acceptance criteria and Waste Acceptance Criteria (WAC) analysis may be required to confirm the exact classification. In addition, if the intention is to retain excess spoil/arising on site for specific purposes, then these soils would not comprise waste, although this is subject to confirmation and relevant declaration under the Definition of Waste Code of Practice.

Where waste soil is being disposed to landfill it must first be classified as either Hazardous or Non-Hazardous. The classification is carried out in accordance with the Environment Agency's publication WM3 'Waste Classification- Guidance on the classification and assessment of waste'. Waste that is classified as Non-Hazardous in accordance with WM3 may be disposed without further testing to a Non-Hazardous landfill. Alternatively, once the waste soils have been identified, Waste Acceptance Criteria (WAC) testing can be undertaken to establish whether the material can be disposed to an Inert landfill, a subgroup of Non-Hazardous landfill. It should be noted that inert wastes are typically from a consistent source that meet a number of qualifying criteria, and thus Topsoil commonly will not meet the requirements to be disposed as Inert.

In addition, the geochemical testing results of three samples were uploaded to HazWasteOnline™ Waste Classification Tool which demonstrated that both samples fall into '**Non-Hazardous Waste**' in accordance with European Waste Code WM3 (17 05 03 & 17 05 04). The HazWasteOnline™ Waste Classification Report is presented in Appendix D.

Natural uncontaminated soil arisings of the Weald Clay Formation are likely to be classified as 'inert' waste.

However, confirmation of the above assessments should be sought from the receiving landfill facility.

5.9 Conclusions and Recommendations

Whilst an intrusive investigation has been undertaken on the site, it remains possible that unexpected ground and/or groundwater conditions may be encountered during the process of construction.

Based on the findings of the geochemical tests and statistical analysis, elevated concentrations of contamination were not identified as part of the chemical analysis. Therefore, it is considered unlikely that the site poses any significant risk to human health, end users, groundwater chemical quality and the surrounding environs.

In addition, asbestos fibres were not detected in the samples analysed in the laboratory and a significant risk to plant growth has not been identified.

The risk to controlled waters and groundwater from soils is considered negligible.

The results of the relevant chemical analyses indicate that the results were below the specific thresholds, as such the use of PE or PVC piping or similar should be suitable for water supply pipes on the site laid within the natural soils. However, it is recommended that the results of this investigation be presented to the water utility company as soon as reasonably practicable to confirm the pipe material. Therefore, upgraded potable water supply pipe materials are unlikely to be required. The water supply pipe requirements for this site should be discussed at an early stage with the relevant Utility provider.

As a matter of good practice, and to maximise the protection to utilities, it is recommended that clean, granular backfill is used in service runs and that marker tapes are used for all buried services.

Natural uncontaminated soil arisings of the Weald Clay Formation are likely to be classified as 'inert' waste.

Should previously undiscovered contamination or unforeseen ground conditions be encountered during construction by the ground worker's, this must be reported to the site manager immediately in order that the consultant is notified. Where deemed necessary, the consultant shall attend the site to inspect the discovery and provide recommendations on the further actions required, if any. Where necessary the regulatory authority shall be informed. Following any additional investigation or laboratory testing the results and any proposed remedial measures shall be reported to the regulatory authority or other appropriate organisation for consent, before proceeding or implementing the remedial measures.

The provisions shall be made to ensure that all workers are made aware of their responsibility to observe, report, and act on any potentially suspicious, abnormal, unforeseen or contaminated ground and/or groundwater conditions they may encounter.

Depending on the type, nature and extent of any such 'discovery', it may be necessary to halt works in that location until such time as the assessment has been completed. This should be reviewed on a 'discovery' specific basis and in conjunction with consultation with the regulator, client, other technical personnel and/or regulatory/approval organisations.



IBEX Consulting Engineers Limited
Abbey House, 25 Clarendon Road
Redhill, Surrey, RH1 1QZ
+44(0) 1737 452622

Figures





Project:	Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE			Title	Site Location Plan	
Client:	Bedford Park Developments Limited			IBEX Consulting Engineers Limited Abbey House, 25 Clarendon Road Redhill, Surrey. RH1 1QZ +44(0)1737 452622 www.ibexconsultant.com		
Ref No:	ICE0422	Revision:	0			
Drawn:	LD	Date:	05/03/2025			
Figure:	1	Scale:	Not To Scale			



Project:	Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE			Title	Exploratory Holes Location Plan	
Client:	Bedford Park Developments Limited			IBEX Consulting Engineers Limited Abbey House, 25 Clarendon Road Redhill, Surrey. RH1 1QZ +44(0)1737 452622 www.ibexconsultant.com		
Ref No:	ICE0422	Revision:	0			
Drawn:	LD	Date:	05/03/2025			
Figure:	2	Scale:	Not To Scale			

Appendix A

Exploratory Hole Logs and In-situ Testing Results



IBEX
CONSULTING
ENGINEERS



Window Sampling Log

Project Name: Gatehouse Lane Industrial Estate, Hassocks		Client: Bedford Park Developments Limited		Date: 03/02/2025	
Location: Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE		Contractor: 3D		Co-ords: E528894.77 N119959.83	
Project No. : ICE0422		Crew Name:		Drilling Equipment:	
Borehole Number WS01	Hole Type WS	Level	Logged By LD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.20			Grass over greyish brown sandy silty clay with traces of bricks. MADE GROUND	1
		0.75	D					Firm brown and light grey with rare dark grey speckles silty CLAY. WEALD CLAY FORMATION	
		1.00	CPT	N=12 (1,2/2,2,4,4)					
		1.20	ES		1.30				
		1.50	D					Stiff to very stiff brown, greyish brown and grey mottled silty CLAY with traces of mica and rare light grey silt pockets. WEALD CLAY FORMATION	2
		2.00	CPT	N=32 (4,4/8,8,8,8)					
		2.25	D						
		2.70	CPT	N=50 (14,11/14,12,13,11)	2.50			End of Borehole at 2.50m	3
									4
									5

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

Remarks

- Refused at 2.50m depth.
- Borehole remained dry and backfilled with arisings on completion.





Window Sampling Log

Project Name: Gatehouse Lane Industrial Estate, Hassocks		Client: Bedford Park Developments Limited		Date: 03/02/2025	
Location: Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE		Contractor: 3D		Co-ords: E528920.51 N119943.33	
Project No. : ICE0422		Crew Name:		Drilling Equipment:	
Borehole Number WS02	Hole Type WS	Level	Logged By LD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.08			0.08			Grass over yellowish brown gravely sand with traces of bricks. MADE GROUND	1
		0.30	ES		0.35			Dark grey black sandy silty clay with bricks, char coal, concrete and patio slabs. MADE GROUND	
		0.50	D					Firm brown and grey mottled silty CLAY. WEALD CLAY FORMATION	
		1.00	D						
		1.00	CPT	N=13 (1,2/3,3,3,4)	1.10			Greyish brown and brownish grey mottled silty CLAY with traces of mica and rare light grey silt pockets. WEALD CLAY FORMATION	
		1.50	D						
		2.00	D		2.00			Very stiff bluish greenish sandy silty CLAY. WEALD CLAY FORMATION	
		2.00	CPT	N=43 (5,6/6,10,13,14)					
		2.50	D		2.70				
		2.50	CPT	N=50 (7,9/10,12,14,14)					
								End of Borehole at 2.70m	3
									4
									5

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

Remarks

- Refused at 2.70m depth.
- Borehole remained dry and backfilled with arisings on completion.





Window Sampling Log

Project Name: Gatehouse Lane Industrial Estate, Hassocks		Client: Bedford Park Developments Limited		Date: 03/02/2025	
Location: Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE		Contractor: 3D		Co-ords: E528895.72 N119921.82	
Project No. : ICE0422		Crew Name:		Drilling Equipment:	
Borehole Number WS03	Hole Type WS	Level	Logged By LD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			Grass over greyish brown sandy silty clay. TOPSOIL	
								Stiff to very stiff brown and greyish brown mottled with rare dark grey speckles silty CLAY. WEALD CLAY FORMATION	
		1.00 1.00	D CPT	N=18 (2,2/3,5,5,5)					1
		2.00 2.00 2.00	D ES CPT	N=38 (2,3/6,9,10,13)					2
					2.50			Thinly laminated extremely weak CLAYSTONE. WEALD CLAY FORMATION	
					2.70				
					2.90 2.95			Reddish brown purplish sandy silty CLAY WEALD CLAY FORMATION	
		3.00 3.00	D CPT	N=18 (1,2/3,4,5,6)				Brown and greyish brown mottled silty CLAY with occasional layers of darkgrey peat. WEALD CLAY FORMATION Stiff reddish brown purplish sandy silty CLAY WEALD CLAY FORMATION	3
					3.50			Very stiff greyish brown silty CLAY. WEALD CLAY FORMATION	
		4.00 4.00	D CPT	N=42 (2,5/9,9,11,13)					4
		4.50	CPT	50 (11,14/50 for 225mm)	4.50				
								End of Borehole at 4.50m	5

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

Remarks

1. Refused at 4.50m depth.
2. Borehole remained dry and backfilled with arisings on completion.





Window Sampling Log

Project Name: Gatehouse Lane Industrial Estate, Hassocks		Client: Bedford Park Developments Limited		Date: 03/02/2025	
Location: Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE		Contractor: 3D		Co-ords: E528840.61 N119900.75	
Project No. : ICE0422		Crew Name:		Drilling Equipment:	
Borehole Number WS04	Hole Type WS	Level	Logged By LD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15	ES		0.15			Grass over greyish brown sandy silty clay. TOPSOIL	1
								Brown and grey mottled with frequent dark greyish brown speckles silty CLAY. WEALD CLAY FORMATION	
		1.00 1.00	D CPT	N=10 (3,3/3,2,3,2)	1.00			Firm yellowish brown slightly sandy silty CLAY with rare fine sub-angular gravel. WEALD CLAY FORMATION	
		2.00 2.00	D CPT	N=15 (5,4/3,3,5,4)	2.00			Very stiff brown and greyish brown mottled silty CLAY with traces of 1-3 mm selenite crystals. WEALD CLAY FORMATION	2
		3.00 3.00	D CPT	N=39 (3,5/7,10,10,12)					3
		4.00 4.00 4.00	D ES CPT	N=48 (5,7/6,18,20,4)	4.00			End of Borehole at 4.00m	4
									5

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

Remarks

1. Refused at 4.00m depth.
2. Borehole remained dry and backfilled with arisings on completion.





Window Sampling Log

Project Name: Gatehouse Lane Industrial Estate, Hassocks		Client: Bedford Park Developments Limited		Date: 03/02/2025	
Location: Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE		Contractor: 3D		Co-ords: E528898.55 N119880.69	
Project No. : ICE0422		Crew Name:		Drilling Equipment:	
Borehole Number WS05	Hole Type WS	Level	Logged By LD	Scale 1:25	Page Number Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.10			Grass over greyish brown sandy silty clay. TOPSOIL	1
		0.50	D					Firm becoming very stiff brown, greyish brown and grey mottled with frequent dark greyish brown speckels silty CLAY. WEALD CLAY FORMATION	
		1.00	CPT	N=10 (2,3/3,3,2,2)					
		1.50	D						
		1.50	ES						
		2.00	CPT	N=22 (4,7/7,5,5,5)					
		2.50	D						
		3.00	CPT	N=28 (2,5/6,7,7,8)				Brown and grey fissured silty CLAY with frequent 1-3 mm selenite crystals.	
		3.50	D						
		4.00	D						
		4.00	CPT	N=35 (8,9/8,9,9,9)				Brown, dark grey and grey mottled silty CLAY with traces of 1-2 mm selenite crystals.	
		5.00	D		5.00				5

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

Remarks	Borehole remained dry and backfilled with arisings on completion.	



Window Sampling Log

Project Name: Gatehouse Lane Industrial Estate, Hassocks		Client: Bedford Park Developments Limited		Date: 03/02/2025	
Location: Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE		Contractor: 3D		Co-ords: E528898.55 N119880.69	
Project No. : ICE0422		Crew Name:		Drilling Equipment:	
Borehole Number WS05	Hole Type WS	Level	Logged By LD	Scale 1:25	Page Number Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		5.00	CPT	N=35 (2,7/7,9,9,10)				End of Borehole at 5.00m	
									6
									7
									8
									9
									10

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

Remarks Borehole remained dry and backfilled with arisings on completion.	
--	--

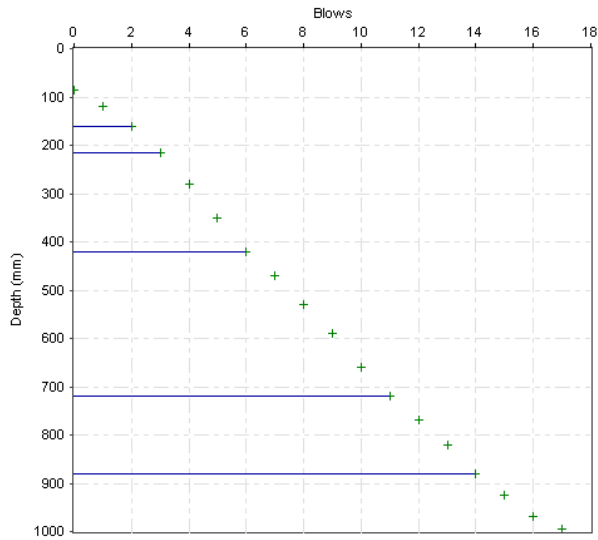
DCP Layer Strength Analysis Report

Project Name: ICE0422 Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

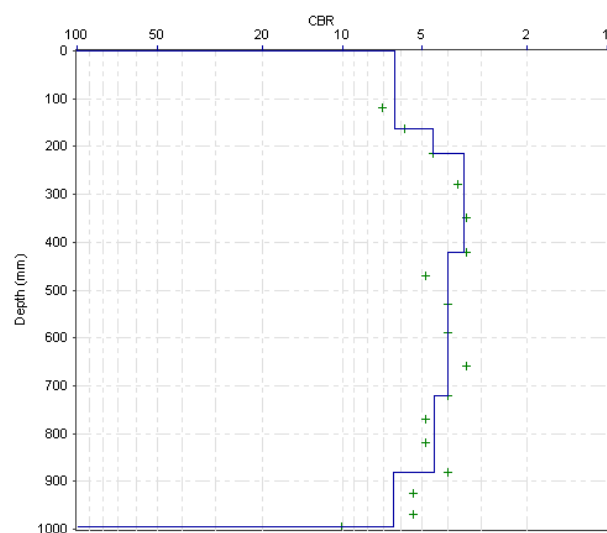
Chainage (km): 10.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 0
 Test Date: 28/02/2025

Surface Type: Unpaved
 Thickness (mm): 0
 Base Type:
 Thickness (mm):
 Surface Moisture: Wet
 Moisture adjustment factor: Not adjusted

Layer Boundaries: Chainage 10.000



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)
1	38.50	6	162	162
2	53.00	5	53	215
3	68.33	3	205	420
4	60.00	4	300	720
5	53.33	5	160	880
6	38.33	6	115	995

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

Report produced by

Penetration Data Report

Project Name: ICE0422 Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

Chainage (km): 10.000

Direction:

Location/Offset: Carriageway

Cone Angle: 60 degrees

Zero Error (mm): 0

Test Date: 28/02/2025

Surface Type:

Unpaved

Thickness (mm):

0

Base Type:

Thickness (mm):

Surface Moisture:

Wet

Moisture adjustment factor:

Not adjusted

No.	Blows	Cumulative Blows	Penetration Depth (mm)	Penetration Rate (mm/blow)	No.	Blows	Cumulative Blows	Penetration Depth (mm)	Penetration Rate (mm/blow)
1	0	0	85	0.00					
2	1	1	120	35.00					
3	1	2	162	42.00					
4	1	3	215	53.00					
5	1	4	280	65.00					
6	1	5	350	70.00					
7	1	6	420	70.00					
8	1	7	470	50.00					
9	1	8	530	60.00					
10	1	9	590	60.00					
11	1	10	660	70.00					
12	1	11	720	60.00					
13	1	12	770	50.00					
14	1	13	820	50.00					
15	1	14	880	60.00					
16	1	15	925	45.00					
17	1	16	970	45.00					
18	1	17	995	25.00					

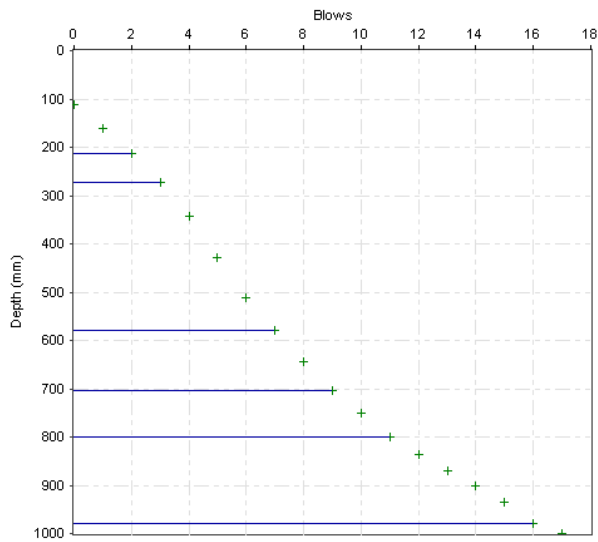
DCP Layer Strength Analysis Report

Project Name: ICE0422 Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

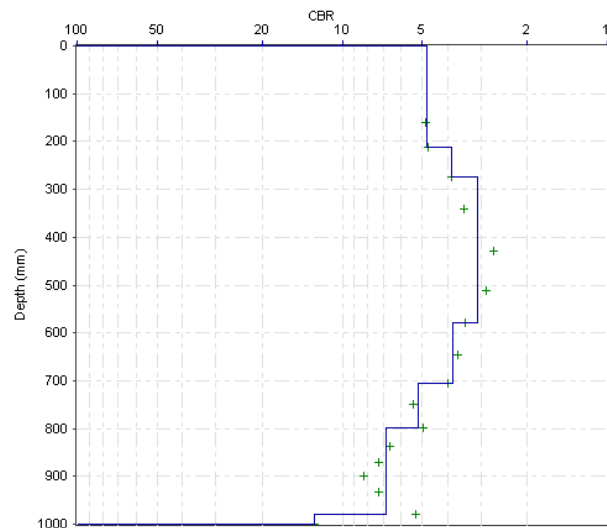
Chainage (km): 20.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 0
 Test Date: 28/02/2025

Surface Type: Unpaved
 Thickness (mm): 0
 Base Type:
 Thickness (mm):
 Surface Moisture: Wet
 Moisture adjustment factor: Not adjusted

Layer Boundaries: Chainage 20.000



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)
1	50.50	5	212	212
2	62.00	4	62	274
3	76.50	3	306	580
4	62.50	4	125	705
5	47.00	5	94	799
6	36.20	7	181	980
7	20.00	13	20	1000

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

Report produced by

Penetration Data Report

Project Name: ICE0422 Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

Chainage (km): 20.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 0
 Test Date: 28/02/2025

Surface Type: Unpaved
 Thickness (mm): 0
 Base Type:
 Thickness (mm):
 Surface Moisture: Wet
 Moisture adjustment factor: Not adjusted

No.	Blows	Cumulative Blows	Penetration Depth (mm)	Penetration Rate (mm/blow)	No.	Blows	Cumulative Blows	Penetration Depth (mm)	Penetration Rate (mm/blow)
1	0	0	111	0.00					
2	1	1	161	50.00					
3	1	2	212	51.00					
4	1	3	274	62.00					
5	1	4	342	68.00					
6	1	5	429	87.00					
7	1	6	511	82.00					
8	1	7	580	69.00					
9	1	8	645	65.00					
10	1	9	705	60.00					
11	1	10	750	45.00					
12	1	11	799	49.00					
13	1	12	836	37.00					
14	1	13	870	34.00					
15	1	14	900	30.00					
16	1	15	934	34.00					
17	1	16	980	46.00					
18	1	17	1000	20.00					

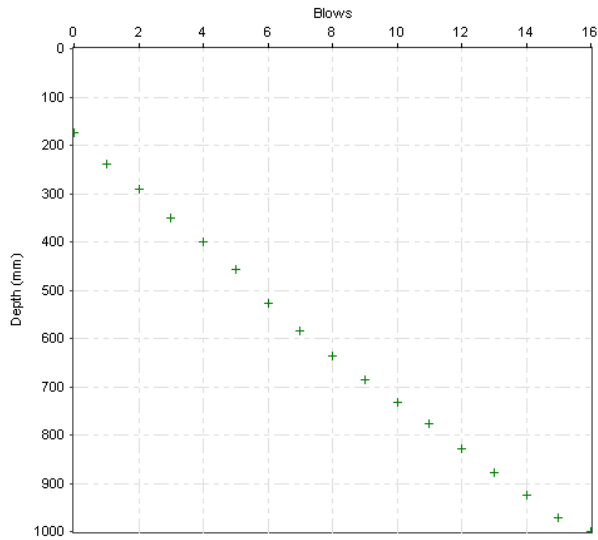
DCP Layer Strength Analysis Report

Project Name: ICE0422 Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

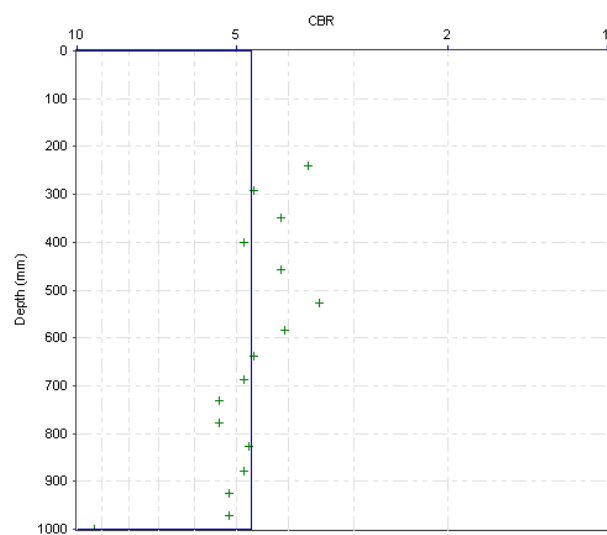
Chainage (km): 30.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 0
 Test Date: 28/02/2025

Surface Type: Unpaved
 Thickness (mm): 0
 Base Type:
 Thickness (mm):
 Surface Moisture: Wet
 Moisture adjustment factor: Not adjusted

Layer Boundaries: Chainage 30.000



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)
1	51.50	5	999	999

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

Report produced by

Penetration Data Report

Project Name: ICE0422 Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

Chainage (km): 30.000

Direction:

Location/Offset: Carriageway

Cone Angle: 60 degrees

Zero Error (mm): 0

Test Date: 28/02/2025

Surface Type:

Unpaved

Thickness (mm):

0

Base Type:

Thickness (mm):

Surface Moisture:

Wet

Moisture adjustment factor:

Not adjusted

[illegible]

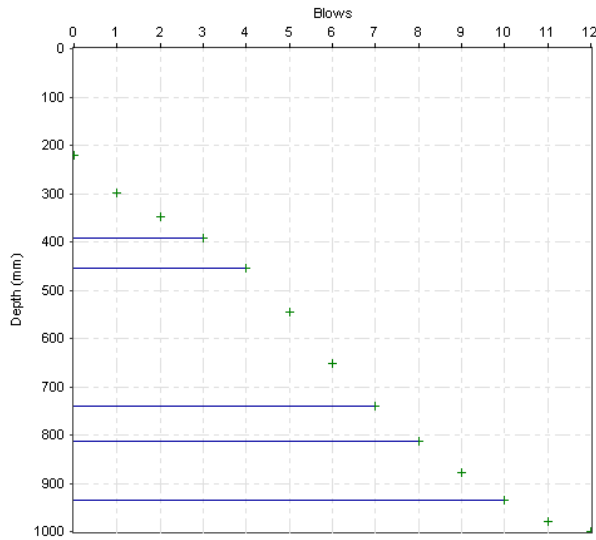
DCP Layer Strength Analysis Report

Project Name: ICE0422 Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

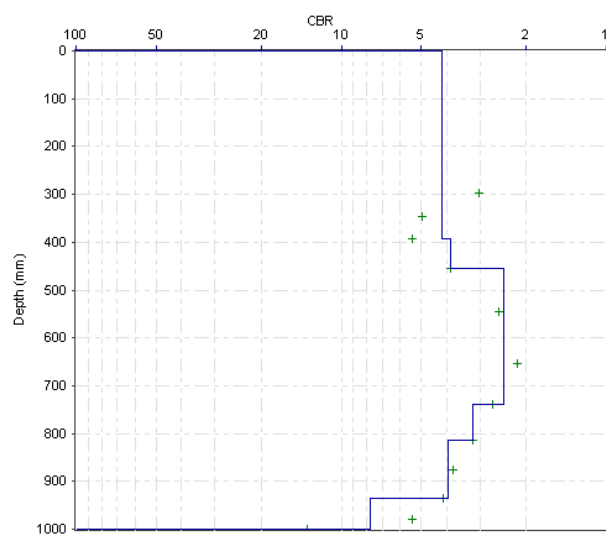
Chainage (km): 40.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 0
 Test Date: 28/02/2025

Surface Type: Unpaved
 Thickness (mm): 0
 Base Type:
 Thickness (mm):
 Surface Moisture: Wet
 Moisture adjustment factor: Not adjusted

Layer Boundaries: Chainage 40.000



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)
1	57.33	4	392	392
2	62.00	4	62	454
3	95.33	2	286	740
4	74.00	3	74	814
5	60.50	4	121	935
6	32.00	8	64	999

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

Report produced by

Penetration Data Report

Project Name: ICE0422 Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

Chainage (km): 40.000

Direction:

Location/Offset: Carriageway

Cone Angle: 60 degrees

Zero Error (mm): 0

Test Date: 28/02/2025

Surface Type:

Unpaved

Thickness (mm):

0

Base Type:

Thickness (mm):

Surface Moisture:

Wet

Moisture adjustment factor:

Not adjusted

[illegible]

Appendix B

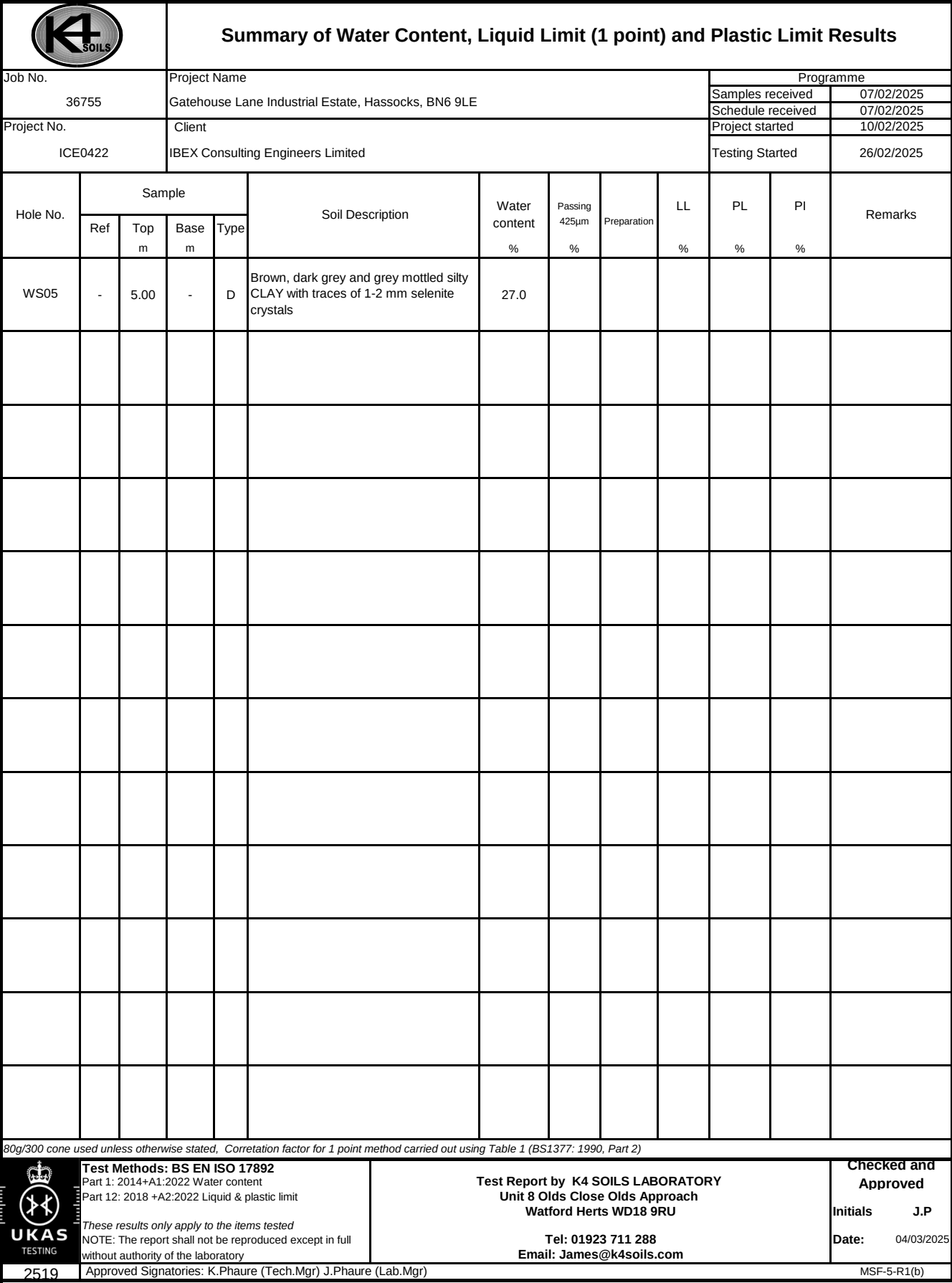
Geotechnical Testing Results



					Summary of Water Content, Liquid Limit (1 point) and Plastic Limit Results							
Job No.		Project Name						Programme				
36755		Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE						Samples received	07/02/2025			
Project No.		Client						Schedule received	07/02/2025			
ICE0422		IBEX Consulting Engineers Limited						Project started	10/02/2025			
								Testing Started	26/02/2025			
Hole No.	Sample				Soil Description	Water content %	Passing 425µm %	Preparation	LL %	PL %	PI %	Remarks
	Ref	Top m	Base m	Type								
WS01	-	0.75	-	D	Brown and light grey with rare dark grey speckles silty CLAY	28.5						
WS01	-	2.25	-	D	Brown, greyish brown and grey mottled silty CLAY with traces of mica and rare light grey silt pockets	21.8						
WS02	-	1.00	-	D	Brown and grey mottled silty CLAY	29.8						
WS02	-	1.50	-	D	Brown, reddish brown and dark grey silty CLAY	29.1	100	Tested in natural condition	71	26	45	
WS02	-	2.00	-	D	Greyish brown and brownish grey mottled silty CLAY with traces of mica and rare light grey silt pockets	21.0						
WS03	-	1.00	-	D	Brown and greyish brown mottled with rare dark grey speckles silty CLAY	30.0						
WS03	-	3.00	-	D	Brown and greyish brown mottled silty CLAY with occasional layers of dark grey peat	23.0						
WS03	-	4.00	-	D	Greyish brown silty CLAY	19.8	100	Tested in natural condition	63	23	40	
WS04	-	1.00	-	D	Brown and grey mottled with frequent dark greyish brown speckles silty CLAY	25.5						
WS04	-	4.00	-	D	Brown and greyish brown mottled silty CLAY with traces of 1-3 mm selenite crystals	21.9						
WS05	-	1.50	-	D	Brown, greyish brown and grey mottled with frequent dark greyish brown speckles silty CLAY	28.2						
WS05	-	3.50	-	D	Brown and grey fissured silty CLAY with frequent 1-3 mm selenite crystals	21.7	100	Tested in natural condition	63	25	38	

80g/300 cone used unless otherwise stated, Correlation factor for 1 point method carried out using Table 1 (BS1377: 1990, Part 2)

	Test Methods: BS EN ISO 17892 Part 1: 2014+A1:2022 Water content Part 12: 2018 +A2:2022 Liquid & plastic limit <i>These results only apply to the items tested</i> NOTE: The report shall not be reproduced except in full without authority of the laboratory	Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com	Checked and Approved Initials J.P Date: 04/03/2025
	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)		MSF-5-R1(b)
	2519		





LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No. 36755

Borehole/Pit No. WS02

Site Name Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

Sample No. -

Project No. ICE0422 Client IBEX Consulting Engineers Limited

Depth Top m 1.50

Soil Description Brown, reddish brown and dark grey silty CLAY

Depth Base m -

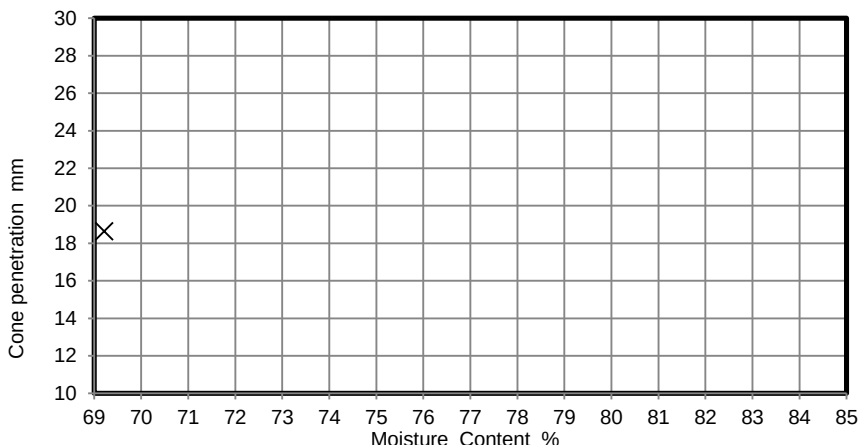
Sample Type D

Samples received 07/02/2025

Schedules received 07/02/2025

Project Started 10/02/2025

Date Tested 26/02/2025



WATER CONTENT 29.1 %

% PASSING 425µm SIEVE 100 %

LIQUID LIMIT 71 %

PLASTIC LIMIT 26 %

PLASTICITY INDEX 45 %

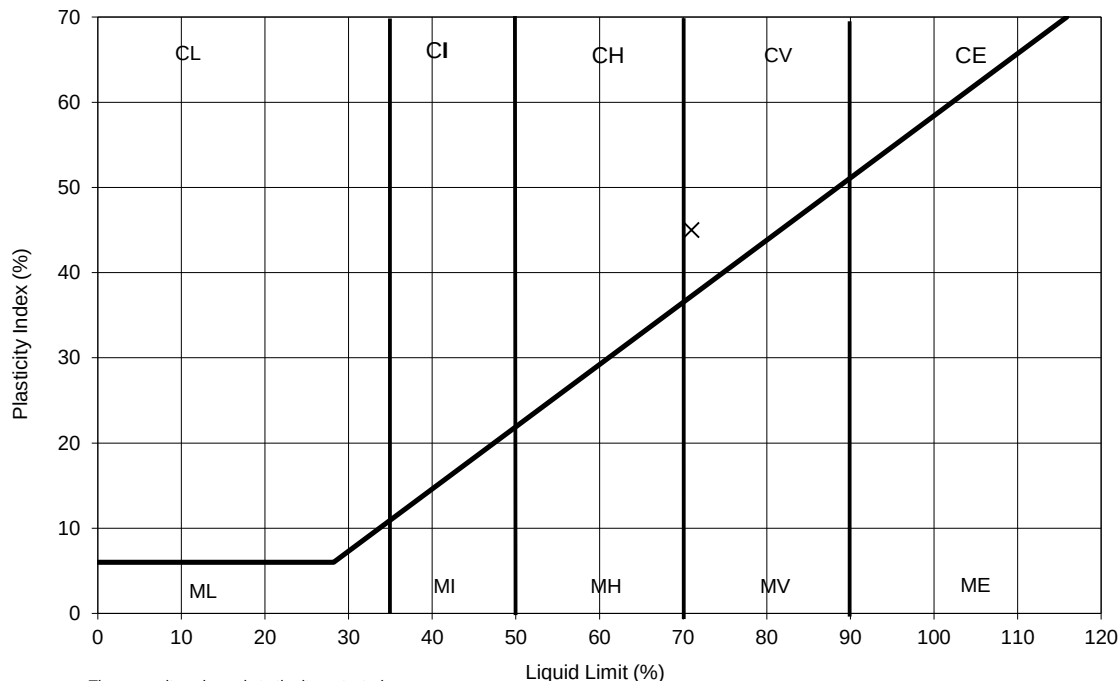
Preparation Method

Tested in natural condition

Remarks

Factors corresponding to the cone penetration and moisture content range in Table 1 (BS1377:1990 ; Part 2)

PLASTICITY INDEX



These results only apply to the items tested

NOTE: The report shall not be reproduced except in full without authority of the laboratory

TEST METHOD

BS EN ISO17892: Part 1:2014+A1:2022 Water Content

BS EN ISO 17892: Part 12:2018+A2:2022 Liquid Limit & Plastic Limit

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU

Tel: 01923 711 288 Email: James@k4soils.com

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Checked and Approved

Initials: J.P

Date: 04/03/2025

MSF-5 R2



2519



LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No. 36755

Borehole/Pit No. WS03

Site Name Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

Sample No. -

Project No. ICE0422 Client IBEX Consulting Engineers Limited

Depth Top m 4.00

Soil Description Greyish brown silty CLAY

Depth Base m -

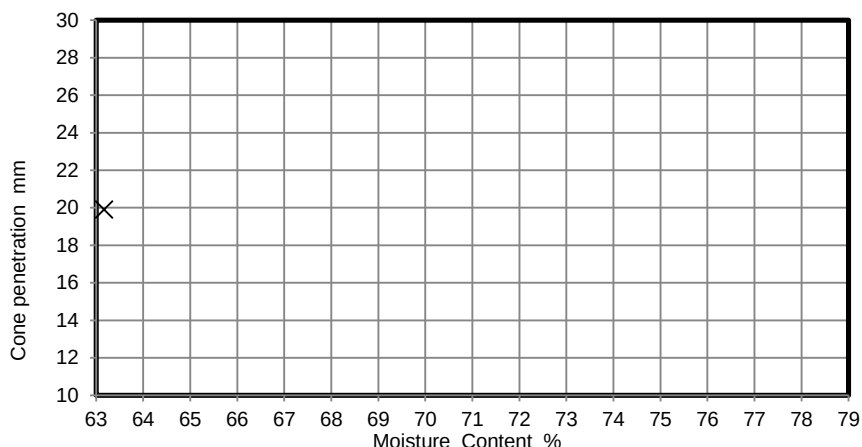
Sample Type D

Samples received 07/02/2025

Schedules received 07/02/2025

Project Started 10/02/2025

Date Tested 26/02/2025



WATER CONTENT 19.8 %

% PASSING 425µm SIEVE 100 %

LIQUID LIMIT 63 %

PLASTIC LIMIT 23 %

PLASTICITY INDEX 40 %

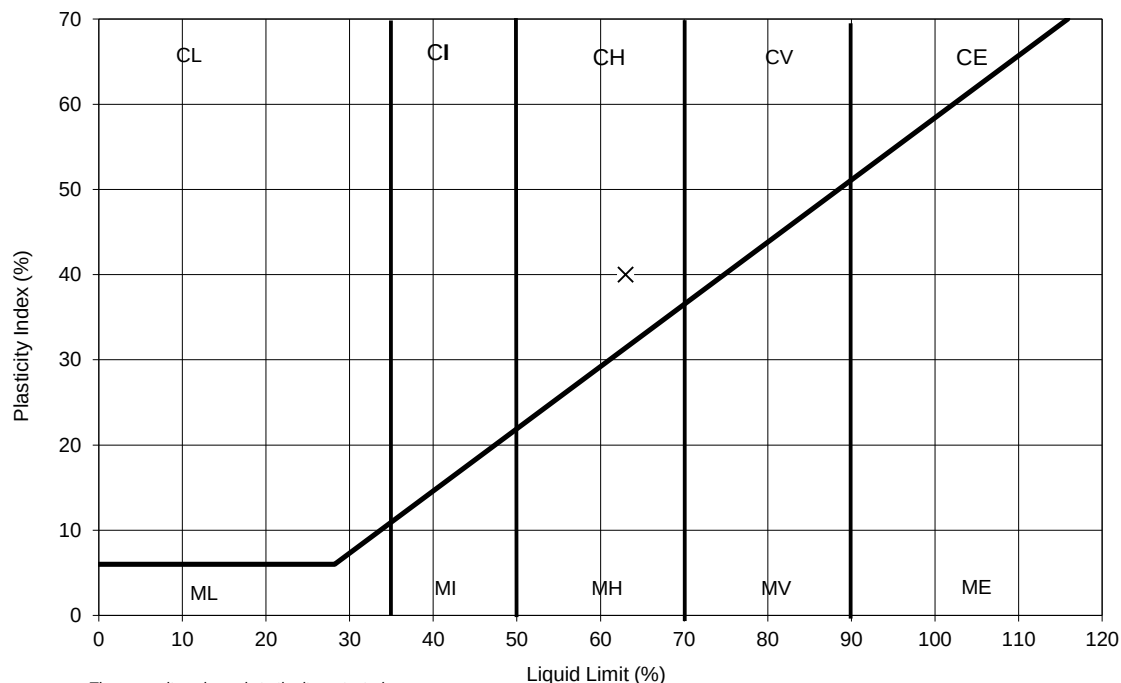
Preparation Method

Tested in natural condition

Remarks

Factors corresponding to the cone penetration and moisture content range in Table 1 (BS1377:1990 ; Part 2)

PLASTICITY INDEX



These results only apply to the items tested

NOTE: The report shall not be reproduced except in full without authority of the laboratory

TEST METHOD

BS EN ISO17892: Part 1:2014+A1:2022 Water Content

BS EN ISO 17892: Part 12:2018+A2:2022 Liquid Limit & Plastic Limit

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU

Tel: 01923 711 288 Email: James@k4soils.com

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Checked and Approved

Initials: J.P

Date: 04/03/2025

MSF-5 R2



2519



LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No. 36755

Borehole/Pit No. WS05

Site Name Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

Sample No. -

Project No. ICE0422

Client

IBEX Consulting Engineers
Limited

Depth Top m 3.50

Soil Description

Brown and grey fissured silty CLAY with frequent 1-3 mm selenite
crystals

Depth Base m -

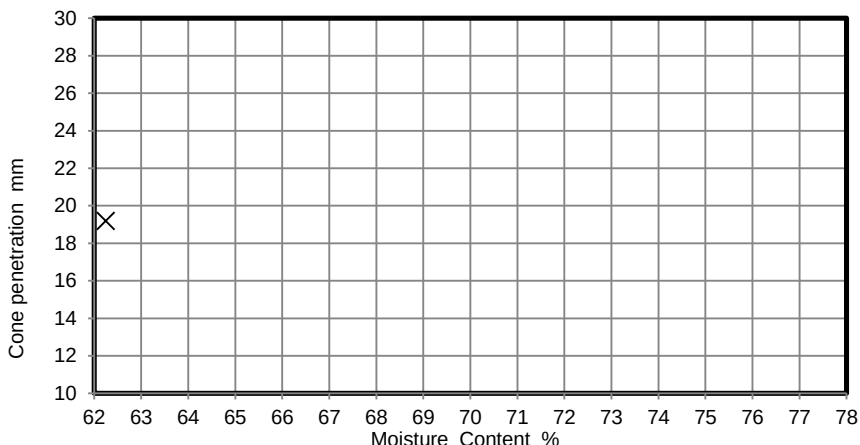
Sample Type D

Samples received 07/02/2025

Schedules received 07/02/2025

Project Started 10/02/2025

Date Tested 26/02/2025



WATER CONTENT

21.7

%

% PASSING 425µm SIEVE

100

%

LIQUID LIMIT

63

%

PLASTIC LIMIT

25

%

PLASTICITY INDEX

38

%

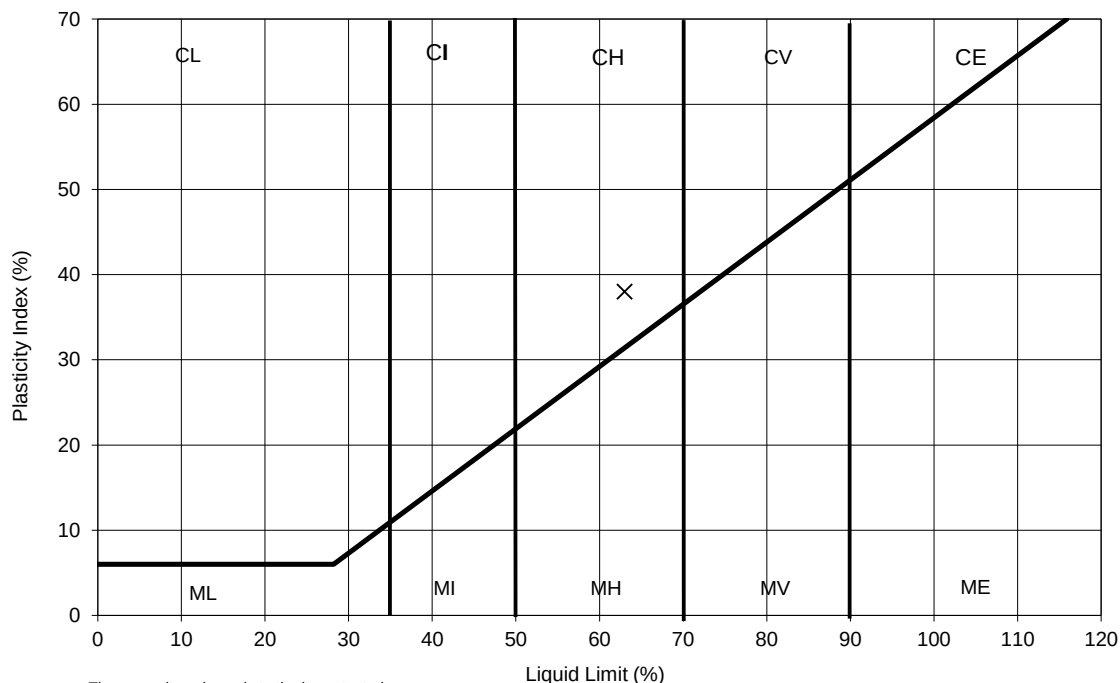
Preparation Method

Tested in natural condition

Remarks

Factors corresponding to the cone penetration and moisture content range in Table 1 (BS1377:1990 ; Part 2)

PLASTICITY INDEX



These results only apply to the items tested

NOTE: The report shall not be reproduced except in full without authority of the laboratory

TEST METHOD

BS EN ISO17892: Part 1:2014+A1:2022 Water Content

BS EN ISO 17892: Part 12:2018+A2:2022 Liquid Limit & Plastic Limit

Checked and
Approved

Initials: J.P

Date: 04/03/2025

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU

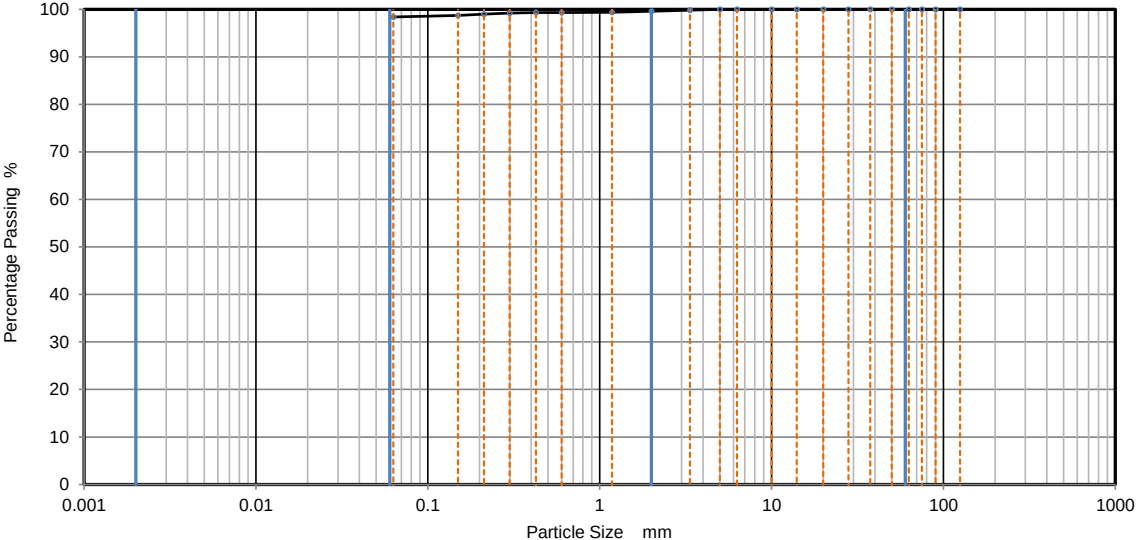
Tel: 01923 711 288 Email: James@k4soils.com

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5 R2

	PARTICLE SIZE DISTRIBUTION		Job Ref	36755	
			Borehole/Pit No.	WS04	
Site Name	Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE		Sample No.	-	
Project No.	ICE0422	Client	IBEX Consulting Engineers Limited	Depth Top	2.00 m
Soil Description	Yellowish brown slightly sandy silty CLAY with rare fine sub-angular gravel		Depth Base	- m	
			Sample Type	D	
			Samples received	07/02/2025	
			Schedules received	07/02/2025	
Test Method	BS EN ISO 17892 Part 4: 2016		Project started	10/02/2025	
These results only apply to the items tested			Date tested	28/02/2025	

CLAY	SILT			SAND			GRAVEL			COBBLES	BOULDERS
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	98		

Sample Proportions		% dry mass
Very coarse		0
Gravel		0
Sand		2
Fines <0.063mm		98

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with ISO17892 Part 4 unless noted below

NOTE: The report shall not be reproduced except in full without approval of the laboratory

	K4 Soils Laboratory Unit 8, Olds Close, Watford, Herts, WD18 9RU Email: james@k4soils.com Tel: 01923 711288		Checked and Approved Initials: J.P Date: 04/03/2025
	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)		MSF-5-R3
	2519		

Appendix C

Geochemical Testing Results



Ibex Consulting Engineers Ltd
Abbey House
25 Clarendon Road
Redhill
Surrey
RH1 1QZ

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

e: levent.dogan@ibexconsultant.com

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 25-005150

Project / Site name:	Gatehouse Lane Industrial Estate, Hassocks	Samples received on:	04/02/2025
Your job number:	ICE0422	Samples instructed on/ Analysis started on:	05/02/2025
Your order number:		Analysis completed by:	12/02/2025
Report Issue Number:	1	Report issued on:	12/02/2025
Samples Analysed:	5 soil samples		

Signed:



Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 25-005150

Project / Site name: Gatehouse Lane Industrial Estate, Hassocks

Lab Sample Number				443425	443426	443427	443428	443429
Sample Reference				WS01	WS04	WS04	WS05	WS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.15	4.00	0.10	1.50
Date Sampled				03/02/2025	03/02/2025	03/02/2025	03/02/2025	03/02/2025
Time Taken				1000	1100	1100	1100	1100
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	24	27	16	32	19
Total mass of sample received	kg	0.1	NONE	0.6	0.6	2	0.6	0.6

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	DOC	PDO	-	PDO	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.5	7.5	7.6	8.3	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Total Sulphate as SO ₄	mg/kg	50	MCERTS	600	840	-	1000	-
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	0.243	-	0.064
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	76	160	2900	480	300
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	38.1	79.4	1440	240	150
Sulphide	mg/kg	1	MCERTS	1.2	6.3	-	67	-
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	12	7.3	-	46	-
Elemental Sulphur	mg/kg	5	MCERTS	17	16	-	18	-
Total Sulphur	mg/kg	50	MCERTS	-	-	1100	-	380
Total Sulphur	%	0.005	MCERTS	-	-	0.11	-	0.038
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.4	2.6	-	2.2	-

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	0.06	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	0.12	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	0.15	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	0.17	-
Phenanthrene	mg/kg	0.05	MCERTS	0.22	0.09	-	1.3	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	0.38	-
Fluoranthene	mg/kg	0.05	MCERTS	0.62	0.19	-	2.3	-
Pyrene	mg/kg	0.05	MCERTS	0.57	0.18	-	2	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.32	0.1	-	1.1	-
Chrysene	mg/kg	0.05	MCERTS	0.42	0.12	-	1.2	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.59	0.17	-	1.7	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.19	0.08	-	0.61	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.38	0.12	-	1.5	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.31	0.09	-	0.84	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.09	< 0.05	-	0.22	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.33	0.11	-	0.91	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	4.05	1.24	-	14.4	-
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Analytical Report Number: 25-005150

Project / Site name: Gatehouse Lane Industrial Estate, Hassocks

Lab Sample Number				443425	443426	443427	443428	443429
Sample Reference				WS01	WS04	WS04	WS05	WS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.15	4.00	0.10	1.50
Date Sampled				03/02/2025	03/02/2025	03/02/2025	03/02/2025	03/02/2025
Time Taken				1000	1100	1100	1100	1100
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	15	-	11	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.83	0.94	-	0.96	-
Boron (water soluble)	mg/kg	0.2	MCERTS	1.7	1.5	-	2.6	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	-	< 1.8	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	25	-	28	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	33	-	23	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	60	45	-	30	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	16	-	23	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	39	33	-	43	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	77	94	-	110	-

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-	< 0.010	-
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-	< 0.010	-
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-	< 0.010	-
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	-
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	-	< 8.0	-
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	-	16	-
TPHCWG - Aliphatic >EC35 - EC40 EH_CU_1D_AL	mg/kg	10	NONE	< 10	< 10	-	< 10	-
TPHCWG - Aliphatic >EC5 - EC40 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	< 10	-	16	-

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-	< 0.010	-
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-	< 0.010	-
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	-	< 0.020	-
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	-	< 10	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	-	13	-
TPHCWG - Aromatic >EC35 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	< 10	< 10	-	< 10	-
TPHCWG - Aromatic >EC5 - EC40 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	< 10	-	13	-

TPH Total >EC5 - EC40 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	< 10	< 10	-	29	-
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VOCs

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

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

Analytical Report Number : 25-005150

Project / Site name: Gatehouse Lane Industrial Estate, Hassocks

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
443425	WS01	None Supplied	0.2	Brown loam and clay with gravel and vegetation
443426	WS04	None Supplied	0.15	Brown loam and clay with gravel and vegetation
443427	WS04	None Supplied	4	Brown clay with gravel
443428	WS05	None Supplied	0.1	Brown loam and clay with gravel and vegetation
443429	WS05	None Supplied	1.5	Brown clay with gravel

Analytical Report Number : 25-005150

Project / Site name: Gatehouse Lane Industrial Estate, Hassocks

Water matrix abbreviations:

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

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Elemental sulphur in soil	Determination of elemental sulphur in soil by extraction in acetonitrile followed by HPLC	In-house method: Sample is extracted in acetonitrile prior to analysis by HPLC	L021B	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS



Analytical Report Number : 25-005150

Project / Site name: Gatehouse Lane Industrial Estate, Hassocks

Water matrix abbreviations:

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

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

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

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

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

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

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

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

The result for sum should be interpreted with caution

Appendix D

HazWasteOnline™ Waste Classification Report

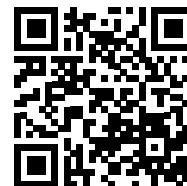


IBEX
CONSULTING
ENGINEERS

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



GWSR7-EG6N2-1CIEN

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

Report is invalid if pages are removed.

Job name

ICE0422 Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

Description/Comments

Project

ICE0422

Site

Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

Classified by

Name: **Levent Dogan**
Date: **28 Feb 2025 21:00 GMT**
Telephone:
Company: **Ibex Consulting Engineers**
Abbey House, 25 Clarendon Road
Redhill
RH1 1QZ

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

HazWasteOnline™ Certification:

-

Course

Hazardous Waste Classification

Date

-

Purpose of classification

2 - Material Characterisation

Address of the waste

Gatehouse Lane Industrial Estate, Hassocks, BN6 9LE

Post Code BN6 9LE

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Commercial development

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

Waste to be generated from excavation of foundations and services

Description of the waste

Made Ground comprised of sandy silty clay with limited traces of bricks and tarmac fragments

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS01--03022025-0.20		Non Hazardous		3
2	WS04--03022025-0.15		Non Hazardous		5
3	WS04--03022025-4.00		Non Hazardous		7
4	WS05--03022025-0.10		Non Hazardous		8
5	WS05--03022025-1.50		Non Hazardous		11

Related documents

#	Name	Description
1	25-005150_HWOL.hwol	i2 Analytical .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Levent Dogan

Created date: 28 Feb 2025 21:00 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	12
Appendix B: Rationale for selection of metal species	13
Appendix C: Version	14

Classification of sample: WS01--03022025-0.20

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

Sample details

Sample name:	LoW Code:
WS01--03022025-0.20	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
24%	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(wet weight correction)	Entry:

Hazard properties

None identified

Determinands

Moisture content: 24% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				18 mg/kg	1.32	18.062	mg/kg	0.00181 %	✓	
	033-003-00-0	215-481-4	1327-53-3								
2	beryllium { beryllium oxide }				0.83 mg/kg	2.775	1.751	mg/kg	0.000175 %	✓	
	004-003-00-8	215-133-1	1304-56-9								
3	boron { diboron trioxide }				1.7 mg/kg	3.22	4.16	mg/kg	0.000416 %	✓	
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				25 mg/kg	1.462	36.539	mg/kg	0.00365 %		
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1.8 mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<LOD
	024-017-00-8										
7	copper { dicopper oxide; copper (I) oxide }				22 mg/kg	1.126	18.825	mg/kg	0.00188 %	✓	
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	60 mg/kg	1.56	71.128	mg/kg	0.00456 %	✓	
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	nickel { nickel chromate }				13 mg/kg	2.976	29.405	mg/kg	0.00294 %	✓	
	028-035-00-7	238-766-5	14721-18-7								
11	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5								
12	zinc { zinc chromate }				77 mg/kg	2.774	162.343	mg/kg	0.0162 %	✓	
	024-007-00-3	236-878-9	13530-65-9								
13	TPH (C6 to C40) petroleum group				<10 mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH								
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5										
15	pH				7.5 pH		7.5	pH	7.5 pH		
			PH								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	acenaphthylene	205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
18	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
20	phenanthrene	201-581-5	85-01-8		0.22 mg/kg		0.167 mg/kg	0.0000167 %	✓	
21	anthracene	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
22	fluoranthene	205-912-4	206-44-0		0.62 mg/kg		0.471 mg/kg	0.0000471 %	✓	
23	pyrene	204-927-3	129-00-0		0.57 mg/kg		0.433 mg/kg	0.0000433 %	✓	
24	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.32 mg/kg		0.243 mg/kg	0.0000243 %	✓	
25	chrysene	601-048-00-0	205-923-4	218-01-9	0.42 mg/kg		0.319 mg/kg	0.0000319 %	✓	
26	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.59 mg/kg		0.448 mg/kg	0.0000448 %	✓	
27	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.19 mg/kg		0.144 mg/kg	0.0000144 %	✓	
28	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.38 mg/kg		0.289 mg/kg	0.0000289 %	✓	
29	indeno[123-cd]pyrene	205-893-2	193-39-5		0.31 mg/kg		0.236 mg/kg	0.0000236 %	✓	
30	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.09 mg/kg		0.0684 mg/kg	0.00000684 %	✓	
31	benzo[ghi]perylene	205-883-8	191-24-2		0.33 mg/kg		0.251 mg/kg	0.0000251 %	✓	
32	monohydric phenols		P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
33	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	39 mg/kg	1.785	52.913 mg/kg	0.00529 %	✓	
34	sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9	17 mg/kg		12.92 mg/kg	0.00129 %	✓	
Total:								0.0406 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
•	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS04--03022025-0.15

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

Sample details

Sample name:	LoW Code:
WS04--03022025-0.15	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
27%	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 27% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				15 mg/kg	1.32	14.458 mg/kg	0.00145 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	beryllium { beryllium oxide }				0.94 mg/kg	2.775	1.904 mg/kg	0.00019 %	✓	
	004-003-00-8	215-133-1	1304-56-9							
3	boron { diboron trioxide }				1.5 mg/kg	3.22	3.526 mg/kg	0.000353 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
4	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				25 mg/kg	1.462	36.539 mg/kg	0.00365 %		
		215-160-9	1308-38-9							
6	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
	024-017-00-8									
7	copper { dicopper oxide; copper (I) oxide }				33 mg/kg	1.126	27.123 mg/kg	0.00271 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	45 mg/kg	1.56	51.24 mg/kg	0.00329 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel chromate }				16 mg/kg	2.976	34.763 mg/kg	0.00348 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
11	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
12	zinc { zinc chromate }				94 mg/kg	2.774	190.362 mg/kg	0.019 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
13	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
15	pH				7.5 pH		7.5 pH	7.5 pH		
			PH							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	acenaphthylene	205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
18	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
20	phenanthrene	201-581-5	85-01-8		0.09 mg/kg		0.0657 mg/kg	0.00000657 %	✓	
21	anthracene	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
22	fluoranthene	205-912-4	206-44-0		0.19 mg/kg		0.139 mg/kg	0.0000139 %	✓	
23	pyrene	204-927-3	129-00-0		0.18 mg/kg		0.131 mg/kg	0.0000131 %	✓	
24	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.1 mg/kg		0.073 mg/kg	0.0000073 %	✓	
25	chrysene	601-048-00-0	205-923-4	218-01-9	0.12 mg/kg		0.0876 mg/kg	0.00000876 %	✓	
26	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.17 mg/kg		0.124 mg/kg	0.0000124 %	✓	
27	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.08 mg/kg		0.0584 mg/kg	0.00000584 %	✓	
28	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.12 mg/kg		0.0876 mg/kg	0.00000876 %	✓	
29	indeno[123-cd]pyrene	205-893-2	193-39-5		0.09 mg/kg		0.0657 mg/kg	0.00000657 %	✓	
30	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
31	benzo[ghi]perylene	205-883-8	191-24-2		0.11 mg/kg		0.0803 mg/kg	0.00000803 %	✓	
32	monohydric phenols		P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
33	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	33 mg/kg	1.785	43.005 mg/kg	0.0043 %	✓	
34	sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9	16 mg/kg		11.68 mg/kg	0.00117 %	✓	
Total:								0.0418 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
•	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS04--03022025-4.00

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

Sample details

Sample name: **WS04--03022025-4.00** LoW Code: **17: Construction and Demolition Wastes (including excavated soil from contaminated sites)**
Moisture content: **16%** Chapter: **17 05 04 (Soil and stones other than those mentioned in 17 05 03)**
(wet weight correction) Entry:

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	• pH		PH		7.6 pH		7.6 pH	7.6 pH		
Total:								0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: WS05--03022025-0.10

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

Sample details

Sample name:	LoW Code:
WS05--03022025-0.10	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
32% (wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 32% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number								
1		arsenic { arsenic trioxide }				11 mg/kg	1.32	9.876 mg/kg	0.000988 %	✓		
		033-003-00-0	215-481-4	1327-53-3								
2		beryllium { beryllium oxide }				0.96 mg/kg	2.775	1.812 mg/kg	0.000181 %	✓		
		004-003-00-8	215-133-1	1304-56-9								
3		boron { diboron trioxide }				2.6 mg/kg	3.22	5.693 mg/kg	0.000569 %	✓		
		005-008-00-8	215-125-8	1303-86-2								
4		cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD	
		048-002-00-0	215-146-2	1306-19-0								
5		chromium in chromium(III) compounds {  chromium(III) oxide (worst case) }				28 mg/kg	1.462	40.924 mg/kg	0.00409 %			
			215-160-9	1308-38-9								
6		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD	
		024-017-00-8										
7		copper { dicopper oxide; copper (I) oxide }				23 mg/kg	1.126	17.609 mg/kg	0.00176 %	✓		
		029-002-00-X	215-270-7	1317-39-1								
8		lead { lead chromate }			1	30 mg/kg	1.56	31.82 mg/kg	0.00204 %	✓		
		082-004-00-2	231-846-0	7758-97-6								
9		mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD	
		080-010-00-X	231-299-8	7487-94-7								
10		nickel { nickel chromate }				23 mg/kg	2.976	46.549 mg/kg	0.00465 %	✓		
		028-035-00-7	238-766-5	14721-18-7								
11		selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD	
		028-031-00-5	239-125-2	15060-62-5								
12		zinc { zinc chromate }				110 mg/kg	2.774	207.506 mg/kg	0.0208 %	✓		
		024-007-00-3	236-878-9	13530-65-9								
13		TPH (C6 to C40) petroleum group				29 mg/kg		19.72 mg/kg	0.00197 %	✓		
				TPH								
14		cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD	
		006-007-00-5										
15		pH				8.3 pH		8.3 pH	8.3 pH			
				PH								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	naphthalene				0.06 mg/kg		0.0408 mg/kg	0.00000408 %	✓	
	601-052-00-2	202-049-5	91-20-3							
17	acenaphthylene				0.12 mg/kg		0.0816 mg/kg	0.00000816 %	✓	
		205-917-1	208-96-8							
18	acenaphthene				0.15 mg/kg		0.102 mg/kg	0.0000102 %	✓	
		201-469-6	83-32-9							
19	fluorene				0.17 mg/kg		0.116 mg/kg	0.0000116 %	✓	
		201-695-5	86-73-7							
20	phenanthrene				1.3 mg/kg		0.884 mg/kg	0.0000884 %	✓	
		201-581-5	85-01-8							
21	anthracene				0.38 mg/kg		0.258 mg/kg	0.0000258 %	✓	
		204-371-1	120-12-7							
22	fluoranthene				2.3 mg/kg		1.564 mg/kg	0.000156 %	✓	
		205-912-4	206-44-0							
23	pyrene				2 mg/kg		1.36 mg/kg	0.000136 %	✓	
		204-927-3	129-00-0							
24	benzo[a]anthracene				1.1 mg/kg		0.748 mg/kg	0.0000748 %	✓	
	601-033-00-9	200-280-6	56-55-3							
25	chrysene				1.2 mg/kg		0.816 mg/kg	0.0000816 %	✓	
	601-048-00-0	205-923-4	218-01-9							
26	benzo[b]fluoranthene				1.7 mg/kg		1.156 mg/kg	0.000116 %	✓	
	601-034-00-4	205-911-9	205-99-2							
27	benzo[k]fluoranthene				0.61 mg/kg		0.415 mg/kg	0.0000415 %	✓	
	601-036-00-5	205-916-6	207-08-9							
28	benzo[a]pyrene; benzo[def]chrysene				1.5 mg/kg		1.02 mg/kg	0.000102 %	✓	
	601-032-00-3	200-028-5	50-32-8							
29	indeno[123-cd]pyrene				0.84 mg/kg		0.571 mg/kg	0.0000571 %	✓	
		205-893-2	193-39-5							
30	dibenz[a,h]anthracene				0.22 mg/kg		0.15 mg/kg	0.000015 %	✓	
	601-041-00-2	200-181-8	53-70-3							
31	benzo[ghi]perylene				0.91 mg/kg		0.619 mg/kg	0.0000619 %	✓	
		205-883-8	191-24-2							
32	monohydric phenols				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
			P1186							
33	vanadium { divanadium pentaoxide; vanadium pentoxide }				43 mg/kg	1.785	52.199 mg/kg	0.00522 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
34	sulfur { sulfur }				18 mg/kg		12.24 mg/kg	0.00122 %	✓	
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.0455 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
•	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: Too low concentration, WM3 work examples there is a case study showing that materials deemed to be flammable has a concentration of 12500mg/kg

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00197%)

Classification of sample: WS05--03022025-1.50

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

Sample details

Sample name: **WS05--03022025-1.50** LoW Code: **17: Construction and Demolition Wastes (including excavated soil from contaminated sites)**
Moisture content: **19%** Chapter: **17 05 04 (Soil and stones other than those mentioned in 17 05 03)**
(wet weight correction) Entry:

Hazard properties

None identified

Determinands

Moisture content: 19% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	• pH		PH		8.2 pH		8.2 pH	8.2 pH		
Total:								0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Appendix A: Classifier defined and non GB MCL determinands

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

■ TPH (C6 to C40) petroleum group (CAS Number: TPH)

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

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

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

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

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

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

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

Reason for additional Hazards Statement(s):

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

■ pH (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

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

Data source date: 21 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2; H351

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

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

Data source date: 23 Jul 2015

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

▪ **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)

Data source: CLP combined data

Data source date: 26 Mar 2019

Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

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

beryllium {beryllium oxide}

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

boron {diboron trioxide}

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

cadmium {cadmium oxide}

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

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

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

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

Worst case species based on hazard statements/molecular weight (edit as required)

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

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

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

vanadium {divanadium pentaoxide; vanadium pentoxide}

worst case

sulfur {sulfur}

reasonable elemental sulfur chosen

Appendix C: Version

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

HazWasteOnline Classification Engine Version: 2025.58.6470.11796 (27 Feb 2025)

HazWasteOnline Database: 2025.58.6470.11796 (27 Feb 2025)

This classification utilises the following guidance and legislation:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GB MCL List - version 1.1 of 09 June 2021

GB MCL List v2.0 - version 2.0 of 20th October 2023

GB MCL List v3.0 - version 3.0 of 11th January 2024

GB MCL List v4.0 - version 4.0 of 2nd March 2024

GB MCL List v5.0 - version 5.0 of 26th June 2024