

**SUPPLEMENTARY GEOENVIRONMENTAL ASSESSMENT
IMBERHORNE LANE - PARCEL B
EAST GRINSTEAD
VISTRY
GEA-21949BA-25-18
JANUARY 2025**

IDOM



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TABLE OF CONTENTS

EXECUTIVE SUMMARY	I
SECTION 1 INTRODUCTION	2
SECTION 2 TIER 1 (NON-INTRUSIVE INVESTIGATION)	3
2.1 INTRODUCTION	3
2.2 SITE SETTING	3
2.3 GEOLOGY, HYDROGEOLOGY AND HYDROLOGY	3
2.4 OTHER POTENTIALLY CONTAMINATIVE USES	4
2.5 RADON 5	
2.6 PREVIOUS INVESTIGATIONS BY OMNIA	5
SECTION 3 UPDATED PRELIMINARY RISK ASSESSMENT	7
3.1 INTRODUCTION	7
3.2 SOIL CONTAMINATION (HEAVY METALS AND HYDROCARBONS)	8
3.3 SOIL CONTAMINATION (ASBESTOS)	10
3.4 CONTROLLED WATERS (GROUNDWATER)	10
3.5 HAZARDOUS GAS	10
3.6 VAPOUR	11
3.7 RADON 12	
3.8 COMBINED CSM AND RISK ASSESSMENT	12
SECTION 4 SITE INVESTIGATION RATIONALE	14
4.1 INTRODUCTION	14
4.2 SITE INVESTIGATION METHODS	14
SECTION 5 GROUND CONDITIONS	15
5.1 SUMMARY	15
5.2 TOPSOIL	16
5.3 TUNBRIDGE WELLS SAND FORMATION	16
SECTION 6 PRELIMINARY GEOTECHNICAL RECOMMENDATIONS	17
6.1 FOUNDATIONS	17
6.2 EXCAVATIONS AND GROUNDWATER	17
6.3 FLOOR SLABS	18
6.4 BURIED CONCRETE	18
6.5 ROADS AND PAVED AREAS	18
6.6 SOAKAWAYS	19
SECTION 7 ENVIRONMENTAL ASSESSMENT – SOIL QUALITY	19
7.1 RESULTS	19
7.2 ZOOTOXIC METALS (HARMFUL TO HUMAN HEALTH)	21
7.3 PHYTOTOXIC METALS (HARMFUL TO PLANT HEALTH)	21
7.4 ORGANIC CONTAMINANTS	21
7.5 INORGANIC CONTAMINANTS	21
7.6 PESTICIDES / HERBICIDES	21
7.7 SUMMARY	21
SECTION 8 ENVIRONMENTAL ASSESSMENT – GROUNDWATER QUALITY	22
8.1 RESULTS	22
8.2 DISCUSSION	23
SECTION 9 ENVIRONMENTAL ASSESSMENT - HAZARDOUS GAS	23
9.1 RESULTS	23
SECTION 10 ENVIRONMENTAL ASSESSMENT - VAPOUR	24

10.1	RESULTS	24
SECTION 11	WASTE CLASSIFICATION, OFF-SITE DISPOSAL OR RE-USE.....	25
11.1	WASTE CLASSIFICATION.....	25
11.2	RE-USE CONSIDERATIONS.....	25
SECTION 12	GENERIC QUANTITATIVE RISK ASSESSMENT (TIER 2).....	26
12.1	INTRODUCTION	26
12.2	SOIL CONTAMINATION (HEAVY METALS AND HYDROCARBONS).....	27
12.3	SOIL CONTAMINATION (ASBESTOS).....	28
12.4	CONTROLLED WATERS (GROUNDWATER).....	29
12.5	HAZARDOUS GAS.....	29
12.6	VAPOUR	31
SECTION 13	UPDATED COMBINED CONCEPTUAL SITE MODEL AND RISK ASSESSMENT	31
SECTION 14	DETAILED QUANTITATIVE RISK ASSESSMENT (TIER 3).....	33
SECTION 15	PRELIMINARY REMEDIATION STRATEGY AND RECOMMENDATIONS.....	33
15.1	INTRODUCTION	33
SECTION 16	CONCLUSIONS	34

APPENDIX 1

- Site Location Plan
- Proposed Development Plan

APPENDIX 2

- Radon Potential Dataset Mapping

APPENDIX 3

- Exploratory Hole Logs

APPENDIX 4

- Soil Chemistry
- Summary Spreadsheet
- Laboratory Analysis Certificates

APPENDIX 5

- Geotechnical Laboratory Certificates

APPENDIX 6

- Groundwater Chemistry
- Laboratory Analysis Certificates

APPENDIX 7

- Field Monitoring Records
- Groundwater Level Data
- Hazardous Soil Gas Data

APPENDIX 8

- Risk Assessment Methodology

APPENDIX 9

- Gas Risk Assessment

EXECUTIVE SUMMARY

A Supplementary Geoenvironmental Assessment was requested by Vistry. The purpose of the assessment was to identify any contaminative or geotechnical issues associated with former land use at *Imberhorne Lane - Parcel B, East Grinstead* which might impact on the sites purchase and redevelopment.

SITE DETAILS							
Approximate Area (ha)	Centred on OSGB Eastings, Northings	Previous Use(s)		Current Use		Proposed Use	
2.25	537009, 138837	Agricultural fields		Agricultural fields		Residential	

PHASE 1 NON-INTRUSIVE INVESTIGATION							
Geology			Groundwater Aquifer		Surface Water	Radon	Flood Risk
Made Ground	Superficial	Solid	Superficial	Solid	A stream is present approximately 90 m north of the site.	RnC1	Rivers and sea: High (north boundary)
Made ground unlikely to be present	None recorded	Tunbridge Wells Sand Formation	No superficial deposits on site	Tunbridge Wells Sand Formation is classed as a Secondary A Aquifer			Surface water: Negligible
							Groundwater: Negligible

PHASE 2 INTRUSIVE INVESTIGATION					
Geology			Contamination		Waste Classification
Made Ground	Superficial	Solid	Source ► Pathway ► Receptor		Risk Rating
Topsoil – No made ground	None recorded	Tunbridge Wells Sand Formation	Significant contamination was not encountered		VERY LOW

Geotechnical			
Foundations	Buried Concrete	Roads and Pavement	Soakaway
An allowable bearing pressure has been provided for strip footings founded at a minimum depth of 0.9m within the granular Tunbridge Wells Sand Formation	DS1 AC-2z	Recommended 4.0% based upon on site tests	Soakaways are deemed possible to work on this site, however no infiltration tests were undertaken as a part of this investigation and discharge of water to ground or at surface of greater than >5m³ a day require consultation with the regulator.

RECOMMENDATIONS		
Remediation	Waste / Re-use	Geotechnical
No remediation for the protection of human health required.	Natural as-dug arisings (excluding topsoil) can be classed as inert waste without the requirement for WAC testing.	Footings must be founded within the Tunbridge Wells Sand Formation, greater bearing capacities are achievable if the footings are deepened to 2.0m bgl and footings which expose both cohesive and granular soils should be reinforced.
Hazardous ground gas monitoring programme in progress and the ground gas risk assessment will updated in a separate cover upon completion.	If re-use of site won soils is proposed, it is recommended that a Materials Management Plan is prepared to ensure the resource status of soils is clearly defined.	

SECTION 1 INTRODUCTION

- 1.1 Vistry proposes to develop areas of land located off Imberhorne Lane, East Grinstead, RH19 1TX for residential purposes. Vistry are assessing the site as three separate land parcels. The three parcels are known as: Parcel A, Parcel B and Remaining Areas. This report refers to Parcel B.
- 1.2 A site location plan (Ref: 21949ba-304-003) is presented in Appendix 1 showing the intrusive investigation locations and the position of Parcel B within the wider proposed development plan. The wider proposed development is to comprise:
 - i.* 550 residential houses;
 - ii.* A local centre;
 - iii.* A Care village;
 - iv.* A new primary school, and;
 - v.* Playing fields for Imberhorne School.
- 1.3 The proposed development for Parcel B is for low rise residential houses. The exact layout and number of houses is yet to be determined.
- 1.4 IDOM Merebrook Limited (IDOM) has been commissioned by Vistry to undertake a supplementary site investigation works and to advise on the geo-environmental implications of the purchase and redevelopment of the site for the proposed end use.
- 1.5 The objectives of the investigation are to:
 - i.* Further assess surface and sub-surface ground conditions present at the site;
 - ii.* Identify hazards associated with ground contamination which may place constraints on the site and the proposed development;
 - iii.* Evaluate the risks associated with any identified hazards;
 - iv.* Provide additional recommendations for the mitigation of any significant risks identified; and
 - v.* Provide additional preliminary geotechnical recommendations.
- 1.6 The following reports have previously been undertaken for the subject site. A Tier 1 Preliminary Risk Assessment (Non-Intrusive Investigation) and Tier 2 Generic Quantitative Risk Assessment (Preliminary Exploratory Investigation) and have been referenced below and referred to throughout the report:
 - i.* Geoenvironmental & Geotechnical Desktop Study, Land at Imberhorne Farm, ref:13694-CRH-XX-XX-RP-LQ-7501_DTS, June 2022, Campbell Reith Hill LLP; and

- ii.* Phase II Geo-Environmental Site Assessment, Land at Imberhorne Farm, East Grinstead, RH19 1TX ref: A118987/1.1, December 2022, Omnia.

- 1.7 This report presents the findings of the IDOM investigation and provides an interpretation of the geo-environmental conditions that exist at the site. The contaminative status of the site and the implications with respect to development have been interpreted in accordance with the current government guidance on source-pathway-receptor risk assessment. This report follows LCRM (Land Contamination Risk Management) guidance to appraise land contamination hazards associated with the site.
- 1.8 This report has been prepared for Vistry for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult Vistry and IDOM as to the extent to which the findings may be appropriate for their use.

SECTION 2 TIER 1 (NON-INTRUSIVE INVESTIGATION)

2.1 INTRODUCTION

- 2.1.1 A desk study has been undertaken for the wider site (Parcels A, B and Remaining Areas) by Campbell Reith Hill LLP (Ref: 13694-CRH-XX-XX-RP-LQ-7501_DTS); dated June 2022. The desk study has been reviewed and pertinent information for Parcel B has been incorporated into a revised desk study for Parcel B below.

2.2 SITE SETTING

- 2.2.1 The site (Parcel B) occupies an area of approximately 2.25 hectares located at National Grid Reference 537009, 138837. The site dips down towards the north with an elevation change of around 5m. The north is arable field then woodlands and an industrial estate beyond. East of the site lies arable fields with residential dwellings and a school beyond. To the south of the site lies agricultural fields and adjacent to the western boundary of the site, lies woodlands with agricultural fields beyond.
- 2.2.2 IDOM reviewed the historical maps presented in the desk study for evidence of historical contamination sources on the site and surrounding areas. The earliest historical maps indicate the site has been occupied by agricultural land since at least 1874 with no significant changes throughout that time.
- 2.2.3 A stream was known as Eden Brook was located within the woodland approximately 90 m north of the site.

2.3 GEOLOGY, HYDROGEOLOGY AND HYDROLOGY

- 2.3.1 The published geological mapping indicates that the site is underlain directly by the bedrock geology Tunbridge Wells Sand Formation with no overlying superficial deposits. The Tunbridge Wells Sand Formation is classified as a Secondary A

Aquifer. The site is not within a groundwater source protection zone and no groundwater or surface abstractions are located within 500 m of the site.

- 2.3.2 Within the Groundsure report appended to the desk study, it was noted that discharges of water or liquid waste of more than 5m³ to ground or to surface waters would require consultation with the regulator as the site lies within a SSSI impact risk zone for the SSSI known as Hedgecourt.
- 2.3.3 The risk of surface water flooding is considered to be very high with 1 in 30 year chance of flooding with depth greater than 1.0 m within the northern half of the site. This is considered to represent attenuation points within the flood plain of Eden Brook. The risk of groundwater flooding is considered to be negligible and the site is not located within an area at risk of flooding from rivers or the sea. An excerpt of the surface water flood risk mapping is presented in Figure 1 below.

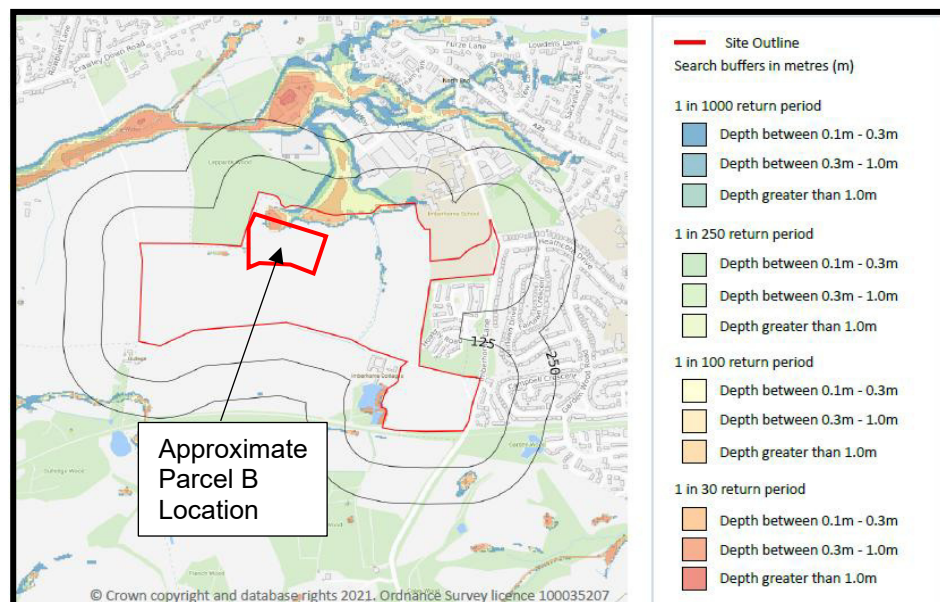


Figure 1- An excerpt from the Groundsure Report highlighting the surface water flood risk on Parcel B

2.4 OTHER POTENTIALLY CONTAMINATIVE USES

- 2.4.1 Potentially significant environmental issues have been investigated within relevant distances of the Parcel B, based on the desk study by Campbell Reith.

- 2.4.2 Three historical landfills are located between 300 to 500m to the south east of Parcel B. Each of the historical landfills were recorded to have received inert waste material and their licences were surrendered in 1980.

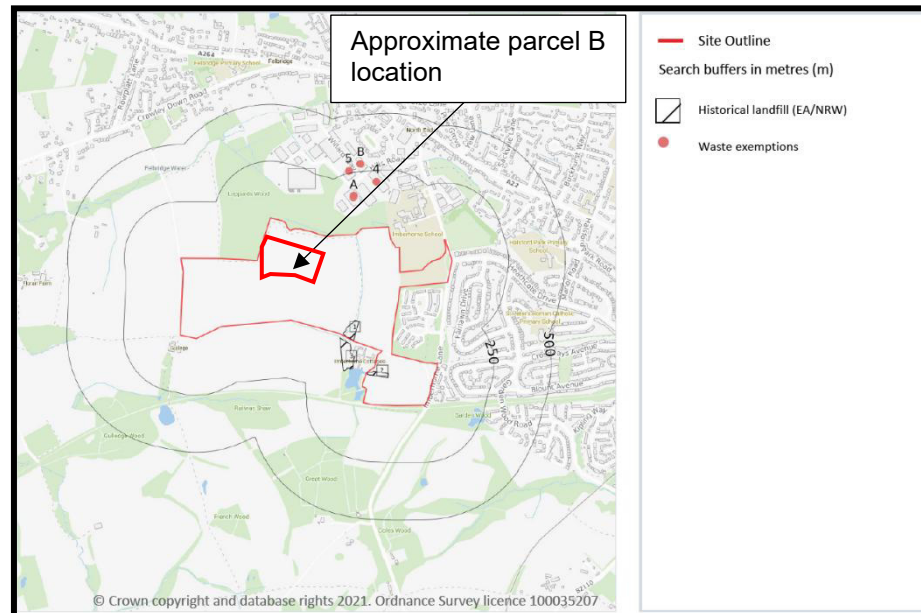


Figure 2- Extract from the Groundsure report included within the Campbell Reith desk study

- 2.4.3 The western boundary of the site is adjacent to a designated Ancient Replanted Woodland named The Birches.
- 2.4.4 No water discharge, pollution incidents, statutory authorisations were identified in relevant distances of the site.
- 2.4.5 Given the history of use as an agricultural field the use of pesticides and herbicides may present a source of contamination, although residual concentrations are unlikely to be significant.

2.5 RADON

- 2.5.1 IDOM Merebrook have obtained an up to date (January 2025) radon check of the main site given that radon mapping was updated in December 2022. The latest report confirms that the site is not in a radon affected area (no protection measures are required for radon). However, it is noted that if the proposed development involves an underground room or basement being installed, the property should be tested for radon, despite the area not being affected. The updated radon map is contained within Appendix 2.

2.6 PREVIOUS INVESTIGATIONS BY OMNIA

- 2.6.1 A Phase 2 Ground Investigation was undertaken for the wider site by Omnia (Ref: A118987/1.1) in December 2022.

- 2.6.2 The investigation conducted within Parcel B comprised of only one Dynamic Cone Penetrometer test (CBR210). Three further locations WS211, TP13 and WS08 were undertaken along the northern boundary just outside of Parcel B and WS209 was conducted just outside of the western boundary.
- 2.6.3 Windowless Sample location WS211 encountered topsoil to 0.4m bgl overlying brown slightly clayey slightly gravelly SAND. At 1m bgl, a Standard Penetration Test (SPT) recorded a SPT 'N' blow count of 50 (refusal) and the hole was terminated by 1.20m bgl.
- 2.6.4 Windowless Sample location WS209 recorded topsoil overlying a slightly gravelly slightly sandy silt. The gravel within these soils was sandstone and siltstone. This persisted to 1.20m bgl where a clay was encountered to 1.60 m bgl before returning to silt to the full depth of 2.00m bgl. The SPT at 1m bgl recorded a SPT 'N' blowcount of 31. The SPT at 2.0m was clearly mis-reported on the log as '0'. This is believed to be a typographical error as the seating blows recorded a blow count of 25. It is therefore inferred that this location was a refusal (SPT 'N' = 50), which would make the basal layer more likely to comprise a siltstone.
- 2.6.5 Windowless sample WS08 extended to a depth of 3.91m bgl and recorded interbedded clay and sand beds recording SPT 'N' values of between 19 and 50, gradually increasing in strength with depth, whereas TP13 recorded a very weak sandstone from 1.20 m bgl.
- 2.6.6 Within the Omnia investigation, two trial pits (TP208 and TP209) were excavated into the nearest inert landfill pocket to the site. These found made ground to extend to 1.50m bgl. The Made Ground comprised of sand and clay containing sandstone, brick concrete, cement and metal. No putrescible materials were recorded within the made ground. However, the remaining two inert waste landfill pockets have not been investigated.
- 2.6.7 The historical locations have been marked on the site location drawing (Ref: 21949ba-304-003) presented in Appendix 1
- 2.6.8 No visual or olfactory evidence of contamination was identified.
- 2.6.9 No groundwater strikes were encountered during excavation.
- 2.6.10 The nearest chemical tests undertaken to parcel B were from a sample of topsoil within TP212 located about 100m west of Parcel B which recorded no exceedances of the screening criteria protective of a residential development where the consumption of homegrown produce is expected.
- 2.6.11 The following observations and recommendations were made by omnia:
- i.* Based on the findings of the investigation and plausible linkage pathway, no significant risk to human health was identified and they therefore considered that the soils were suitable for the proposed end use without the need for

remedial works. Additional site investigation was recommended to confirm this; and

- ii. No gas protection measures were specified; however, gas monitoring rounds were recommended to further confirm gas protection measures would not be required.

SECTION 3 UPDATED PRELIMINARY RISK ASSESSMENT

3.1 INTRODUCTION

- 3.1.1 Risk from contamination has been assessed using the source-pathway-receptor and pollutant linkage methodology, whereby a risk can only exist if all elements of: source, pathway and receptor, are present.
- 3.1.2 The level of risk considers the likelihood of the risk occurring and the severity of the potential consequence of that risk using the approach outlined in Appendix 5. As illustrated in Table 1, this updated preliminary risk assessment combines the likelihood and severity of the risk using a Risk Assessment Matrix approach as recommended by CIRIA C552, 2001 and updated in Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66 published by NHBC, EA and CIEH (2008).

Table 1: Risk assessment matrix (after CIRIA C552 and R&D66)

		MAGNITUDE OF POTENTIAL CONSEQUENCE (SEVERITY) OF RISK			
		SEVERE	MEDIUM	MILD	MINOR
LIKELIHOOD OF RISK	HIGH LIKELIHOOD	Very High Risk	High Risk	Moderate Risk	Low Risk
	LIKELY	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	LOW LIKELIHOOD	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	UNLIKELY	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

- 3.1.3 For each full pollutant linkage identified in the conceptual model, a risk rating has been assigned and presented in the proceeding sections.

3.2 SOIL CONTAMINATION (HEAVY METALS AND HYDROCARBONS)

- 3.2.1 No specific on-site sources of contamination have been identified by the desk study and the very limited testing undertaken by others has not identified contamination. However, the previous investigation is limited in coverage and therefore a degree of uncertainty remains regarding unidentified contaminants which may impact human receptors via ingestion, dust inhalation and dermal pathways. Whilst specific contaminants have not been identified, common contaminants are heavy metals and hydrocarbons. This degree of uncertainty has been reflected in the risk assessment by raising the likelihood from unlikely to low likelihood for several of the human receptor linkages.
- 3.2.2 The risk to future planting schemes is considered to be low due to the lack of evidence for a contamination source but also taking into account uncertainty.
- 3.2.3 The risk to water supply pipes is considered to be low as no contamination has yet been identified but again, allowing for uncertainty.
- 3.2.4 The risk to adjacent site users is considered to be very low as dust suppression measures should be employed by any competent contractors.
- 3.2.5 The risk to the secondary A aquifer is considered to be low due to the lack of apparent contamination source but a degree of uncertainty due to the paucity of data.
- 3.2.6 The risk to surface waters is considered to be Moderate/low with Eden Brook located 90m north and downslope of site and with an off-site ancient woodland and a SSSI as potential receptors receiving water from the brook. This risk is from silt and suspended solids rather than from chemical contamination.
- 3.2.7 The risks to protected habitat are all considered to be very low with the exception of surface water/sediment run-off due to the likelihood of this occurring on the site without interventions and careful surface water management.
- 3.2.8 Table 2 below summarises the level of risk assigned to each receptor from soil contamination:

Table 2: Risks from soil contamination

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	dust inhalation	low likelihood	minor	VERY LOW
	direct ingestion	unlikely	minor	VERY LOW
	dermal exposure	low likelihood	minor	VERY LOW
	ingestion of fruit / vegetables	low likelihood	minor	VERY LOW

Receptor		Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
Residents of future development		dust inhalation	low likelihood	medium	MODERATE / LOW
		direct ingestion	low likelihood	medium	MODERATE / LOW
		dermal exposure	low likelihood	medium	MODERATE / LOW
		ingestion of fruit / vegetables	low likelihood	medium	MODERATE / LOW
Construction workers		dust inhalation	low likelihood	minor	VERY LOW
		direct ingestion	unlikely	minor	VERY LOW
		dermal exposure	low likelihood	minor	VERY LOW
Future planting		direct uptake of phytotoxic metals	low likelihood	mild	LOW
Water supply pipes		direct contact leading to corrosion / permeation	low likelihood	mild	LOW
Adjacent site users		fugitive dust inhalation	unlikely	minor	VERY LOW
Controlled waters	Aquifer	infiltration / leaching	low likelihood	mild	LOW
	Surface water	run-off from site	low likelihood	medium	MODERATE / LOW
Protected habitat		dust deposition (demolition / construction phase)	unlikely	mild	VERY LOW
		direct ingestion (fauna feeding / drinking)	unlikely	mild	VERY LOW
		dermal exposure (fauna)	unlikely	mild	VERY LOW
		direct contact (flora)	unlikely	mild	VERY LOW
		groundwater flow to hydrologically connected habitat	unlikely	mild	VERY LOW
		surface water / sediment run-off	likely	medium	MODERATE

3.3 SOIL CONTAMINATION (ASBESTOS)

3.3.1 The presence of asbestos on this site is considered unlikely as the field has been used for agriculture from 1874 until present. The overall risk is therefore considered to be very low / low.

3.3.2 Table 3 below summarises the level of risk assigned to each receptor from asbestos contamination of soils:

Table 3: Risks from soil contamination (asbestos)

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	inhalation of airborne fibres generated from dry soils	unlikely	mild	VERY LOW
Residents of future development		unlikely	medium	LOW
Construction workers		unlikely	minor	VERY LOW
Adjacent site users		unlikely	minor	VERY LOW

3.4 CONTROLLED WATERS (GROUNDWATER)

3.4.1 As no historical contaminant sources have been identified, groundwater is considered unlikely to be contaminated and therefore surface water is unlikely to receive contamination from the groundwater.

3.4.2 Table 4 below summarises the level of risk to surface water receptors:

Table 4: Risks from groundwater contamination

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
Surface water	Aquifer forms basal flow of surface water	unlikely	mild	VERY LOW

3.5 HAZARDOUS GAS

3.5.1 No credible on-site source of ground gas generation has been identified by the desk study. No significant thickness of made ground is expected on site and natural strata are not expected to be significantly gas-generating. However, three historical off-site inert landfills have been identified to the southwest with potentially permeable strata between the site and the landfills. These licences were surrendered by 1980 and it is unlikely that there would be sufficient driving force for lateral flow. The closest of these landfills is 300 m from Parcel B and over this distance there is not expected to be any significant risk of lateral migration.

3.5.2 Table 5 below summarises the level of risk assigned to each receptor from hazardous gas generation:

Table 5: Risks from hazardous gas

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	decomposition of putrescible made ground generating hazardous gas that can migrate by diffusion or advection via cracks in foundations / utility trenches / service penetrations. Outdoor inhalation in confined excavations.	unlikely	minor	VERY LOW
Residents of future development		unlikely	medium	LOW
Construction workers		unlikely	minor	VERY LOW
Adjacent site users		unlikely	minor	VERY LOW

3.6 VAPOUR

3.6.1 The risk of VOCs to all receptors is considered to be very low as no source of volatiles has been identified in the desk study.

3.6.2 Table 6 and Table 7 below summarise the level of risk assigned to each receptor from vapour generation:

Table 6: Risks from soil vapour

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	Volatilisation of VOCs from contaminated soil generating vapours that can migrate by diffusion or advection via cracks in foundations / utility trenches / service penetrations. Outdoor inhalation in confined excavations / localised spills.	unlikely	mild	VERY LOW
Residents of future development		unlikely	mild	VERY LOW
Construction workers		unlikely	mild	VERY LOW
Adjacent site users / general public		unlikely	mild	VERY LOW

Table 7: Risks from groundwater vapour

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	Volatilisation of VOCs from contaminated groundwater generating vapours that can migrate by diffusion or advection via cracks in foundations / utility trenches / service penetrations. Outdoor inhalation in confined excavations / localised spills.	unlikely	mild	VERY LOW
Residents of future development		unlikely	mild	VERY LOW
Construction workers		unlikely	mild	VERY LOW
Adjacent site users / general public		unlikely	mild	VERY LOW

3.7 RADON

- 3.7.1 IDOM Merebrook have obtained an up to date (January 2025) radon check of the main site given that radon mapping was updated in December 2022. The latest report confirms that the site is not in a radon affected area (no protection measures are required for radon).

Table 8 below summarises the level of risk assigned to each receptor from radon:

Table 8: Risks from radon

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	Radon generated through decay of uranium in underlying rocks then migration by diffusion through overlying permeable strata and advection into properties via cracks in foundations / utility trenches / service penetrations.	unlikely	minor	VERY LOW
Residents of future development		unlikely	mild	VERY LOW
Construction workers		unlikely	minor	VERY LOW

3.8 COMBINED CSM AND RISK ASSESSMENT

- 3.8.1 The preliminary Conceptual Site Model and Tier 1 Preliminary Risk Assessment have been combined to present the overall risk ratings assigned to each identified source ► pathway ► receptor and is presented in Table 9.

Table 9: Combined Preliminary Conceptual Site Model and Tier 1 Risk Assessment

POTENTIAL CONTAMINANT SOURCE	RELEASE MECHANISM	PATHWAY	EXPOSURE ROUTE	RECEPTOR									
				Present Site Users / General Public	Future Residents / Site Users	Construction Workers	On-Site Planting	Water Supply Pipes	Adjacent Site Users / General Public	Controlled Waters		Protected Habitat	
										Surface Water	Aquifer		
SOIL (HEAVY METALS AND HYDROCARBONS)	▶ DUST	▶ AIR	▶ INHALATION	▶	VERY LOW	MODERATE / LOW	VERY LOW			VERY LOW			VERY LOW
	▶ DIRECT	▶ DIRECT	▶ INGESTION	▶	VERY LOW	MODERATE / LOW	VERY LOW						VERY LOW
	▶ DIRECT	▶ DIRECT	▶ DERMAL EXPOSURE	▶	VERY LOW	MODERATE / LOW	VERY LOW						VERY LOW
	▶ DIRECT	▶ DIRECT	▶ DIRECT CONTACT / UPTAKE	▶				LOW	LOW				VERY LOW
	▶ PLANT UPTAKE	▶ GARDEN FRUIT AND VEGETABLES	▶ INGESTION	▶	VERY LOW	MODERATE / LOW							
	▶ INFILTRATION / LEACHING	▶ GROUNDWATER FLOW	▶ DIRECT	▶								LOW	VERY LOW
		▲ ▼											
▶ RUNOFF	▶ SURFACE WATER FLOW	▶ DIRECT	▶								MODERATE / LOW		MODERATE
MADE GROUND (ASBESTOS)	▶ FIBRE RELEASE	▶ AIR	▶ INHALATION	▶	VERY LOW	LOW	VERY LOW			VERY LOW			
SOIL (PUTRESCIBLE)	▶ GAS FROM DECOMPOSITION	▶ AIR	▶ INHALATION	▶	VERY LOW	LOW	VERY LOW			VERY LOW			
SOIL (VOC)	▶ VAPOUR FROM VOLATILISATION /	▶ AIR	▶ INHALATION	▶	VERY LOW	VERY LOW	VERY LOW			VERY LOW			
GROUNDWATER (VOC)	▶ VAPOUR FROM VOLATILISATION	▶ AIR	▶ INHALATION	▶	VERY LOW	VERY LOW	VERY LOW			VERY LOW			
GROUNDWATER (DISSOLVED CONTAMINANTS)	▶ DIRECT	▶ BASEFLOW TO SURFACE WATER	▶ DIRECT	▶							VERY LOW		VERY LOW
URANIUM IN UNDERLYING STRATA	▶ RADON FROM RADIOACTIVE DECAY	▶ AIR	▶ INHALATION	▶	VERY LOW	VERY LOW	VERY LOW						

X SOURCE►PATHWAY►RECEPTOR NOT COMPLETE AND NO FURTHER ACTION REQUIRED

SECTION 4 SITE INVESTIGATION RATIONALE

4.1 INTRODUCTION

- 4.1.1 After reviewing the desk study and existing site investigation data IDOM designed a supplementary site investigation to obtain additional environmental and geotechnical data in order to reduce uncertainty. The existing investigation in Parcel B was extremely limited (one CBR on site), as Parcel B formed a part of the wider site being investigated.
- 4.1.2 Intrusive sampling locations were chosen on the basis of providing broad spatial coverage of Parcel B as no obvious features suggesting contaminative use were identified which required targeted investigation.
- 4.1.3 Groundwater depth measurements and confirmatory ground gas monitoring were also undertaken. Whilst no specific contaminants of concern were identified by desk study, a suite of common contaminants was applied including heavy metals, hydrocarbons, asbestos, pesticides and herbicides.

4.2 SITE INVESTIGATION METHODS

- 4.2.1 An intrusive investigation was carried out by IDOM between 10 and 11 December 2024 and comprised the following scope of work:
- i.* Fourteen shallow windowless sample probe holes (MWS101 to MWS114) to depths of between 0.9 m and 2.6 m bgl;
 - ii.* Three machine-dug trial holes (MTP101 to MTP103) to depths of between 1.5 and 1.7 m bgl; and
 - iii.* Five Californian Bearing Ratio tests (MCBR104 to MCBR108).
- 4.2.2 Exploratory hole locations are indicated on drawing 21949ba-304-003 in Appendix 1. Logging of exploratory holes was undertaken by an IDOM Officer. Exploratory hole logs are contained in Appendix 3.
- 4.2.3 A tracked windowless sampling rig was used to advance MWS101 – MWS114. This comprised a rig-mounted drop hammer to drive a hollow steel barrel into the ground. The barrel is recovered along with a removable plastic sleeve, which lines the barrel and holds a core of soil which is retracted for logging and sampling. SPTs were performed at approximate 1 m intervals in all windowless sample holes.
- 4.2.4 Details of monitoring installations in windowless samples are summarised in Table 10

Table 10: Summary of gas and groundwater monitoring installations

Location Ref	Depth To Top of Response Zone (m bgl)	Depth To Base of Response Zone (m bgl)	Strata
MWS101	0.6	1.6	Tunbridge Wells Sand Formation
MWS103	0.6	2.6	Tunbridge Wells Sand Formation
MWS109	0.5	1.5	Tunbridge Wells Sand Formation
MWS114	0.7	1.7	Tunbridge Wells Sand Formation

4.2.5 Representative soil samples were taken from various depths and strata to assess the contaminative status of the site. Soil samples were submitted to an MCERTS/UKAS accredited laboratory for chemical analysis of a broad suite of potential contaminants. The results are provided in Appendix 4.

4.2.6 A programme of geotechnical laboratory testing was performed on selected soil samples obtained from the boreholes, comprising classification and strength tests. Chemical testing was also undertaken to assess the aggressiveness of the ground with respect to buried concrete. The results are provided in Appendix 5.

SECTION 5 GROUND CONDITIONS

5.1 SUMMARY

5.1.1 At the time of the investigation the site comprised an agricultural field. The surface was covered by sparse crop vegetation that was recently harvested.

5.1.2 Exploratory hole locations encountered topsoil over the Tunbridge Wells Sand Formation which was consistent with the published BGS records.

5.1.3 A summary of the ground conditions encountered is presented in Table 12, whilst a more detailed assessment of the strata is contained in the following sections of the report.

Table 12: Summary of sub-surface ground conditions

Strata	Depth to Top of Range (m bgl)	Thickness Range (m)
Topsoil	Surface level	0.3 – 0.55
Tunbridge Wells Sand Formation	0.3 – 0.55	0.35 – 2.1

5.2 TOPSOIL

- 5.2.1 Topsoil was encountered in all exploratory holes. The topsoil was typically described as very soft brown sandy and gravelly clay. The gravel was fine to coarse flint and rare brick.
- 5.2.2 No visual or olfactory evidence of contamination was encountered in the topsoil.
- 5.2.3 No perched groundwater was encountered within the topsoil.

5.3 TUNBRIDGE WELLS SAND FORMATION

- 5.3.1 The Tunbridge Wells Sand Formation was encountered in all exploratory holes. The Tunbridge Wells Sand was typically described near-surface as a light-yellow brown sandy silt or as slightly sandy clay.
- 5.3.2 At depth, the Tunbridge Wells Sand Formation was described as light yellow silty fine sand in some locations which quickly graded into a weak to moderately strong sandstone and siltstone on which the windowless samples met refusal.
- 5.3.3 Groundwater strikes were recorded within the Tunbridge Wells Sand Formation within MWS103 at 2.1m bgl and MWS105 at 1.6 m bgl.
- 5.3.4 No visual or olfactory evidence of contamination was encountered in the Tunbridge Wells Sand Formation.
- 5.3.5 SPTs undertaken within the Tunbridge Wells Sand Formation recorded 'N' values ranging between 18 to 50 (refusal), indicating medium to very high strength ground conditions. These soils were described as firm orange brown sandy clay or light yellow brown sandy silt. Granular beds of sand and sandstone were sometimes encountered but the material was predominately comprised of a sandy silt. The sandy silt grades into siltstone and sandstone at depth upon which the windowless samples met refusal.
- 5.3.6 A total of six Atterberg Plasticity Limits tests were undertaken on samples of the cohesive Tunbridge Wells Sand Formation and recorded modified plasticity indices of between 8 and 15 percent. Classifying the Tunbridge Wells Sand Formation as non-shrinkable to low volume change potential in accordance with NHBC Standards 2025.
- 5.3.7 Three Particle size distributions were undertaken on the cohesive Tunbridge Wells Sand Formation to classify proportions of sand and gravel within the cohesive Tunbridge Wells Sand Formation and identified the following range of particle sizes:
 - Gravel: 3 - 12%
 - Sand: 6 - 10%
 - Fines (clay/silt): 78 - 91%

- 5.3.8 Two point load strength tests were undertaken on samples of the sandstone at depth and recorded IS strengths of between 0.58 and 0.68 MPa.

SECTION 6 PRELIMINARY GEOTECHNICAL RECOMMENDATIONS

6.1 FOUNDATIONS

- 6.1.1 The proposed development for Parcel B comprises residential housing. The exact layout and number of houses is yet to be determined.
- 6.1.2 The intrusive investigation revealed the presence of topsoil over the Tunbridge Wells Sand Formation. The Tunbridge Wells Sand Formation was often encountered as cohesive silt or clay near surface and was indicated to typically have a medium to very high strength. These cohesive soils graded into siltstones and sandstones with depth and had a limited thickness typically persisting to depths of up to 1.60 m bgl in MWS102.
- 6.1.3 Beneath the cohesive upper layer of the Tunbridge Wells Sand Formation sandstone and siltstone were encountered. All trial holes met refusal by 2.20 m bgl and SPTs recorded 'N' values between 18 and 50 indicative of medium to very high strength ground conditions. The Tunbridge Wells Sand Formation is considered to be a suitable founding stratum.
- 6.1.4 An allowable bearing pressure of up to 100 kN/m² has been calculated for strip foundations founded at a minimum depth of 0.90 m bgl within the cohesive Tunbridge Wells Sand Formation. Less than 15 mm of total settlement would be anticipated. At this footing depth foundations are likely to span across cohesive and granular ground conditions in some areas of the site. Where this occurs reinforcement mesh should be added to the footings. Foundations must be extended deeper if soft cohesive soils (clay/silt) are exposed at the foundation depth of 0.9 m bgl.
- 6.1.5 Where the Tunbridge Wells Sand is granular allowable bearing pressures of up to 150 kN/m² are possible and could be achieved by deepening the footings to 2 m bgl provided consistent granular soils and/or weathered rock is present. Anticipated total settlements at this depth would be 20 mm assuming a conservative friction angle of 32 degrees within the granular soils.
- 6.1.6 The final foundation depth must be determined using Chapter 4.2 of the NHBC Standards for building near trees and hedges and extending as necessary. Atterberg limits tests have classified the cohesive soils as low volume change potential. The minimum footing depth of 0.9m was determined as at this depth most of soft clay soils near surface would be bypassed.

6.2 EXCAVATIONS AND GROUNDWATER

- 6.2.1 Groundwater strikes were encountered between 1.6 and 2.1 m bgl within the Tunbridge Wells Sand Formation. It is conceivable that in wetter winter months the

groundwater table could lead to groundwater flooding of excavation trenches and provision for dewatering should therefore be made.

- 6.2.2 The trial pit excavations were noted to be marginally stable. However unsupported earth faces can collapse without warning and therefore excavations must be adequately supported or battered back prior to entry by personnel.

6.3 FLOOR SLABS

- 6.3.1 Atterberg plasticity limits tests classified the soils on site as non-shrinkable to low volume change potential. Low volume change potential should be assumed and suspended floor slabs should be used.

6.4 BURIED CONCRETE

- 6.4.1 For the purposes of assessing concrete aggressiveness the testing undertaken across the three land parcels (Parcel A, B and Remaining areas) have been considered together. A total of 26 samples were collected across the three parcels, ten of which were from Parcel B.

- 6.4.2 Recommendations given in BRE Special Digest 1:2005 "*Concrete in aggressive ground*" have been followed in order to give recommendations with respect to buried concrete.

- 6.4.3 Water soluble sulphate analysis was carried out on twenty-six soil samples obtained from depths of between 0.45 and 3.45 m bgl with soil pH determination also carried out on these samples. Water soluble sulphate contents ranged between 8.3 and 74.3 mg.l⁻¹. In accordance with BRE guidelines the characteristic value is calculated by determining the mean of the highest 20 % of results. In this case the characteristic value is 49.6 mg.l⁻¹. On this basis the Design Sulphate Class is DS1.

- 6.4.4 The pH values in the soil samples varied between 6.2 and 8.2. The mean of the lowest 20 % of values is 6.4 which represents the characteristic value. Mobile groundwater conditions have been assumed and, on this basis, the Aggressive Chemical Environment for Concrete (ACEC) class for the site is AC-2z.

6.5 ROADS AND PAVED AREAS

- 6.5.1 Five in situ CBR tests were undertaken as a part of this investigation (MCBR104-MCBR108) and recorded CBR percentages of between 3.9 and 11% a design CBR percentage of 4.0% would therefore be recommended.

6.6 SOAKAWAYS

- 6.6.1 Soakaways are possibly viable on this site. No infiltration tests were undertaken as a part of these intrusive works but were undertaken on the Remaining Areas Parcel. It is worth noting that discharges of water or liquid waste of more than 5m³ to ground or to surface waters would require consultation with regulators as the site lies within a SSSI impact risk zone for the SSSI known as Hedgecourt.

SECTION 7 ENVIRONMENTAL ASSESSMENT – SOIL QUALITY

7.1 RESULTS

- 7.1.1 A total of twelve soil samples were submitted to the laboratory for chemical analysis, including three samples from natural ground and fourteen samples from made ground. The laboratory chemical analysis certificates are contained in Appendix 4. The results of the analysis are summarised in Table 13.
- 7.1.2 An initial screening exercise has been undertaken whereby contaminant concentrations recorded in soils have been assessed against Suitable for Use Levels (S4ULs) published in 2015 by LQM/CIEH¹. These precautionary screening levels are designed to be representative of minimal risk to human health in a number of land use scenarios. In this report S4ULs have been selected for a residential land use where the possibility of consumption of homegrown produce exists and assuming a soil organic matter of 1 %. For lead the DEFRA Category 4 Screening Level² has been used as this is based on updated toxicological data and a low risk to human health.
- 7.1.3 An additional set of phytotoxin screening levels have been adopted from 'The Code of Agricultural Practice for the Protection of Soil' Ministry of Agriculture, Fisheries and Food (MAFF), 1993, which are protective of healthy plant growth.

Table 13: Summary of soils chemical analysis results

CONTAMINANT	No of Tests	MAX (mg.kg ⁻¹)	MEAN (mg.kg ⁻¹)	SCREENING LEVEL (SL) (mg.kg ⁻¹)	No > SL ⁺
HUMAN HEALTH RISK ASSESSMENT					
Asbestos in soil	9	Not detected		Detected	0
pH	12	8.3	7.4	5 – 9	0
Arsenic	12	9.5	7.6	37	0
Barium	12	54.0	38.2	1300	0
Cadmium	12	0.3	0.3	11	0
Chromium (III)	12	25.0	19.3	910	0

¹ Nathanail, C. P., McCaffrey, C., Gillett, A. G., Ogden, R. C. and Nathanail, J. F. 2015. *The LQM/CIEH S4ULs for Human Health Risk Assessment*. Land Quality Press, Nottingham. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3100. All rights reserved. Including August 2015 nickel update.

² SP1010 *Development of Category 4 Screening Levels Main Report* (Dec 2013) and SP1010 *Policy Companion Document* (Mar 2014).

CONTAMINANT	No of Tests	MAX (mg.kg ⁻¹)	MEAN (mg.kg ⁻¹)	SCREENING LEVEL (SL) (mg.kg ⁻¹)	No > SL*
Hexavalent Chromium	12	Below Detection Limit of <1.8		6	0
Lead	12	41.0	22.1	200	0
Mercury	12	Below Detection Limit of <0.3		40	0
Nickel	12	13.0	10.3	130	0
Selenium	12	2.0	1.6	250	0
Vanadium	12	33.0	25.7	410	0
TPH Aliphatic >EC ₅ - EC ₆	12	Below Detection Limit of <0.01		42	0
TPH Aliphatic >EC ₆ - EC ₈	12	Below Detection Limit of <0.001		100	0
TPH Aliphatic >EC ₈ - EC ₁₀	12	Below Detection Limit of <0.01		27	0
TPH Aliphatic >EC ₁₀ - EC ₁₂	12	Below Detection Limit of <1.0		130	0
TPH Aliphatic >EC ₁₂ - EC ₁₆	12	Below Detection Limit of <2.0		1100	0
TPH Aliphatic >EC ₁₆ - EC ₂₁	12	Below Detection Limit of <8.0		65000	0
TPH Aliphatic >EC ₂₁ - EC ₃₅	12	Below Detection Limit of <8.0		65000	0
TPH Aromatic >EC ₅ - EC ₇	12	Below Detection Limit of <0.001		70	0
TPH Aromatic >EC ₇ - EC ₈	12	Below Detection Limit of <0.01		130	0
TPH Aromatic >EC ₈ - EC ₁₀	12	Below Detection Limit of <0.02		34	0
TPH Aromatic >EC ₁₀ - EC ₁₂	12	Below Detection Limit of <1.0		74	0
TPH Aromatic >EC ₁₂ - EC ₁₆	12	Below Detection Limit of <2.0		140	0
TPH Aromatic >EC ₁₆ - EC ₂₁	12	Below Detection Limit of <10.0		260	0
TPH Aromatic >EC ₂₁ - EC ₃₅	12	Below Detection Limit of <10.0		1100	0
Benzene	12	Below Detection Limit of <5.0		0.087	0
Toluene	12	Below Detection Limit of <5.0		130	0
Ethylbenzene	12	Below Detection Limit of <5.0		47	0
Xylene	12	Below Detection Limit of <5.0		56	0
Naphthalene	12	0.16	0.11	2.3	0
Acenaphthylene	12	Below Detection Limit of <0.05		170	0
Acenaphthene	12	0.06	0.06	210	0
Fluorene	12	0.07	0.06	170	0
Phenanthrene	12	0.10	0.07	95	0
Anthracene	12	Below Detection Limit of <0.05		2400	0
Fluoranthene	12	0.08	0.06	280	0
Pyrene	12	0.08	0.07	620	0
Benzo(a)anthracene	12	Below Detection Limit of <0.05		7.2	0

CONTAMINANT	No of Tests	MAX (mg.kg ⁻¹)	MEAN (mg.kg ⁻¹)	SCREENING LEVEL (SL) (mg.kg ⁻¹)	No > SL*
Chrysene	12	Below Detection Limit of <0.05		15	0
Benzo(b)fluoranthene	12	Below Detection Limit of <0.05		2.6	0
Benzo(k)fluoranthene	12	Below Detection Limit of <0.05		77	0
Benzo(a)pyrene	12	Below Detection Limit of <0.05		2.2	0
Indeno(1,2,3-c,d)pyrene	12	Below Detection Limit of <0.05		27	0
Dibenzo(a,h)anthracene	12	Below Detection Limit of <0.05		0.24	0
Benzo(g,h,i)perylene	12	Below Detection Limit of <0.05		320	0
Phenol	12	Below Detection Limit of <1.0		120	0
Pesticides	2	Nd		-	0
Herbicides	2	Nd		-	0
PHYTOTOXICITY RISK ASSESSMENT					
Copper	12	17.0	12.7	200	0
Nickel	12	13.0	10.3	110	0
Zinc	12	51.0	38.8	300	0

Notes: * Number of samples exceeding screening level

nd = not detected

7.2 ZOOTOXIC METALS (HARMFUL TO HUMAN HEALTH)

7.2.1 No exceedances of the applicable screening criteria were encountered.

7.3 PHYTOTOXIC METALS (HARMFUL TO PLANT HEALTH)

7.3.1 No phytotoxic metals recorded at concentrations in excess of the applicable screening criteria were encountered.

7.4 ORGANIC CONTAMINANTS

7.4.1 No exceedances of the applicable screening criteria were encountered.

7.5 INORGANIC CONTAMINANTS

7.5.1 No exceedances of the applicable screening criteria were encountered.

7.6 PESTICIDES / HERBICIDES

7.6.1 Pesticides and herbicides were not identified above the laboratory detection limit in the topsoil sample.

7.7 SUMMARY

7.7.1 Contamination was not identified within the topsoil.

7.7.2 Contamination was not identified within the natural ground.

SECTION 8 ENVIRONMENTAL ASSESSMENT – GROUNDWATER QUALITY

8.1 RESULTS

- 8.1.1 Groundwater was encountered during drilling and excavation at two locations at depths ranging between 1.6 and 2.1 m bgl. These were typically associated with sandy partitions and bands of claystone / siltstone in the Tunbridge Wells Sand Formation.
- 8.1.2 During subsequent monitoring, standing groundwater was recorded between 0.9 m – 1.45m bgl with sufficient volume of water to enable sampling.
- 8.1.3 Three samples (MWS101, MWS109 & MWS114) were submitted to the laboratory for analysis of a typical contamination suite. Screening levels for groundwater have been derived from the maximum concentrations set out in the Water Supply (Water Quality) Regulations 2018 (England) where prescribed, or for those determinands not included, the 1989 regulations. The laboratory chemical analysis certificate is contained in Appendix 6 and groundwater level data is contained in Appendix 7. A summary of groundwater contaminant concentrations is contained in Table 14.

Table 14: Summary of groundwater chemical analysis results

Contaminant	Units	Max	Mean	No. Tests	Screen Level (SL)	No. > SL*
pH	-	7.2 - 7.9	7.5	3	6.5**	0
Arsenic	µg.l ⁻¹	0.42	0.3	3	10	0
Cadmium	µg.l ⁻¹	0.04	0.03	3	5	0
Chromium (total)	µg.l ⁻¹	0.4	0.33	3	50	0
Copper	µg.l ⁻¹	4.7	3.63	3	2000	0
Lead	µg.l ⁻¹	<0.2	<0.02	3	10	0
Mercury	µg.l ⁻¹	<0.05	<0.05	3	1	0
Nickel	µg.l ⁻¹	5.2	3.43	3	20	0
Selenium	µg.l ⁻¹	5.5	3.07	3	10	0
Zinc	µg.l ⁻¹	3.7	2.3	3	5000	0
Cyanide	µg.l ⁻¹	<10	<10	3	50	0
Sulphate	mg.l ⁻¹	167	86.7	3	250	0
TPH	µg.l ⁻¹	<10	<10	3	10	0
BTEX	µg.l ⁻¹	<1.0	<1.0	3	-	-
PAH (total)	µg.l ⁻¹	<0.16	<0.16	3	-	-
PAH****	µg.l ⁻¹	<0.04	<0.04	3	0.1	0
Benzo(a)pyrene	µg.l ⁻¹	<0.01	<0.01	3	0.01	0
Naphthalene	µg.l ⁻¹	<0.01	<0.01	3	-	-
Phenols	µg.l ⁻¹	<10	<10	3	0.5	0***

Notes: * Samples exceeding screen level

** Minimum value applies (i.e. most acid)

*** Not detected above screening level

**** sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene & indeno(1,2,3-cd)pyrene

8.2 DISCUSSION

- 8.2.1 Groundwater contaminant levels were found to be below the respective screening levels or below the limits of detection.

SECTION 9 ENVIRONMENTAL ASSESSMENT - HAZARDOUS GAS

9.1 RESULTS

- 9.1.1 Confirmatory gas monitoring has been undertaken on two occasions on 18 December 2024 and 8 January 2025. The maximum and steady state levels of methane, carbon dioxide, oxygen, carbon monoxide and hydrogen sulphide were recorded in each standpipe, together with associated parameters including borehole flow and ambient air pressure. The time taken to reach steady state was also recorded.
- 9.1.2 The full results are presented in Appendix 7 and a summary of key readings for each strata monitored are presented in Table 15.

Table 15: Summary of hazardous gas monitoring data with all or part of response zone within Tunbridge Wells Sand Formation stratum

Monitoring Well Reference				MWS101		
Top of Response Zone (m bgl)				0.6		
Bottom of Response Zone (m bgl)				1.6		
Response Zone Stratum				Tunbridge Wells Sand Formation		
Round	AP (mb)	Flow Max (l.hr ⁻¹)	Flow Steady (l.hr ⁻¹)	Methane Max (% v/v)	Carbon Dioxide Max (% v/v)	Dip to water (m bgl)
1	999	0.0	0.0	0.0	0.6	0.98
2	1001	0.0	0.0	0.0	0.9	0.90

Monitoring Well Reference				MWS103		
Top of Response Zone (m bgl)				0.6		
Bottom of Response Zone (m bgl)				2.6		
Response Zone Stratum				Tunbridge Wells Sand Formation		
Round	AP (mb)	Flow Max (l.hr ⁻¹)	Flow Steady (l.hr ⁻¹)	Methane Max (% v/v)	Carbon Dioxide Max (% v/v)	Dip to water (m bgl)
1	999	0.0	0.0	0.0	0.8	1.45
2	1001	0.0	0.0	0.0	0.5	1.00

Monitoring Well Reference				MWS109		
Top of Response Zone (m bgl)				0.5		
Bottom of Response Zone (m bgl)				1.5		
Response Zone Stratum				Tunbridge Wells Sand Formation		
Round	AP (mb)	Flow Max (l.hr ⁻¹)	Flow Steady (l.hr ⁻¹)	Methane Max (% v/v)	Carbon Dioxide Max (% v/v)	Dip to water (m bgl)
1	998	0.0	0.0	0.0	0.9	1.03
2	1000	0.0	0.0	0.0	0.7	1.30

Monitoring Well Reference				MWS114		
Top of Response Zone (m bgl)				0.7		
Bottom of Response Zone (m bgl)				1.7		
Response Zone Stratum				Tunbridge Wells Sand Formation		
Round	AP (mb)	Flow Max (l.hr ⁻¹)	Flow Steady (l.hr ⁻¹)	Methane Max (% v/v)	Carbon Dioxide Max (% v/v)	Dip to water (m bgl)
1	998	0.0	0.0	0.0	0.9	1.26
2	1000	0.0	0.0	0.0	1.0	1.20

9.1.3 The monitoring rounds were undertaken at low barometric pressures ranging from 998 to 1001 mb. No positive flow was recorded. Over the two monitoring rounds methane (CH₄) was not detected, carbon dioxide (CO₂) was detected to a maximum of 1.0 % v/v with a corresponding slightly depleted oxygen concentration of 19.0 % v/v.

SECTION 10 ENVIRONMENTAL ASSESSMENT - VAPOUR

10.1 RESULTS

10.1.1 As part of the monitoring, organic volatile vapour measurements were undertaken on 18 December 2024 and 8 January 2025. The maximum and steady state levels of VOCs were recorded using a PID (photo-ionization device) in each standpipe. The time taken to reach steady state was also recorded.

10.1.2 VOC concentrations ranged from 0.3 to 1.8 ppm with the highest concentration recorded at MWS114. This is not considered to be indicative of contamination with volatile organic compounds.

SECTION 11 WASTE CLASSIFICATION, OFF-SITE DISPOSAL OR RE-USE

11.1 WASTE CLASSIFICATION

- 11.1.1 Solid chemical data demonstrates that the site soils are non-hazardous as contaminant concentrations are generally low. Natural as dug arisings (excluding topsoil) could be classed as inert waste without the requirement for WAC testing.
- 11.1.2 Materials, including waste soils which are not to be retained on site, should be removed and disposed of in accordance with all relevant statutes.
- 11.1.3 It is a requirement that waste sent to landfill should have been subject to measures to reduce the amount of waste, reduce harmful or hazardous properties and facilitate recycling. These requirements may be satisfied by measures such as segregation and screening of wastes to recover suitable fill and material for crushing, segregation of inert materials and putrescible wastes.

11.2 RE-USE CONSIDERATIONS

- 11.2.1 As a sustainable alternative to off-site disposal, it may be possible to re-use site-won soils provided the following criteria are met:
 - i.* Use of the material will not create an unacceptable risk of pollution to the environment or harm to human health;
 - ii.* The material must be chemically and geotechnically suitable without further treatment;
 - iii.* There must be certainty of use within the scheme;
 - iv.* Material should only be used in the quantity necessary for that use.
- 11.2.2 Provided these criteria are met, the re-use of site-won materials is unlikely to be deemed a waste activity. Production of a Materials Management Plan under the industry CL:AIRE Code of Practice on the Definition of Waste represents a robust method of demonstrating that the proposed re-use of material meets the criteria and is not liable for landfill tax.
- 11.2.3 During excavation and re-use of “uncontaminated soil and other naturally occurring material”, an exclusion to waste legislation can apply under the Waste Framework Directive. To qualify for the exclusion, soils must be:
 - i.* Uncontaminated;
 - ii.* Excavated during the construction activities; and
 - iii.* Certain to be used in its natural state for construction purposes on the same site.

11.2.4 Under this exclusion, the definition of uncontaminated soil and other naturally occurring material is as follows:

- i.* virgin soil or soil that is equivalent to virgin soil. Other naturally occurring material means soil, stones, gravel, rock, etc.

SECTION 12 GENERIC QUANTITATIVE RISK ASSESSMENT (TIER 2)

12.1 INTRODUCTION

12.1.1 The site investigation has not identified any potentially significant contaminant sources.

12.1.2 The risk assessment has been updated with regard to the following receptors using the source-pathway-receptor risk assessment method:

- i.* Present site users;
- ii.* Future residents;
- iii.* Construction workers;
- iv.* Plants used in landscaping;
- v.* Potable water supply pipework;
- vi.* The general public and adjacent site users; and
- vii.* Controlled waters.

12.1.3 In each case the existence of a pollutant linkage requires a pathway by which the receptor could be exposed to the source. A qualitative assessment of risk is thus considered in the first instance with respect to the site in its current condition and is summarised in the sections below.

12.1.4 The level of risk considers the likelihood of the risk occurring and the severity of the potential consequence of that risk using the approach outlined in Appendix 8. As illustrated in Table 16, this Tier 2 risk assessment combines the likelihood and severity of the risk using a Risk Assessment Matrix approach as recommended by CIRIA C552, 2001 and updated in Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66 published by NHBC, EA and CIEH (2008).

Table 16: Risk assessment matrix (after CIRIA C552 and R&D66)

		MAGNITUDE OF POTENTIAL CONSEQUENCE (SEVERITY) OF RISK			
		SEVERE	MEDIUM	MILD	MINOR
LIKELIHOOD OF RISK	HIGH LIKELIHOOD	Very High Risk	High Risk	Moderate Risk	Low Risk
	LIKELY	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	LOW LIKELIHOOD	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	UNLIKELY	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

12.2 SOIL CONTAMINATION (HEAVY METALS AND HYDROCARBONS)

12.2.1 Significant contamination was not encountered during the investigation.

Table 17 below summarises the level of risk assigned to each receptor from soil contamination:

Table 17: Risks from soil contamination (heavy metals and hydrocarbons)

Receptor		Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users		dust inhalation	unlikely	minor	VERY LOW
		direct ingestion	unlikely	minor	VERY LOW
		dermal exposure	unlikely	minor	VERY LOW
		ingestion of fruit / vegetables	unlikely	minor	VERY LOW
Residents of future development		dust inhalation	unlikely	minor	VERY LOW
		direct ingestion	low likelihood	minor	VERY LOW
		dermal exposure	low likelihood	minor	VERY LOW
		ingestion of fruit / vegetables	low likelihood	minor	VERY LOW
Construction workers		dust inhalation	low likelihood	minor	VERY LOW
		direct ingestion	low likelihood	minor	VERY LOW
		dermal exposure	low likelihood	minor	VERY LOW
Future planting		direct uptake of phytotoxic metals	unlikely	minor	VERY LOW
Water supply pipes		direct contact leading to corrosion / permeation	unlikely	minor	VERY LOW
Adjacent site users		fugitive dust inhalation	unlikely	minor	VERY LOW
Controlled waters	Secondary A Aquifer	infiltration / leaching	unlikely	minor	VERY LOW
	Surface water	run-off from site	unlikely	minor	VERY LOW

12.3 SOIL CONTAMINATION (ASBESTOS)

12.3.1 No asbestos was encountered within the site investigation, therefore overall risk is considered to be very low.

Table 18 below summarises the level of risk assigned to each receptor from asbestos contamination:

Table 18: Risks from soil contamination (asbestos)

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	inhalation of airborne fibres generated from dry soils	unlikely	minor	VERY LOW
Residents of future development		unlikely	minor	VERY LOW
Construction workers		unlikely	minor	VERY LOW
Adjacent site users		unlikely	minor	VERY LOW

12.4 CONTROLLED WATERS (GROUNDWATER)

- 12.4.1 No groundwater contamination was encountered during the investigation and no contamination was found within the soils.

Table 19 below summarises the level of risk to surface water receptors:

Table 19: Risks from groundwater contamination

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
Surface water	Aquifer forms basal flow of surface water	unlikely	minor	VERY LOW

12.5 HAZARDOUS GAS

- 12.5.1 The desk study has not identified any credible on-site sources of ground gas and the site investigation has confirmed this. Testing of the Tunbridge Wells Sand Formation has confirmed a very low organic content such that the natural soils would not be expected to form a source of ground gas generation.
- 12.5.2 There are several small-scale historical off-site landfills to the south east and the underlying geology may present a permeable pathway for any lateral migration. However, these landfills were filled with inert waste by the 1980s, they are 300m from Parcel B and there is not expected to be significant driving force for lateral gas migration. Nevertheless, a precautionary approach including ground gas monitoring was considered appropriate.
- 12.5.3 Hazardous gas monitoring is currently ongoing and therefore the risk assessment will be updated on completion of the monitoring programme.

- 12.5.4 Table 20 below provides a preliminary summary of the level of risk to each receptor from hazardous gas generation with a degree of uncertainty due to the incomplete ground gas monitoring programme. This will be updated in due course:

Table 20: Risks from hazardous gas

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	decomposition of natural ground generating hazardous gas that can migrate by diffusion or advection via cracks in foundations / utility trenches / service penetrations. Outdoor inhalation in confined excavations.	unlikely	minor	VERY LOW
Residents of future development		unlikely	minor	VERY LOW
Construction workers		unlikely	minor	VERY LOW
Adjacent site users		unlikely	minor	VERY LOW

12.6 **VAPOUR**

12.6.1 Significant concentrations of Volatile Organic Compounds (VOCs) have not been encountered during monitoring.

12.6.2 Table 21 summarises the level of risk to each receptor from vapour generation:

Table 21: Risks from soil vapour

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	Volatilisation of VOCs from contaminated soil generating vapours that can migrate by diffusion or advection via cracks in foundations / utility trenches / service penetrations. Outdoor inhalation in confined excavations / localised spills.	unlikely	minor	VERY LOW
Residents of future development		unlikely	minor	VERY LOW
Construction workers		unlikely	minor	VERY LOW
Adjacent site users / general public		unlikely	minor	VERY LOW

SECTION 13 UPDATED COMBINED CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

13.1.1 Following completion of the Tier 2 generic quantitative risk assessment, the preliminary combined conceptual site model and risk assessment has been updated and is presented in Table 22.

Table 22: Combined Conceptual Site Model and Tier 2 Risk Assessment

POTENTIAL CONTAMINANT SOURCE	RELEASE MECHANISM	PATHWAY	EXPOSURE ROUTE	RECEPTOR							
				Present Site Users / General Public	Future Residents / Site Users	Construction Workers	On-Site Planting	Water Supply Pipes	Adjacent Site Users / General Public	Controlled Waters	
										Surface Water	Secondary A Aquifer
SOIL (HEAVY METALS, HYDROCARBONS, PESTICIDES & HERBICIDES)	DUST	AIR	INHALATION	VERY LOW	VERY LOW	VERY LOW			VERY LOW		
	DIRECT	DIRECT	INGESTION	VERY LOW	VERY LOW	VERY LOW					
	DIRECT	DIRECT	DERMAL EXPOSURE	VERY LOW	VERY LOW	VERY LOW					
	DIRECT	DIRECT	DIRECT CONTACT / UPTAKE				VERY LOW	VERY LOW			
	PLANT UPTAKE	GARDEN FRUIT AND VEGETABLES	INGESTION	VERY LOW	VERY LOW						
	INFILTRATION / LEACHING	GROUNDWATER FLOW	DIRECT								VERY LOW
		▲▼									
	RUNOFF	SURFACE WATER FLOW	DIRECT							VERY LOW	
TOPSOIL (ASBESTOS)	FIBRE RELEASE	AIR	INHALATION	VERY LOW	VERY LOW	VERY LOW			VERY LOW		
SOIL (NATURAL GROUND)	GAS FROM DECOMPOSITION	AIR	INHALATION	VERY LOW	VERY LOW	VERY LOW			VERY LOW		
SOIL (VOC)	VAPOUR FROM VOLATILISATION /	AIR	INHALATION	VERY LOW	VERY LOW	VERY LOW			VERY LOW		
GROUNDWATER (VOC)	VAPOUR FROM VOLATILISATION	AIR	INHALATION	VERY LOW	VERY LOW	VERY LOW			VERY LOW		
GROUNDWATER (DISSOLVED CONTAMINANTS)	DIRECT	BASEFLOW TO SURFACE WATER	DIRECT							VERY LOW	
URANIUM IN UNDERLYING STRATA	RADON FROM RADIOACTIVE DECAY	AIR	INHALATION	X	X	X					

X SOURCE►PATHWAY►RECEPTOR NOT COMPLETE AND NO FURTHER ACTION REQUIRED

SECTION 14 DETAILED QUANTITATIVE RISK ASSESSMENT (TIER 3)

- 14.1.1 Other than completion of the ground gas monitoring programme, no contaminant linkages requiring further supplementary site investigation and detailed quantitative risk assessment have been identified.

SECTION 15 PRELIMINARY REMEDIATION STRATEGY AND RECOMMENDATIONS

15.1 INTRODUCTION

- 15.1.1 No significant soil contamination has been identified and no remediation is required.
- 15.1.2 Further assessment of ground gas risk will be presented upon completion of the monitoring programme. This will determine the requirement or otherwise for structural ground gas protection measures in the new dwellings.
- 15.1.3 Given the presence of a nearby surface water course which feeds into a downstream sensitive site, it will be necessary to employ silt management controls to prevent entry of suspended solids into the brook.
- 15.1.4 There is a significant volume of topsoil at the site. This topsoil is considered suitable for re-use from a contaminant perspective. The texture and nutrient status of this material should be confirmed with the project landscape architect should it be intended for re-use in garden and soft landscaped areas. If it is intended to re-use topsoil, then it is recommended that the resource status of this material is clearly defined to ensure compliance with waste legislation prior to its excavation. A Materials Management Plan under the CL:AIRE Code of Practice is a robust way of managing and documenting re-use of resource soils.
- 15.1.5 It is anticipated that sufficient volumes of site-derived soils will be available for use in gardens and landscaping. However, should any soil be imported for the formation of domestic gardens and landscaped areas it should be obtained from a validated source. The validation should incorporate an assessment of the provenance of the material and chemical analysis.
- 15.1.6 No specific risks to construction workers from chemical contaminants in soil have been identified. The adoption of standard Health and Safety procedures will ensure that risks to operatives at the site are minimised. Operatives should not be allowed to eat, drink or smoke on site except in designated areas and should be required to wash all exposed skin at the end of each shift. Operatives should be required to report any observations of suspect material as this may represent previously unexpected contamination.
- 15.1.7 It is recommended that the utility provider is consulted with respect to their requirements for water supply pipes. It is expected that utilities will be laid in uncontaminated natural soils.

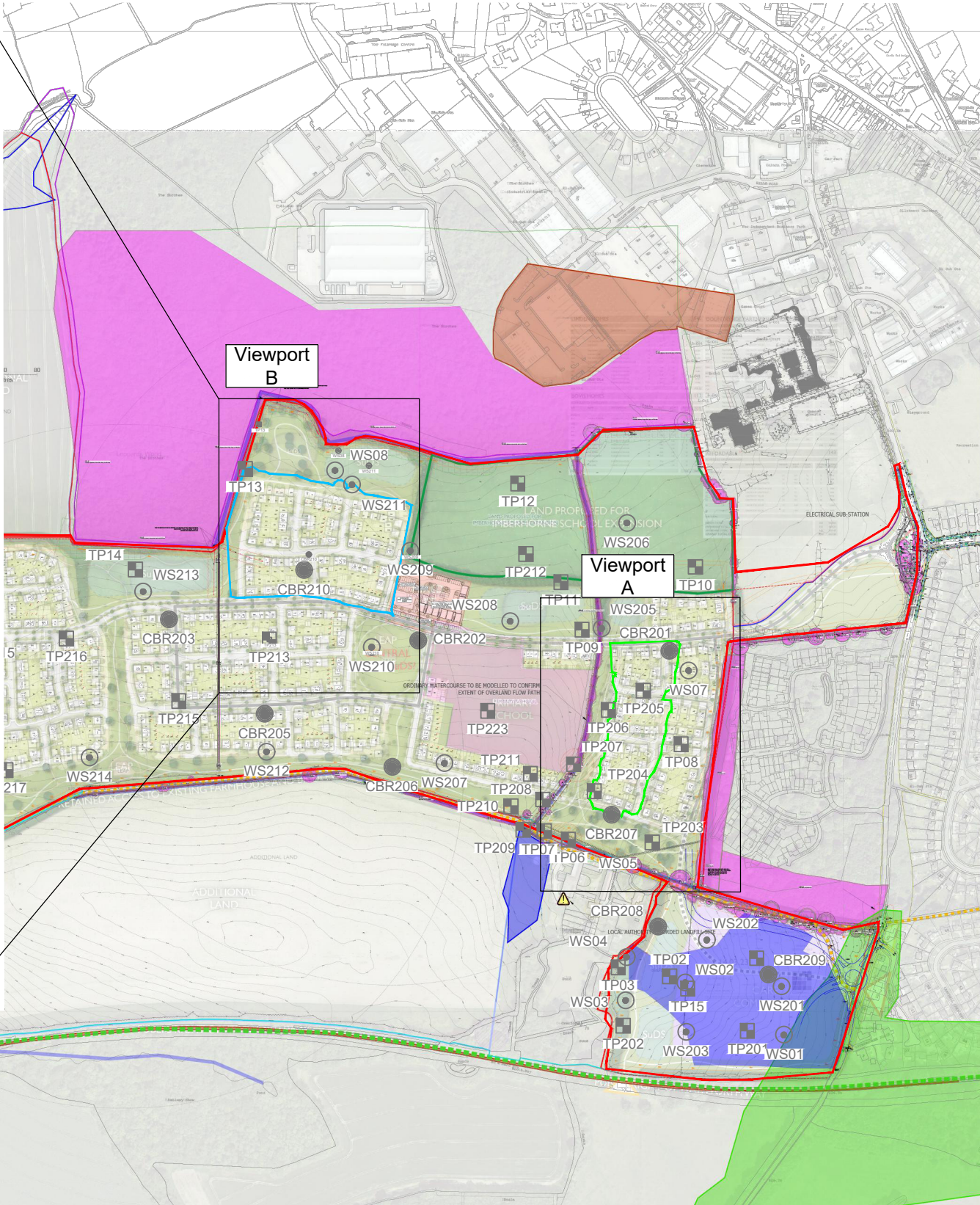
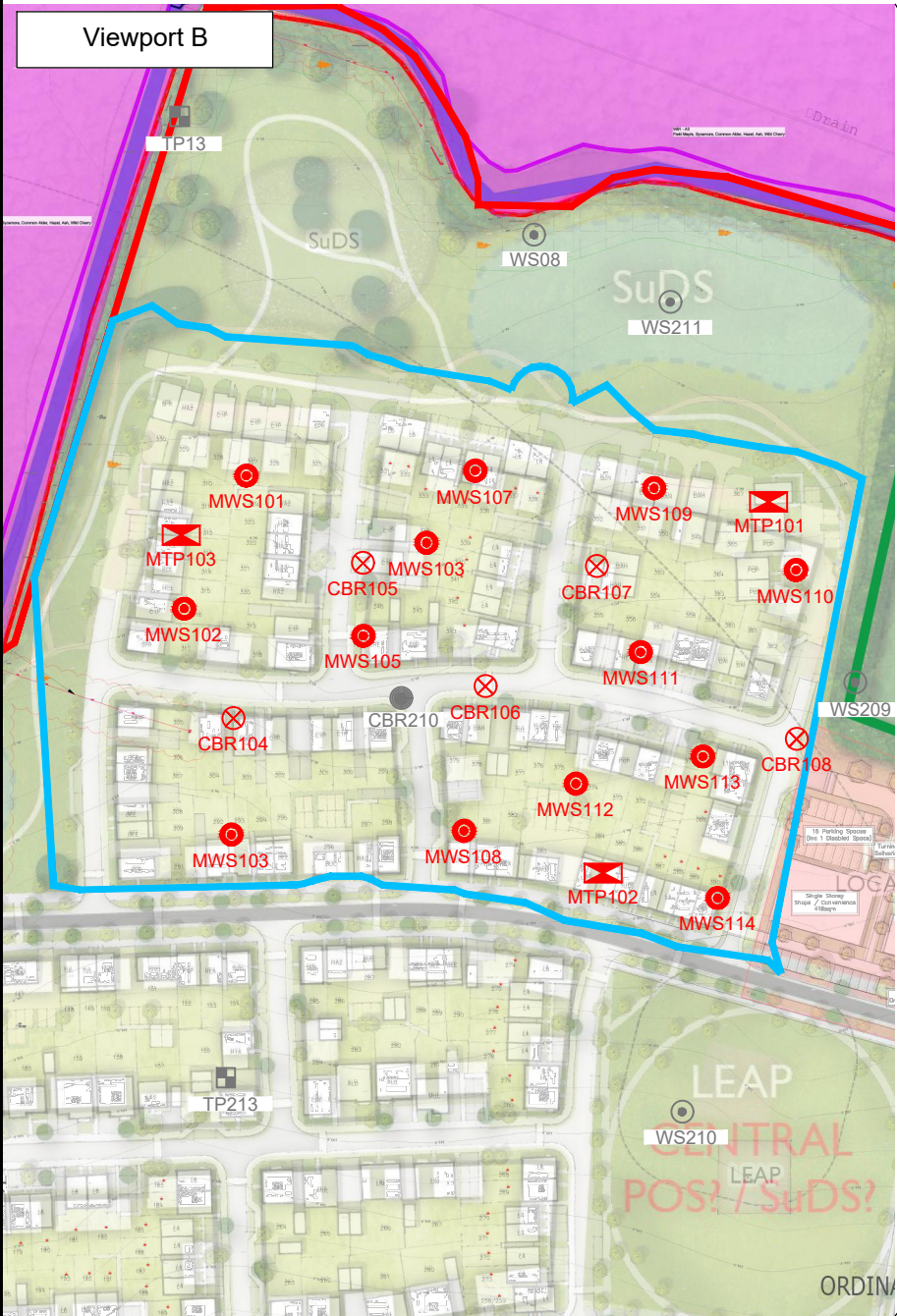
- 15.1.8 Materials, including waste soils which are not to be retained on site, should be removed and disposed of in accordance with all relevant statutes.
- 15.1.9 It is recommended that this report is submitted to the regulators (Local Authority EHO and Planners, Environment Agency Planning Liaison and NHBC) for approval prior to commencement of the works.
- 15.1.10 Any observations of ground conditions atypical of those already described should be reported to IDOM immediately so that an assessment of appropriate action can be made.
- 15.1.11 The soils on site have found to have levels of contamination below the residential screening criteria therefore significant remediation is not required.

SECTION 16 CONCLUSIONS

- 16.1.1 The ground conditions were generally consistent with the published geology, with topsoil overlying Tunbridge Wells Sand Formation.
- 16.1.2 No significant contamination was identified during the investigation.
- 16.1.3 Based on the desk study, site investigation and preliminary ground gas monitoring rounds, hazardous ground gas was not found to be of concern, however the monitoring programme is ongoing, and the gas risk assessment will be updated under a separate cover.
- 16.1.4 There is a significant volume of topsoil at the site. This topsoil is considered suitable for re-use from a contaminative perspective (further validation samples will be required).
- 16.1.5 An allowable bearing pressure has been provided for strip footings founded at a minimum depth of 0.9m within the Tunbridge Wells Sand Formation.
- 16.1.6 Footings must be founded within the Tunbridge Wells Sand Formation; greater bearing capacities are achievable if the footings are deepened to 2.0m bgl and footings which expose both cohesive and granular soils should be reinforced. The final depth of the footings must be determined using chapter 4.2 of the NHBC Standards.

APPENDIX 1

- Site Location Plan
- Proposed Development Plan



LEGEND					
	Site boundary				
	Parcel A				
	Parcel B				
	Merebrook trial pit with location reference				
	Merebrook window sample with location reference				
	Merebrook soakage test with location reference				
	California bearing ratio test with location reference				
	Previous trial pit location with reference				
	Previous window sample with location reference				
	Previous California bearing ration test with location reference				

FIRST ISSUE	01/25	CW	MB	MB	P01
DESCRIPTION	DATE	DWN	CHD	APP'D	REV

ISSUE PURPOSE	INFORMATION
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CLIENT	VISTRY
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PROJECT	21949ba
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DWG TITLE	IMBERHORNE LANE SITE INVESTIGATION PARCEL B
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DWG NO.	21949ba-304-003
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SCALE	N.T.S	DATE	15/01/2025	FRAME DIMS (mm)	(A3) 420 x 297
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DRAWN	CW	CHECKED	MB	APPROVED	MB
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APPENDIX 2 ▪ Radon Potential Dataset Mapping

IMBERHORNE FARM COTTAGES, IMBERHORNE LANE, EAST GRINSTEAD, WEST SUSSEX, RH19 1TX

Professional opinion



Site plan



Search results

Not in a radon affected area

Local levels of radon are considered normal.

However, if an underground room makes up part of the accommodation, the property should be tested regardless of radon Affected Area status.

Useful contacts

UK Health Security Agency (UKHSA) / UKRadon
Radon Survey
Chemical, Radiation and Environmental Hazards
Chilton, Didcot
Oxon
OX11 0RQ
<https://www.ukradon.org/> ↗

UK Radon Association
<http://www.radonassociation.co.uk/> ↗

Overview of findings and recommendations

Radon

No further action is recommended based on the identified local levels of radon.

However, all basement and cellar areas are considered at additional risk from high radon levels. If an underground room such as a cellar or basement makes up part of the living or working accommodation, the property should be tested regardless of radon Affected Area status.

It should be noted that although this report uses the best available data this assessment is an estimation and is not based upon measurements. It is possible to find high radon levels in properties anywhere in the country, even in lower risk areas, as radon is everywhere in varying concentrations.



Methodologies and limitations

Groundsure's methodologies and limitations are available here: knowledge.groundsure.com/methodologies-and-limitations ↗.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information in your Radon Check report. To find out who they are and their areas of expertise see www.groundsure.com/sources-reference ↗.

Conveyancing Information Executive and our terms & conditions

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- a charity with an annual income of less than £3 million;
- a Trust with a net asset value of less than £3 million.

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If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award up to £5,000 to you if the Ombudsman finds that you have suffered actual financial loss and/or aggravation, distress or inconvenience as a result of your search provider failing to keep to the Standards.

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- acknowledge it within 5 working days of receipt
- normally deal with it fully and provide a final response, in writing, within 20 working days of receipt
- liaise, at your request, with anyone acting formally on your behalf

Complaints should be sent to:

Operations Director, Groundsure Ltd, Nile House, Nile Street, Brighton, BN1 1HW. Tel: 01273 257 755. Email: info@groundsure.com

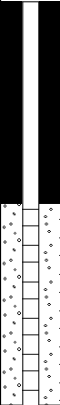
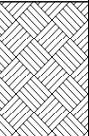
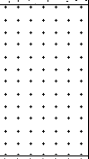
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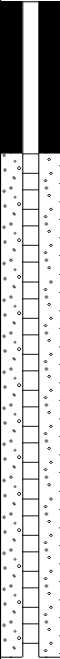
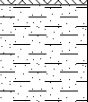
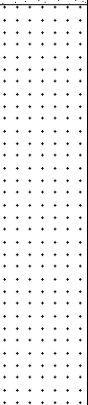
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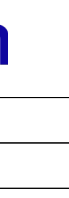
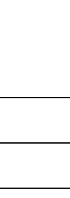


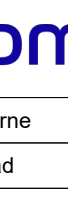
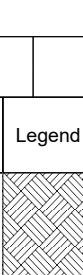
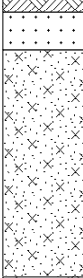
APPENDIX 3 ▪ Exploratory Hole Logs

IDOM				Borehole Log					Borehole No. Parcel B MWS101		
Project Name: Imberhorne				Client: Vistry				Date: 10/12/2024			
Location: East Grinstead				Contractor: 3D Drilling							
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series			
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30		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	N=24 (6,5/6,6,7,5)	0.55	0.90		TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravels are subangular to subrounded fine brick and flint.		1	
		0.60	ES					Light yellow clayey fine SAND with rare sandstone nodules. [UPPER TUNBRIDGE WELLS SAND]			
		1.00	SPT					Extremely weak light brown fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]			
		1.50	D	50 (25 for 40mm/50 for 35mm)	1.50	1.60		Very weak reddish brown fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]			
		1.60	SPT					End of Borehole at 1.60m			
										2	
										3	
										4	
										5	
										6	
Casing Details				Legend				Remarks			
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample				Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.			
Chiselling Details				SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample							
Top (m bgl)	Base (m bgl)	Duration (mins)						Groundwater Details			
								Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)	

IDOM				Borehole Log					Borehole No. Parcel B MWS102		
Project Name: Imberhorne				Client: Vistry				Date: 09/12/2024			
Location: East Grinstead				Contractor: 3D Drilling							
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series			
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30		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		0.40			TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.			
		1.00 1.00	D SPT	N=18 (2,2/5,5,4,4)				Firm light brown mottled orangish brown sandy CLAY with rare sandstone nodules. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]		1	
		1.60	SPT	50 (25 for 20mm/50 for 35mm)	1.60		End of Borehole at 1.60m		2		
										3	
										4	
										5	
										6	
Casing Details				Legend				Remarks			
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample				Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.			
Chiselling Details											
Top (m bgl)	Base (m bgl)	Duration (mins)						Groundwater Details			
								Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)	

IDOM				Borehole Log					Borehole No. Parcel B MWS103			
Project Name: Imberhorne				Client: Vistry				Date: 10/12/2024				
Location: East Grinstead				Contractor: 3D Drilling								
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series				
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30		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					TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravels are subangular to subrounded fine brick and flint.				
									Soft orangish brown mottled grey sandy CLAY. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]			
		0.80	D									
		1.00	SPT	N=20 (1,4/5,5,5,5)					Medium dense silty fine SAND with occasional sandstone nodules. [UPPER TUNBRIDGE WELLS SAND]		1	
		2.00	SPT	N=23 (7,7/6,6,6,5)							2	
		2.40	D									
		2.60	SPT	50 (25 for 5mm/50 for 15mm)					Very dense orangish brown mottled reddish brown silty fine SAND with occasional sandstone nodules. [UPPER TUNBRIDGE WELLS SAND] End of Borehole at 2.60m		3	
											4	
									5			
									6			
Casing Details				Legend				Remarks				
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample				Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.				
Chiselling Details												
Top (m bgl)	Base (m bgl)	Duration (mins)										
				Groundwater Details								
Depth Strike (m bgl)		Depth Rose (m bgl)		Time Elapsed (mins)								

IDOM					Borehole Log					Borehole No. Parcel B MWS104	
Project Name: Imberhorne					Client: Vistry				Date: 10/12/2024		
Location: East Grinstead					Contractor: 3D Drilling						
Project No: 21949ba					Weather:				Drilling Equipment: Premier Compact Series		
Logged By MB		Checked By			Level		Hole Type WLS		Scale 1:30		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	N=32 (6,7/8,10,7,7)	0.50 0.80 0.90		TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.				
							Soft light yellow sandy CLAY. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]				
							Extremely weak orangish brown mottled grey fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS]				
		1.00 1.00	D SPT				Dense light grey silty fine SAND with sandstone nodules.				
		1.85 1.85	D SPT	50 (25 for 35mm/50 for 65mm)	1.85		End of Borehole at 1.85m				

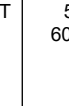
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Project Name: Imberhorne					Client: Vistry				Date: 10/12/2024		
Location: East Grinstead					Contractor: 3D Drilling						
Project No: 21949ba					Weather:				Drilling Equipment: Premier Compact Series		
Logged By MB		Checked By			Level		Hole Type WLS		Scale 1:30		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	N=27 (6,6/6,6,8,7)	0.45			TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.			
		0.80	D		50 (25 for 35mm/50 for 25mm)		0.60		Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND] Medium dense orangish brown mottled light yellow silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]		
		1.00	SPT								
		1.60	D	50 (25 for 35mm/50 for 25mm)	1.50		Dense brown mottled red silty fine SAND with occasional sandstone nodules. End of Borehole at 1.60m				
1.60	SPT	1.60									
										1	
										2	
										3	
										4	
										5	
										6	
Casing Details				Legend				Remarks			
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample				Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.			
Chiselling Details											
Top (m bgl)	Base (m bgl)	Duration (mins)						Groundwater Details			
								Depth Strike (m bgl) Depth Rose (m bgl) Time Elapsed (mins)			

IDOM				Borehole Log					Borehole No. Parcel B MWS106		
Project Name: Imberhorne				Client: Vistry				Date: 10/12/2024			
Location: East Grinstead				Contractor: 3D Drilling							
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series			
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30		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							
		0.50	D	N=50 (25 for 110mm/50 for 235mm)	0.45 0.60 0.90			TOPSOIL comprising crop vegetation over very soft brown slightly sandy CLAY. Sand is fine to coarse.			
								Very soft orangish brown sandy CLAY with occasional sandstone nodules. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]			
								Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]			
		0.90	SPT					End of Borehole at 0.90m			
								1			
								2			
								3			
								4			
								5			
								6			
Casing Details				Legend				Remarks			
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample				Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.			
Chiselling Details				SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample							
Top (m bgl)	Base (m bgl)	Duration (mins)						Groundwater Details			
								Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)	

IDOM				Borehole Log					Borehole No. Parcel B MWS107		
Project Name: Imberhorne				Client: Vistry				Date: 10/12/2024			
Location: East Grinstead				Contractor: 3D Drilling							
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series			
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30		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	N=22 (3,4/5,6,5,6)	0.40			TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.		1	
								Orangish brown silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]			
		1.00 1.00	D SPT					Medium dense light brown mottled orange silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]			
		1.60	SPT					Dense red mottled orange silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND] End of Borehole at 1.60m			
				50 (25 for 75mm/50 for 50mm)	1.50 1.60					2	
										3	
										4	
										5	
										6	
Casing Details				Legend				Remarks			
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample				Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.			
Chiselling Details											
Top (m bgl)	Base (m bgl)	Duration (mins)						Groundwater Details			
								Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)	

IDOM				Borehole Log				Borehole No. Parcel B MWS108				
Project Name: Imberhorne				Client: Vistry				Date: 11/12/2024				
Location: East Grinstead				Contractor: 3D Drilling								
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series				
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30	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	N=26 (3,3/6,6,6,8)	1.00		TOPSOIL comprising crop vegetation over very soft brown slightly sandy CLAY. Sand is fine to coarse.			1		
		1.00 1.00	D SPT				50 (25 for 95mm/50 for 85mm)	0.45	Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]			
								0.60	Yellowish brown silty fine SAND with occasional sandstone nodules. [UPPER TUNBRIDGE WELLS SAND]			
								1.30	Medium dense Yellowish brown silty fine SAND with occasional sandstone nodules. [UPPER TUNBRIDGE WELLS SAND]			
								1.40	Dense red mottled orange silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]			
		1.40	D SPT	End of Borehole at 1.40m								
											2	
											3	
											4	
											5	
								6				
Casing Details				Legend				Remarks				
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample				Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.				
Chiselling Details												
Top (m bgl)	Base (m bgl)	Duration (mins)						Groundwater Details				
								Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)		

IDOM				Borehole Log					Borehole No. Parcel B MWS109		
Project Name: Imberhorne				Client: Vistry				Date: 11/12/2024			
Location: East Grinstead				Contractor: 3D Drilling							
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series			
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30		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					TOPSOIL comprising crop vegetation over very soft brown slightly sandy CLAY. Sand is fine to coarse.			
		0.45	D		0.40 0.50			Extremely weak light yellow mottled brown fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND] Light grey silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]			
		1.00	SPT	N=28 (5,6/5,7,8,8)	1.00			Medium dense light grey silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]			
		1.50 1.50	D SPT	50 (25 for 65mm/50 for 60mm)	1.40 1.50			Extremely weak red mottled orange fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND] End of Borehole at 1.50m			
Casing Details				Legend				Remarks Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.			
Diameter	Top (m bgl)	Base (m bgl)	HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample								
Chiselling Details			SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample								
Top (m bgl)	Base (m bgl)	Duration (mins)									
				Groundwater Details							
				Depth Strike (m bgl)		Depth Rose (m bgl)		Time Elapsed (mins)			

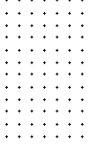
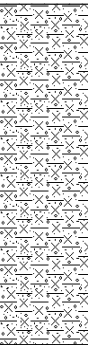
IDOM					Borehole Log					Borehole No. Parcel B MWS110	
Project Name: Imberhorne					Client: Vistry				Date: 11/12/2024		
Location: East Grinstead					Contractor: 3D Drilling						
Project No: 21949ba					Weather:				Drilling Equipment: Premier Compact Series		
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30		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	N=25 (4,6/6,6,7,6)	0.45 0.50		TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.				
		0.40	ES								
		1.00	SPT								
		1.50	D								
		1.50	SPT								
				50 (25 for 60mm/50 for 50mm)	1.45 1.55		Extremely weak orangish brown fine to medium grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND] Light grey mottled orangish brown silty fine SAND.				
							Medium dense light grey mottled orangish brown silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]				
							Dense red mottled brown silty fine SAND with nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND] End of Borehole at 1.50m				

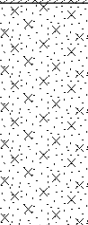
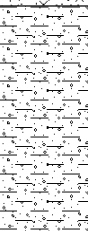
IDOM				Borehole Log					Borehole No. Parcel B MWS111		
Project Name: Imberhorne				Client: Vistry				Date: 11/12/2024			
Location: East Grinstead				Contractor: 3D Drilling							
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series			
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30		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							
					0.30			TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.			
					0.60			Orangish brown silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]			
					1.00			Light grey silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]			
		1.00	D SPT	N=26 (4,5/6,6,7,7)	1.00			Medium dense light grey silty SAND with rare nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]		1	
		1.00									
		1.50	SPT	50 (35 for 60mm/50 for 60mm)	1.40 1.50			Dense orangish brown silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND] End of Borehole at 1.50m			
										2	
										3	
										4	
										5	
										6	
Casing Details				Legend				Remarks			
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample				Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.			
Chiselling Details											
Top (m bgl)	Base (m bgl)	Duration (mins)						Groundwater Details			
								Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)	

IDOM				Borehole Log					Borehole No. Parcel B MWS112		
Project Name: Imberhorne				Client: Vistry				Date: 11/12/2024			
Location: East Grinstead				Contractor: 3D Drilling							
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series			
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30		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		0.40			TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.			
								Light grey silty fine SAND with sandstone nodules. [UPPER TUNBRIDGE WELLS SAND]			
		1.00	SPT	N=20 (5,5/5,5,5,5)	1.00			Medium dense light grey silty fine SAND with occasional sandstone nodules. [UPPER TUNBRIDGE WELLS SAND]		1	
		1.50 1.60	D SPT	50 (25 for 85mm/50 for 70mm)	1.50 1.60			Very stiff red and brown sandy SILT with occasional nodules of SILTSTONE. Sand is fine. [UPPER TUNBRIDGE WELLS SAND] End of Borehole at 1.60m			
										2	
										3	
										4	
										5	
										6	
Casing Details				Legend				Remarks			
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample				Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.			
Chiselling Details											
Top (m bgl)	Base (m bgl)	Duration (mins)									
								Groundwater Details			
				Depth Strike (m bgl)		Depth Rose (m bgl)		Time Elapsed (mins)			

IDOM					Borehole Log					Borehole No. Parcel B MWS113	
Project Name: Imberhorne					Client: Vistry				Date: 11/12/2024		
Location: East Grinstead					Contractor: 3D Drilling						
Project No: 21949ba					Weather:				Drilling Equipment: Premier Compact Series		
Logged By MB		Checked By			Level		Hole Type WLS		Scale 1:30		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							
		1.00	SPT	N=24 (4,5/6,5,7,6)				TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.		1	
								Orangish blue light yellow silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]			
								Medium dense light brown silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]			
								Dense reddish brown oxidised silty fine SAND with nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]			
		1.65 1.75	D SPT	50 (25 for 105mm/50 for 75mm)	1.60 1.75			End of Borehole at 1.75m		2	
										3	
										4	
										5	
										6	
Casing Details				Legend				Remarks Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.			
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample							
Chiselling Details				SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample							
Top (m bgl)	Base (m bgl)	Duration (mins)									
								Groundwater Details			
Depth Strike (m bgl)				Depth Rose (m bgl)		Time Elapsed (mins)					

IDOM				Borehole Log					Borehole No. Parcel B MWS114			
Project Name: Imberhorne				Client: Vistry				Date: 11/12/2024				
Location: East Grinstead				Contractor: 3D Drilling								
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series				
Logged By MB		Checked By		Level		Hole Type WLS		Scale 1:30		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		0.35 0.55		TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.				1	
	0.45	ES		Firm light brown slightly sandy CLAY. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]								
				Medium dense to dense light brown silty fine SAND. with rare sandstone nodules. [UPPER TUNBRIDGE WELLS SANDS]								
		1.00	SPT	N=20 (1,3/3,5,6,6)								
		1.50	D									
	1.70	SPT	55 (25 for 80mm/55 for 95mm)		1.70		End of Borehole at 1.70m				2	
											3	
											4	
											5	
											6	
Casing Details				Legend				Remarks				
Diameter	Top (m bgl)	Base (m bgl)		HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample				Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.				
Chiselling Details												
Top (m bgl)	Base (m bgl)	Duration (mins)										
				Groundwater Details								
Depth Strike (m bgl)		Depth Rose (m bgl)		Time Elapsed (mins)								

IDOM		Trial Pit Log									
Project Name: Imberhorne				Client: Vistry				Date: 16/12/2024			
Location: East Grinstead				Contractor: 3D Drilling/BPH							
Project No. : 21949ba				Crew Name: BPH				Equipment: 360 Excavator			
Location Number Parcel B MTP101		Location Type TP		Level		Logged By MB		Scale 1:20		Page Number Sheet 1 of 1	
Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
	Depth (m)	Type	Results								
	0.20	B		0.30			TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.	0.5			
	0.50	B				Very soft brown sandy CLAY. [UPPER TUNBRIDGE WELLS SAND]					
						Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]					
	1.50	B				Light yellow slightly gravelly slightly sandy SILT with rare sandstone nodules. [UPPER TUNBRIDGE WELLS SAND]	1.0				
			1.70			End of Borehole at 1.70m			1.5		
									2.0		
									2.5		
									3.0		
									3.5		
									4.0		
Dimensions			Trench Support and Comment					Pumping Data			
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks				Date	Rate	Remarks	
2.50	0.55	Stable									
Remarks									IDOM		

IDOM		Trial Pit Log									
Project Name: Imberhorne				Client: Vistry				Date: 16/12/2024			
Location: East Grinstead				Contractor: 3D Drilling/BPH							
Project No. : 21949ba				Crew Name: BPH				Equipment: 360 Excavator			
Location Number Parcel B MTP102		Location Type TP		Level		Logged By MB		Scale 1:20		Page Number Sheet 1 of 1	
Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
	Depth (m)	Type	Results								
	1.50	B		0.30			TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.	0.5			
							Light yellow silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]				
							Yellowish brown gravelly slightly sandy CLAY. [UPPER TUNBRIDGE WELLS SAND]		1.0		
							End of Borehole at 1.50m		1.5		
								2.0			
								2.5			
								3.0			
								3.5			
								4.0			
Dimensions			Trench Support and Comment					Pumping Data			
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks				Date	Rate	Remarks	
2.60	0.55	Stable									
Remarks									IDOM		

IDOM		Trial Pit Log									
Project Name: Imberhorne				Client: Vistry				Date: 16/12/2024			
Location: East Grinstead				Contractor: 3D Drilling/BPH							
Project No. : 21949ba				Crew Name: BPH				Equipment: 360 Excavator			
Location Number Parcel B MTP103		Location Type TP		Level		Logged By MB		Scale 1:20		Page Number Sheet 1 of 1	
Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
	Depth (m)	Type	Results								
	0.50	B		0.30			TOPSOIL comprising crop vegetation over very soft brown sandy CLAY. Sand is fine to coarse.	0.5			
							Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]				
							Light yellowish brown slightly sandy slightly gravelly CLAY. Gravel is fine rounded sandstone. [UPPER TUNBRIDGE WELLS SAND]				
	1.50	B		0.70				1.0			
				1.60			End of Borehole at 1.60m	1.5			
								2.0			
								2.5			
								3.0			
								3.5			
								4.0			
Dimensions			Trench Support and Comment					Pumping Data			
Pit Length 2.45	Pit Width 0.55	Pit Stability Stable	Shoring Used	Remarks				Date	Rate	Remarks	
Remarks									IDOM		

APPENDIX 4

- Soil Chemistry
- Summary Spreadsheet
- Laboratory Analysis Certificates

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Analytical Report Number : 24-059683

Project / Site name:	Parcel B - Imberhorne Lane	Samples received on:	13/12/2024
Your job number:	21949BA	Samples instructed on/ Analysis started on:	16/12/2024
Your order number:	24-2-FDO-LABS	Analysis completed by:	02/01/2025
Report Issue Number:	1	Report issued on:	02/01/2025
Samples Analysed:	12 soil samples		

Signed: 

Rachel Chappell
Key Account Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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: 24-059683
Project / Site name: Parcel B - Imberhorne Lane
Your Order No: 24-2-FDO-LABS

Lab Sample Number				409425	409426	409427	409428	409430
Sample Reference				Phase B - MWS101 ES	Phase B - MWS101 ES	Phase B - MWS102 ES	Phase B - MWS103 ES	Phase B - MWS105 ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.60	0.20	0.20	0.20
Date Sampled				10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
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	20	14	19	18	18
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	1.7	0.9

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.1	8.3	6.8	8.3	7.1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	36	38	54	49	62
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0179	0.0188	0.0269	0.0244	0.0307
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	17.9	18.8	26.9	24.4	30.7
Organic Matter (automated)	%	0.1	MCERTS	1.8	< 0.1	1.8	1.9	1.6
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.1	< 0.1	1	1.1	0.9

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.1	< 0.05	0.06	< 0.05	0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.05	0.07
Phenanthrene	mg/kg	0.05	MCERTS	0.05	< 0.05	0.06	0.06	0.07
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Analytical Report Number: 24-059683
Project / Site name: Parcel B - Imberhorne Lane
Your Order No: 24-2-FDO-LABS

Lab Sample Number				409425	409426	409427	409428	409430
Sample Reference				Phase B - MWS101 ES	Phase B - MWS101 ES	Phase B - MWS102 ES	Phase B - MWS103 ES	Phase B - MWS105 ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.60	0.20	0.20	0.20
Date Sampled				10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.5	3.5	8.7	8.2	6.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	54	19	43	46	37
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.2	0.3	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	25	18	19	21	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	18	20	22	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16	7	14	13	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	29	5.8	26	26	23
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	5.8	12	12	9.6
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	19	27	29	23
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	50	33	46	40	36

Petroleum Hydrocarbons

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

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

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

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

Analytical Report Number: 24-059683
Project / Site name: Parcel B - Imberhorne Lane
Your Order No: 24-2-FDO-LABS

Lab Sample Number				409425	409426	409427	409428	409430
Sample Reference				Phase B - MWS101 ES	Phase B - MWS101 ES	Phase B - MWS102 ES	Phase B - MWS103 ES	Phase B - MWS105 ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.60	0.20	0.20	0.20
Date Sampled				10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Pesticides

Alpha-BHC (Benzene Hexachloride)	µg/kg	10	NONE	< 10	-	-	-	-
Alachlor	µg/kg	10	NONE	< 10	-	-	-	-
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	< 10	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	10	NONE	< 10	-	-	-	-
1,3,5-Trichlorobenzene	µg/kg	10	NONE	< 10	-	-	-	-
2,6-Dichlorobenzonitrile	µg/kg	10	NONE	< 10	-	-	-	-
Hexachlorobutadiene	µg/kg	10	NONE	< 10	-	-	-	-
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	< 10	-	-	-	-
Endosulfan sulfate	µg/kg	10	NONE	< 10	-	-	-	-
Hexachlorobenzene	µg/kg	10	NONE	< 10	-	-	-	-
Pentachlorobenzene	µg/kg	10	NONE	< 10	-	-	-	-
Technazene	µg/kg	10	NONE	< 10	-	-	-	-
Aldrin	µg/kg	10	NONE	< 10	-	-	-	-
Beta-BHC	µg/kg	10	NONE	< 10	-	-	-	-
Cis-Chlordane	µg/kg	10	NONE	< 10	-	-	-	-
Chlorothalonil	µg/kg	10	NONE	< 10	-	-	-	-
Delta-BHC	µg/kg	10	NONE	< 10	-	-	-	-
Dieldrin	µg/kg	10	NONE	< 10	-	-	-	-
Heptachlor Exo-epoxide	µg/kg	10	NONE	< 10	-	-	-	-
Endrin	µg/kg	10	NONE	< 10	-	-	-	-
Endosulfan I (alpha isomer)	µg/kg	10	NONE	< 10	-	-	-	-
Endosulfan II (beta isomer)	µg/kg	10	NONE	< 10	-	-	-	-
Isodrin	µg/kg	10	NONE	< 10	-	-	-	-
O,p'-DDD	µg/kg	10	NONE	< 10	-	-	-	-
O,p'-DDE	µg/kg	10	NONE	< 10	-	-	-	-
O,p'-DDT	µg/kg	10	NONE	< 10	-	-	-	-
P,p'-DDD	µg/kg	10	NONE	< 10	-	-	-	-
P,p'-DDE	µg/kg	10	NONE	< 10	-	-	-	-
P,p'-DDT	µg/kg	10	NONE	< 10	-	-	-	-
P,p'-Methoxychlor	µg/kg	10	NONE	< 10	-	-	-	-
Trans-Chlordane	µg/kg	10	NONE	< 10	-	-	-	-
Trifluralin	µg/kg	10	NONE	< 10	-	-	-	-

Herbicides

Carbofuran, 3-OH	µg/kg	10	NONE	< 10	-	-	-	-
Tebuthiuron	µg/kg	10	NONE	< 10	-	-	-	-
Thiadiazuron	µg/kg	10	NONE	< 10	-	-	-	-
Aldicarb Sulfone	µg/kg	10	NONE	< 10	-	-	-	-
Aldicarb Sulfoxide	µg/kg	10	NONE	< 10	-	-	-	-
Aldicarb	µg/kg	10	NONE	< 10	-	-	-	-
Carbofuran	µg/kg	10	NONE	< 10	-	-	-	-
Fluometuron	µg/kg	10	NONE	< 10	-	-	-	-
Methomyl	µg/kg	10	NONE	< 10	-	-	-	-
Oxamyl	µg/kg	10	NONE	< 10	-	-	-	-
Propoxur	µg/kg	10	NONE	< 10	-	-	-	-
Siduron	µg/kg	10	NONE	< 10	-	-	-	-
Terbutryn	µg/kg	10	NONE	< 10	-	-	-	-
Carbaryl	µg/kg	10	NONE	< 10	-	-	-	-
Diflufenzuron	µg/kg	10	NONE	< 10	-	-	-	-

Analytical Report Number: 24-059683
 Project / Site name: Parcel B - Imberhorne Lane
 Your Order No: 24-2-FDO-LABS

Lab Sample Number				409425	409426	409427	409428	409430
Sample Reference				Phase B - MWS101 ES	Phase B - MWS101 ES	Phase B - MWS102 ES	Phase B - MWS103 ES	Phase B - MWS105 ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.60	0.20	0.20	0.20
Date Sampled				10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Isoproturon	µg/kg	10	NONE	< 10	-	-	-	-
Prometryn	µg/kg	10	NONE	< 10	-	-	-	-
Propazine	µg/kg	10	NONE	< 10	-	-	-	-
Trietazine	µg/kg	10	NONE	< 10	-	-	-	-
Atrazine	µg/kg	10	NONE	< 10	-	-	-	-
Chlorotoluron	µg/kg	10	NONE	< 10	-	-	-	-
Cyanazine	µg/kg	10	NONE	< 10	-	-	-	-
Diuron	µg/kg	10	NONE	< 10	-	-	-	-
Linuron	µg/kg	10	NONE	< 10	-	-	-	-
Methiocarb	µg/kg	10	NONE	< 10	-	-	-	-
Simazine	µg/kg	10	NONE	< 10	-	-	-	-
Terbuthylazine	µg/kg	10	NONE	< 10	-	-	-	-

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

Analytical Report Number: 24-059683
Project / Site name: Parcel B - Imberhorne Lane
Your Order No: 24-2-FDO-LABS

Lab Sample Number				409431	409432	409433	409434	409435
Sample Reference				Phase B - MWS107 ES	Phase B - MWS109 ES	Phase B - MWS110 ES	Phase B - MWS110 ES	Phase B - MWS112 ES
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	0.20	0.20	0.40	0.20
Date Sampled				10/12/2024	11/12/2024	11/12/2024	11/12/2024	11/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
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	17	18	19	16	18
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	0.8	0.8

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8	6.4	7.1	7.9	6.6
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	43	74	64	36	32
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0215	0.0368	0.0321	0.018	0.016
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	21.5	36.8	32.1	18	16
Organic Matter (automated)	%	0.1	MCERTS	1.7	1.8	2.2	< 0.1	1.6
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1	1	1.2	< 0.1	0.9

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.12	0.16	0.12	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	0.06	0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.06	0.06	0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.1	0.09	0.08	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.07	0.08	0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.06	0.08	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Analytical Report Number: 24-059683
Project / Site name: Parcel B - Imberhorne Lane
Your Order No: 24-2-FDO-LABS

Lab Sample Number				409431	409432	409433	409434	409435
Sample Reference				Phase B - MWS107 ES	Phase B - MWS109 ES	Phase B - MWS110 ES	Phase B - MWS110 ES	Phase B - MWS112 ES
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	0.20	0.20	0.40	0.20
Date Sampled				10/12/2024	11/12/2024	11/12/2024	11/12/2024	11/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.2	9.5	8.1	6.7	8.3
Barium (aqua regia extractable)	mg/kg	1	MCERTS	39	46	43	22	39
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.3	0.3	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	17	21	18	15	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	22	19	16	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	14	13	6.8	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	23	41	27	6.5	25
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	10	13	11	6.8	11
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	2	< 1.0	< 1.0	1.2
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	24	30	26	16	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	38	51	43	21	40

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_ID_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_ID_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_ID_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_ID_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_ID_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_ID_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_ID_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_ID_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_ID_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_ID_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_ID_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_ID_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_ID_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_ID_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_ID_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_ID_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_ID_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH Total >EC5 - EC40 _{EH_CU+HS_ID_TOTAL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
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VOCs

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

Analytical Report Number: 24-059683
Project / Site name: Parcel B - Imberhorne Lane
Your Order No: 24-2-FDO-LABS

Lab Sample Number				409431	409432	409433	409434	409435
Sample Reference				Phase B - MWS107 ES	Phase B - MWS109 ES	Phase B - MWS110 ES	Phase B - MWS110 ES	Phase B - MWS112 ES
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	0.20	0.20	0.40	0.20
Date Sampled				10/12/2024	11/12/2024	11/12/2024	11/12/2024	11/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Pesticides

Alpha-BHC (Benzene Hexachloride)	µg/kg	10	NONE	-	-	-	-	-
Alachlor	µg/kg	10	NONE	-	-	-	-	-
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	10	NONE	-	-	-	-	-
1,3,5-Trichlorobenzene	µg/kg	10	NONE	-	-	-	-	-
2,6-Dichlorobenzonitrile	µg/kg	10	NONE	-	-	-	-	-
Hexachlorobutadiene	µg/kg	10	NONE	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	-	-	-	-	-
Endosulfan sulfate	µg/kg	10	NONE	-	-	-	-	-
Hexachlorobenzene	µg/kg	10	NONE	-	-	-	-	-
Pentachlorobenzene	µg/kg	10	NONE	-	-	-	-	-
Technazene	µg/kg	10	NONE	-	-	-	-	-
Aldrin	µg/kg	10	NONE	-	-	-	-	-
Beta-BHC	µg/kg	10	NONE	-	-	-	-	-
Cis-Chlordane	µg/kg	10	NONE	-	-	-	-	-
Chlorothalonil	µg/kg	10	NONE	-	-	-	-	-
Delta-BHC	µg/kg	10	NONE	-	-	-	-	-
Dieldrin	µg/kg	10	NONE	-	-	-	-	-
Heptachlor Exo-epoxide	µg/kg	10	NONE	-	-	-	-	-
Endrin	µg/kg	10	NONE	-	-	-	-	-
Endosulfan I (alpha isomer)	µg/kg	10	NONE	-	-	-	-	-
Endosulfan II (beta isomer)	µg/kg	10	NONE	-	-	-	-	-
Isodrin	µg/kg	10	NONE	-	-	-	-	-
O,p'-DDD	µg/kg	10	NONE	-	-	-	-	-
O,p'-DDE	µg/kg	10	NONE	-	-	-	-	-
O,p'-DDT	µg/kg	10	NONE	-	-	-	-	-
P,p'-DDD	µg/kg	10	NONE	-	-	-	-	-
P,p'-DDE	µg/kg	10	NONE	-	-	-	-	-
P,p'-DDT	µg/kg	10	NONE	-	-	-	-	-
P,p'-Methoxychlor	µg/kg	10	NONE	-	-	-	-	-
Trans-Chlordane	µg/kg	10	NONE	-	-	-	-	-
Trifluralin	µg/kg	10	NONE	-	-	-	-	-

Herbicides

Carbofuran, 3-OH	µg/kg	10	NONE	-	-	-	-	-
Tebuthiuron	µg/kg	10	NONE	-	-	-	-	-
Thiadiazuron	µg/kg	10	NONE	-	-	-	-	-
Aldicarb Sulfone	µg/kg	10	NONE	-	-	-	-	-
Aldicarb Sulfoxide	µg/kg	10	NONE	-	-	-	-	-
Aldicarb	µg/kg	10	NONE	-	-	-	-	-
Carbofuran	µg/kg	10	NONE	-	-	-	-	-
Fluometuron	µg/kg	10	NONE	-	-	-	-	-
Methomyl	µg/kg	10	NONE	-	-	-	-	-
Oxamyl	µg/kg	10	NONE	-	-	-	-	-
Propoxur	µg/kg	10	NONE	-	-	-	-	-
Siduron	µg/kg	10	NONE	-	-	-	-	-
Terbutryn	µg/kg	10	NONE	-	-	-	-	-
Carbaryl	µg/kg	10	NONE	-	-	-	-	-
Diflufenazuron	µg/kg	10	NONE	-	-	-	-	-

Analytical Report Number: 24-059683
 Project / Site name: Parcel B - Imberhorne Lane
 Your Order No: 24-2-FDO-LABS

Lab Sample Number				409431	409432	409433	409434	409435
Sample Reference				Phase B - MWS107 ES	Phase B - MWS109 ES	Phase B - MWS110 ES	Phase B - MWS110 ES	Phase B - MWS112 ES
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	0.20	0.20	0.40	0.20
Date Sampled				10/12/2024	11/12/2024	11/12/2024	11/12/2024	11/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Isoproturon	µg/kg	10	NONE	-	-	-	-	-
Prometryn	µg/kg	10	NONE	-	-	-	-	-
Propazine	µg/kg	10	NONE	-	-	-	-	-
Trietazine	µg/kg	10	NONE	-	-	-	-	-
Atrazine	µg/kg	10	NONE	-	-	-	-	-
Chlorotoluron	µg/kg	10	NONE	-	-	-	-	-
Cyanazine	µg/kg	10	NONE	-	-	-	-	-
Diuron	µg/kg	10	NONE	-	-	-	-	-
Linuron	µg/kg	10	NONE	-	-	-	-	-
Methiocarb	µg/kg	10	NONE	-	-	-	-	-
Simazine	µg/kg	10	NONE	-	-	-	-	-
Terbuthylazine	µg/kg	10	NONE	-	-	-	-	-

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

Analytical Report Number: 24-059683
Project / Site name: Parcel B - Imberhorne Lane
Your Order No: 24-2-FDO-LABS

Lab Sample Number				409436	409437
Sample Reference				Phase B - MWS114-ES	Phase B - MWS114-ES
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.20	0.40
Date Sampled				11/12/2024	11/12/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	15
Total mass of sample received	kg	0.1	NONE	0.8	0.8

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8	7.5
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	39	62
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0195	0.0311
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	19.5	31.1
Organic Matter (automated)	%	0.1	MCERTS	1.7	0.4
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1	0.2

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80
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Analytical Report Number: 24-059683
Project / Site name: Parcel B - Imberhorne Lane
Your Order No: 24-2-FDO-LABS

Lab Sample Number				409436	409437
Sample Reference				Phase B - MWS114 - ES	Phase B - MWS114 - ES
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.20	0.40
Date Sampled				11/12/2024	11/12/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.9	8.2
Barium (aqua regia extractable)	mg/kg	1	MCERTS	38	32
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	17	23
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	23	10
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.2	9.8
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	24	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	36	32

Petroleum Hydrocarbons

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

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

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

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

Analytical Report Number: 24-059683
Project / Site name: Parcel B - Imberhorne Lane
Your Order No: 24-2-FDO-LABS

Lab Sample Number				409436	409437
Sample Reference				Phase B - MWS114-ES	Phase B - MWS114-ES
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.20	0.40
Date Sampled				11/12/2024	11/12/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Pesticides

Alpha-BHC (Benzene Hexachloride)	µg/kg	10	NONE	< 10	-
Alachlor	µg/kg	10	NONE	< 10	-
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	< 10	-
1,2,3-Trichlorobenzene	µg/kg	10	NONE	< 10	-
1,3,5-Trichlorobenzene	µg/kg	10	NONE	< 10	-
2,6-Dichlorobenzonitrile	µg/kg	10	NONE	< 10	-
Hexachlorobutadiene	µg/kg	10	NONE	< 10	-
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	< 10	-
Endosulfan sulfate	µg/kg	10	NONE	< 10	-
Hexachlorobenzene	µg/kg	10	NONE	< 10	-
Pentachlorobenzene	µg/kg	10	NONE	< 10	-
Tecnazene	µg/kg	10	NONE	< 10	-
Aldrin	µg/kg	10	NONE	< 10	-
Beta-BHC	µg/kg	10	NONE	< 10	-
Cis-Chlordane	µg/kg	10	NONE	< 10	-
Chlorothalonil	µg/kg	10	NONE	< 10	-
Delta-BHC	µg/kg	10	NONE	< 10	-
Dieldrin	µg/kg	10	NONE	< 10	-
Heptachlor Exo-epoxide	µg/kg	10	NONE	< 10	-
Endrin	µg/kg	10	NONE	< 10	-
Endosulfan I (alpha isomer)	µg/kg	10	NONE	< 10	-
Endosulfan II (beta isomer)	µg/kg	10	NONE	< 10	-
Isodrin	µg/kg	10	NONE	< 10	-
O,p'-DDD	µg/kg	10	NONE	< 10	-
O,p'-DDE	µg/kg	10	NONE	< 10	-
O,p'-DDT	µg/kg	10	NONE	< 10	-
P,p'-DDD	µg/kg	10	NONE	< 10	-
P,p'-DDE	µg/kg	10	NONE	< 10	-
P,p'-DDT	µg/kg	10	NONE	< 10	-
P,p'-Methoxychlor	µg/kg	10	NONE	< 10	-
Trans-Chlordane	µg/kg	10	NONE	< 10	-
Trifluralin	µg/kg	10	NONE	< 10	-

Herbicides

Carbofuran, 3-OH	µg/kg	10	NONE	< 10	-
Tebuthiuron	µg/kg	10	NONE	< 10	-
Thiadiazuron	µg/kg	10	NONE	< 10	-
Aldicarb Sulfone	µg/kg	10	NONE	< 10	-
Aldicarb Sulfoxide	µg/kg	10	NONE	< 10	-
Aldicarb	µg/kg	10	NONE	< 10	-
Carbofuran	µg/kg	10	NONE	< 10	-
Fluometuron	µg/kg	10	NONE	< 10	-
Methomyl	µg/kg	10	NONE	< 10	-
Oxamyl	µg/kg	10	NONE	< 10	-
Propoxur	µg/kg	10	NONE	< 10	-
Siduron	µg/kg	10	NONE	< 10	-
Terbutryn	µg/kg	10	NONE	< 10	-
Carbaryl	µg/kg	10	NONE	< 10	-
Diflufenzuron	µg/kg	10	NONE	< 10	-

Analytical Report Number: 24-059683
 Project / Site name: Parcel B - Imberhorne Lane
 Your Order No: 24-2-FDO-LABS

Lab Sample Number				409436	409437
Sample Reference				Phase B - MWS114 ES	Phase B - MWS114 ES
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.20	0.40
Date Sampled				11/12/2024	11/12/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		
Isoproturon	µg/kg	10	NONE	< 10	-
Prometryn	µg/kg	10	NONE	< 10	-
Propazine	µg/kg	10	NONE	< 10	-
Trietazine	µg/kg	10	NONE	< 10	-
Atrazine	µg/kg	10	NONE	< 10	-
Chlorotoluron	µg/kg	10	NONE	< 10	-
Cyanazine	µg/kg	10	NONE	< 10	-
Diuron	µg/kg	10	NONE	< 10	-
Linuron	µg/kg	10	NONE	< 10	-
Methiocarb	µg/kg	10	NONE	< 10	-
Simazine	µg/kg	10	NONE	< 10	-
Terbuthylazine	µg/kg	10	NONE	< 10	-

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

Analytical Report Number : 24-059683

Project / Site name: Parcel B - Imberhorne Lane

* 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 *
409425	se B - MWS101	None Supplied	0.2	Brown clay and sand
409426	se B - MWS101	None Supplied	0.6	Brown clay and sand
409427	se B - MWS102	None Supplied	0.2	Brown clay and sand
409428	se B - MWS103	None Supplied	0.2	Brown clay and sand
409430	se B - MWS105	None Supplied	0.2	Brown clay and sand
409431	se B - MWS107	None Supplied	0.2	Brown clay and sand
409432	se B - MWS109	None Supplied	0.2	Brown clay and sand
409433	se B - MWS110	None Supplied	0.2	Brown clay and sand
409434	se B - MWS110	None Supplied	0.4	Brown clay and sand
409435	se B - MWS112	None Supplied	0.2	Brown clay and sand
409436	se B - MWS114	None Supplied	0.2	Brown clay and sand
409437	se B - MWS114	None Supplied	0.4	Brown clay and sand

Analytical Report Number : 24-059683

Project / Site name: Parcel B - Imberhorne Lane

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
Organic matter (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
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
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Pesticides by GC-MS/MS	Determination of Pesticides in soil by GC MS/MS	In-house method	L055B	W	NONE
Herbicides by LC-MS	Determination of Herbicides in soil by LC MS	In-house method	L056B	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

Analytical Report Number : 24-059683

Project / Site name: Parcel B - Imberhorne Lane

Water matrix abbreviations:

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

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

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

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

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

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

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

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

The result for sum should be interpreted with caution

APPENDIX 5 ▪ Geotechnical Laboratory Certificates



TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3.14, 5.5, Fall Cone Method, 1 Pt Test, BS 1377-2:2022,
cl 5.3, 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: Merebrook
Client Address: First Floor, 1 Leonard Place,
Westerham Road, Keston,
BR2 6HQ

Contact: C Oliveira
Site Address: Ingrebourne-Parcel B

Client Reference: 21949BA
Job Number: 25-000670-1
Date Sampled: 16/12/2024
Date Received: 18/12/2024
Date Tested: 14/01/2025
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

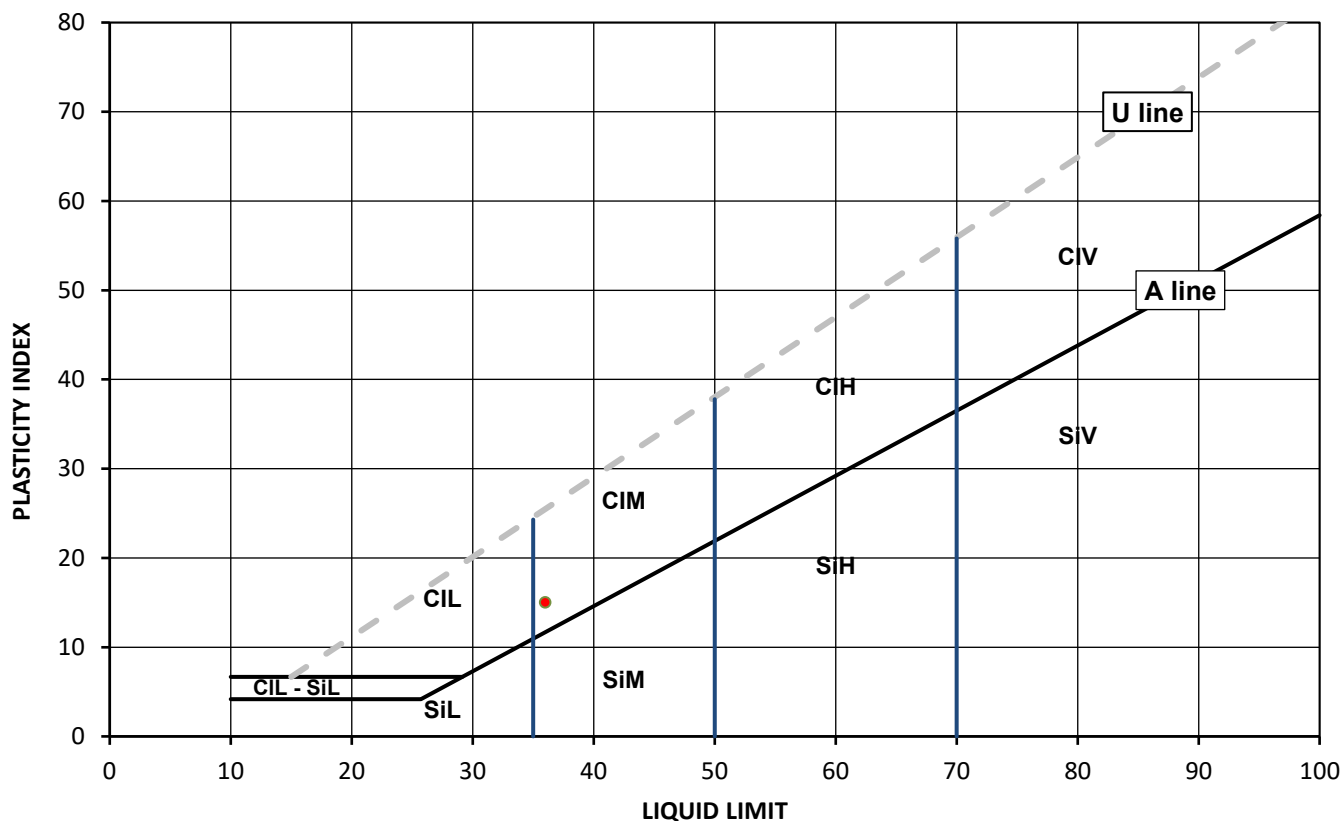
Test Results:

Laboratory Reference: 420411
Hole No.: Parcel B MWS112
Sample Reference: Not Given
Sample Description: Brown mottled grey sandy CLAY

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition;
Cone Type: 80g/30deg

As Received Water Content [W] %	Corrected Liquid Limit [WL] %	Correlation Factor	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity index [IL] % #	Consistency index [IC] % #	% Passing 425µm BS Test Sieve
19.3	36	0.968	21	15	-0.13	1.13	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	
	V Very high	
	O Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1:2014+A1:2022, BS 1377-2:2022; Correlation Factor by Clayton C.R.I and Jukes A.W (1978); # Non accredited

Remarks:

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6

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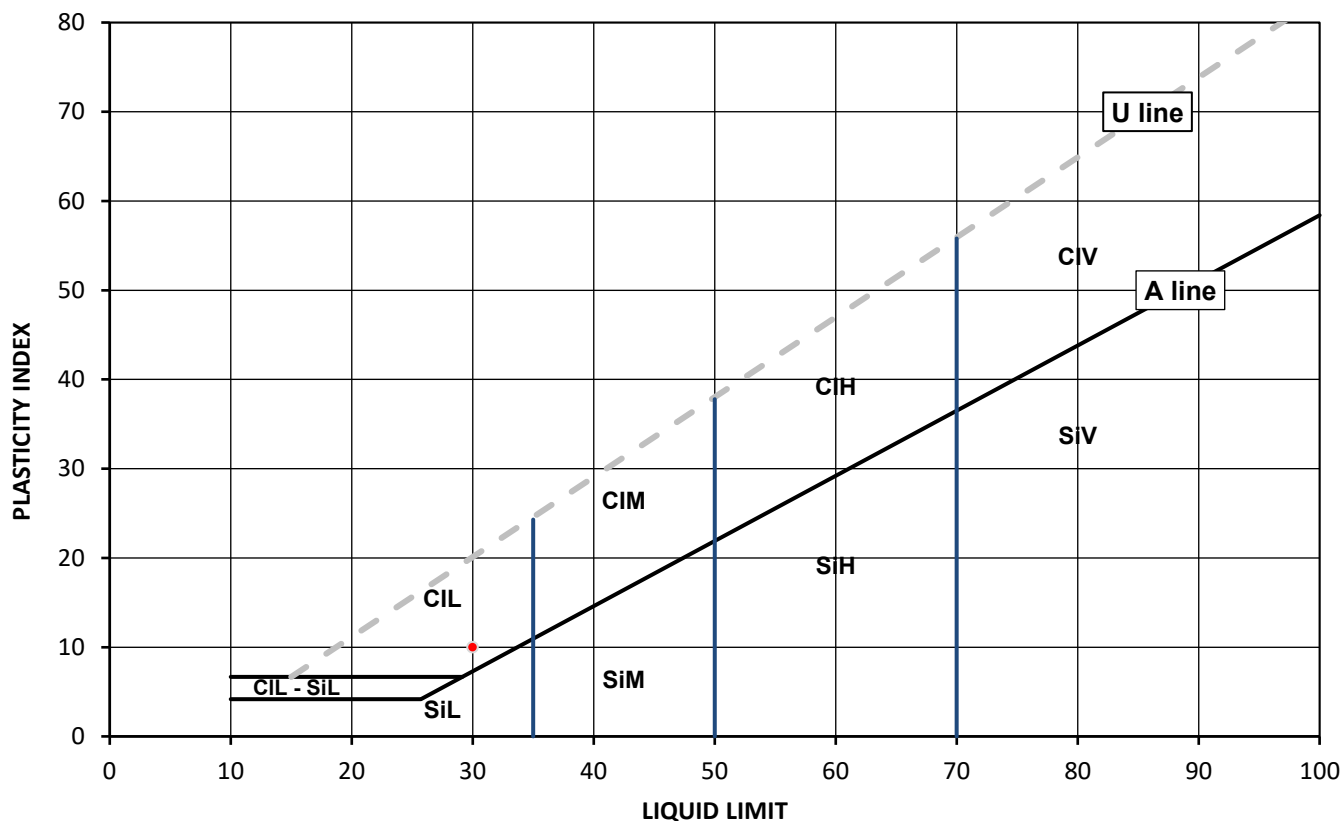
Test Results:

Laboratory Reference: 420407
Hole No.: Parcel B MWS102
Sample Reference: Not Given
Sample Description: Brown mottled grey slightly gravelly very sandy CLAY

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after >0.425mm removed by hand; The water content in the sample was increased
Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
20.6	30	20	10	0.10	0.90	95



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

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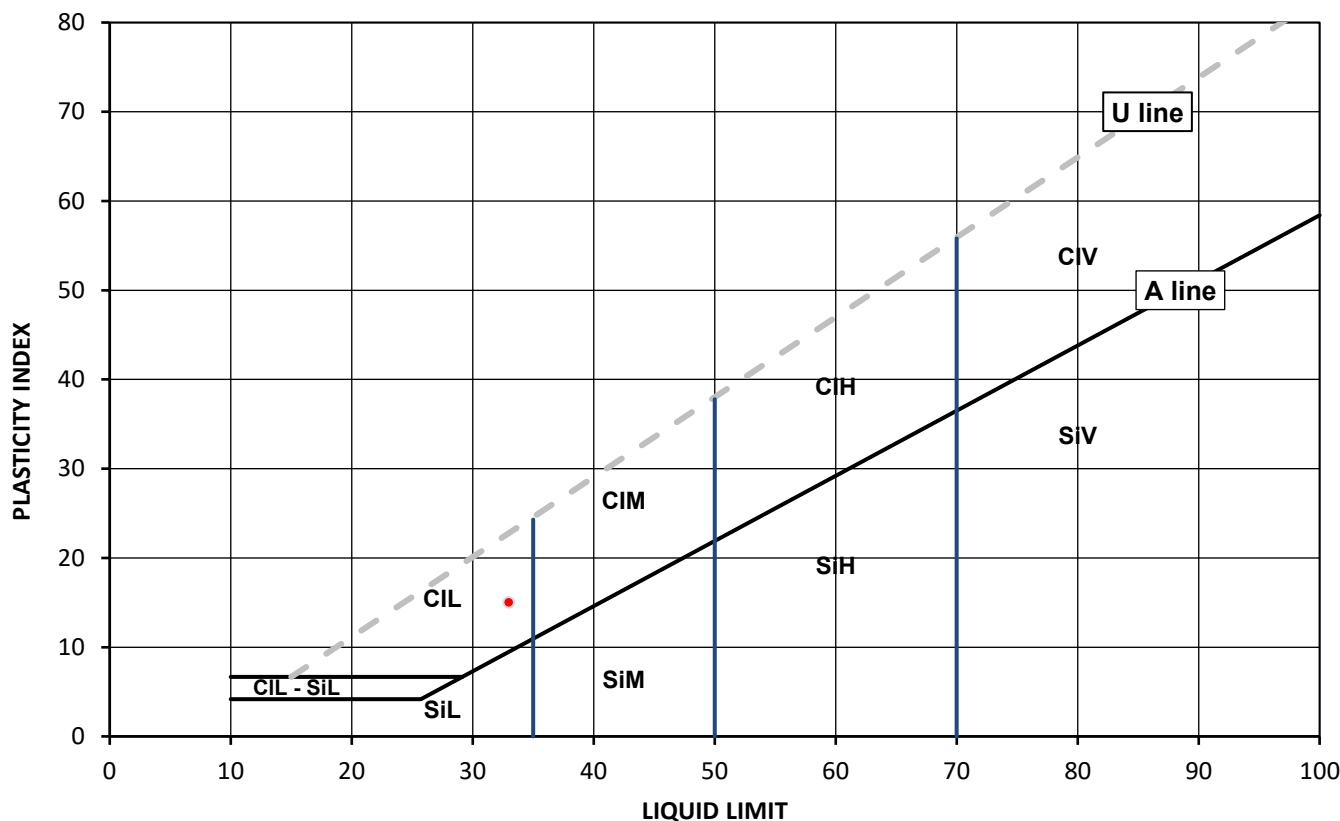
Test Results:

Laboratory Reference: 420408
Hole No.: Parcel B MWS103
Sample Reference: Not Given
Sample Description: Brown very sandy CLAY

Depth Top [m]: 0.80
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition; The water content in the sample was increased
Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
22.8	33	18	15	0.33	0.67	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

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Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

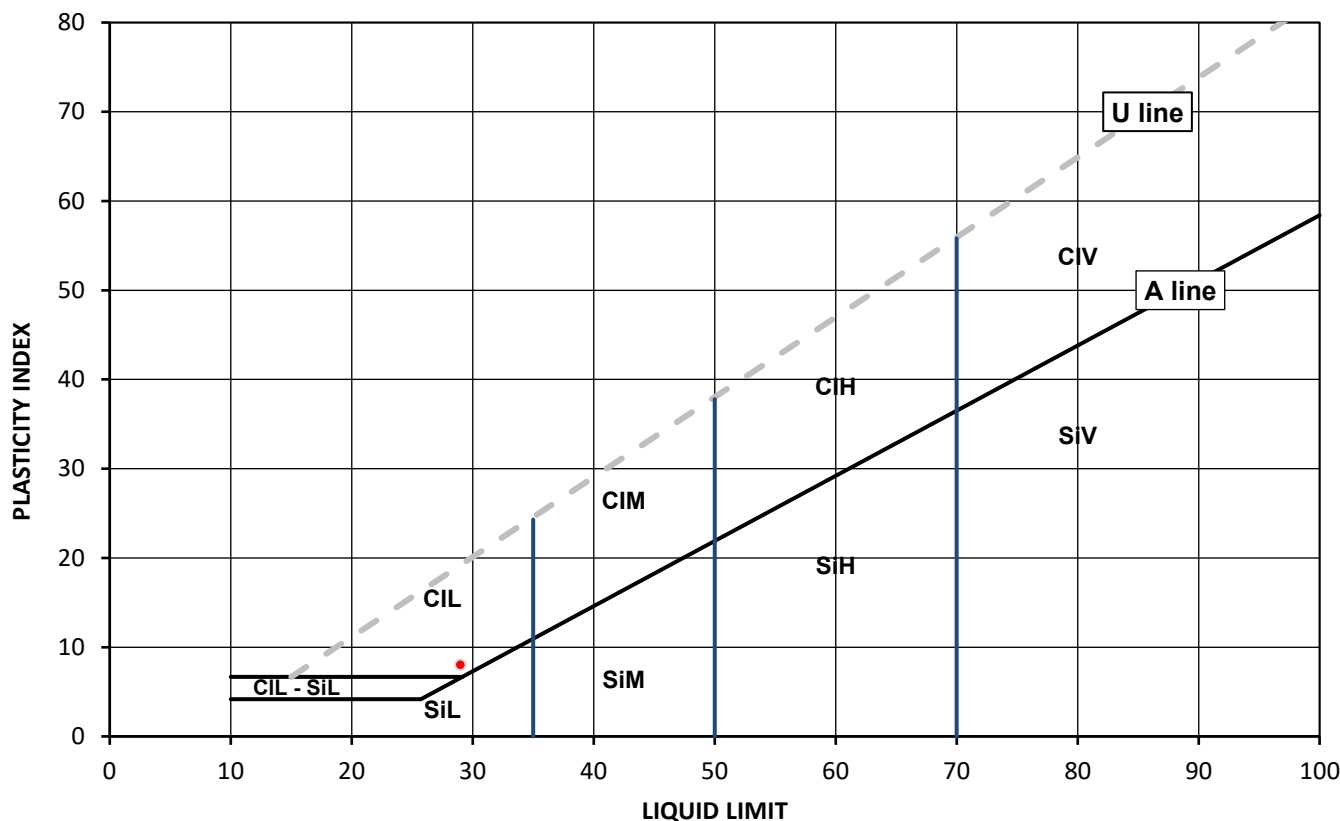
Test Results:

Laboratory Reference: 420409
Hole No.: Parcel B MWS106
Sample Reference: Not Given
Sample Description: Brown mottled grey very sandy silty CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition; The water content in the sample was increased
Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
21.7	29	21	8	0.13	0.88	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

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TEST CERTIFICATE

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cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6

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Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

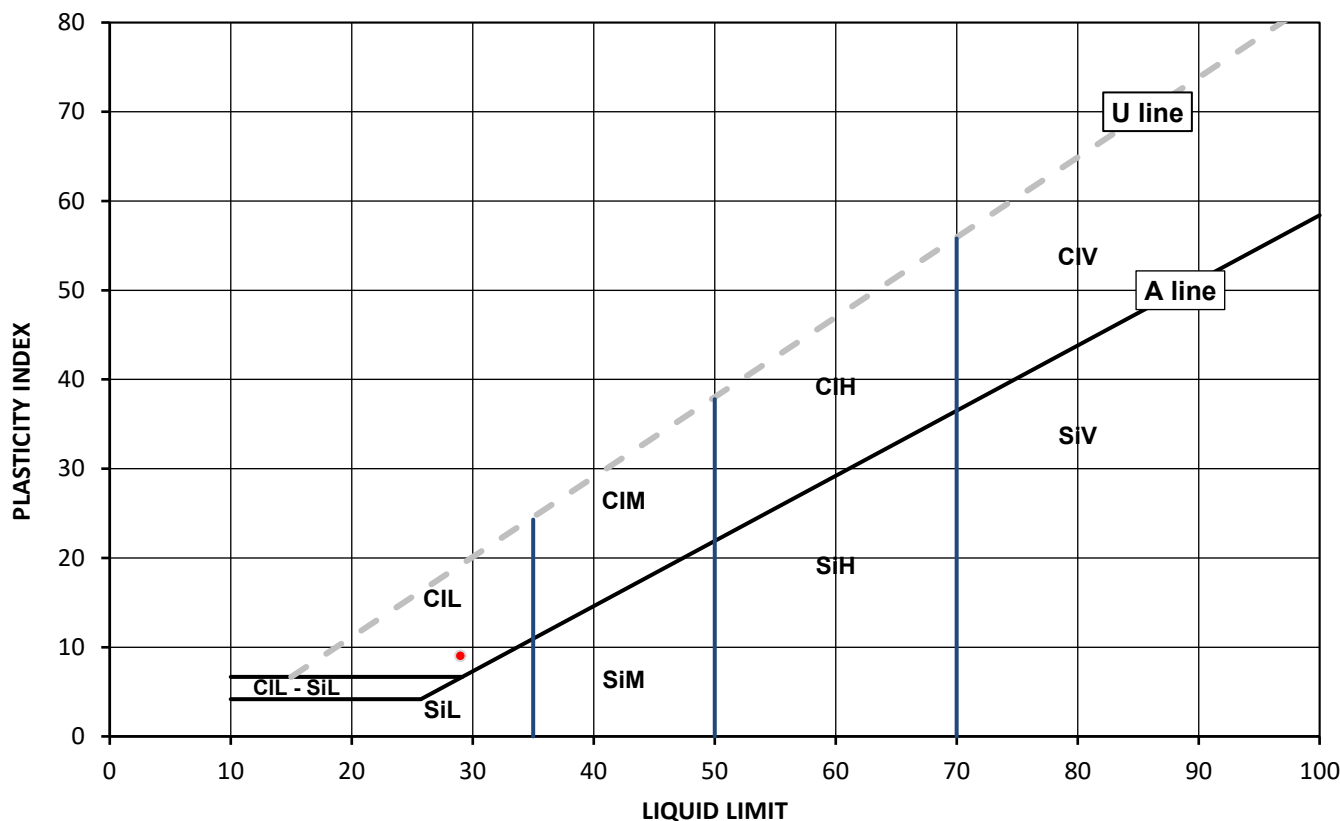
Test Results:

Laboratory Reference: 420410
Hole No.: Parcel B MWS111
Sample Reference: Not Given
Sample Description: Light brown very sandy silty CLAY

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition; The water content in the sample was increased
Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
13.2	29	20	9	-0.78	1.78	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed:

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

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cl 5.2 and 6

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Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

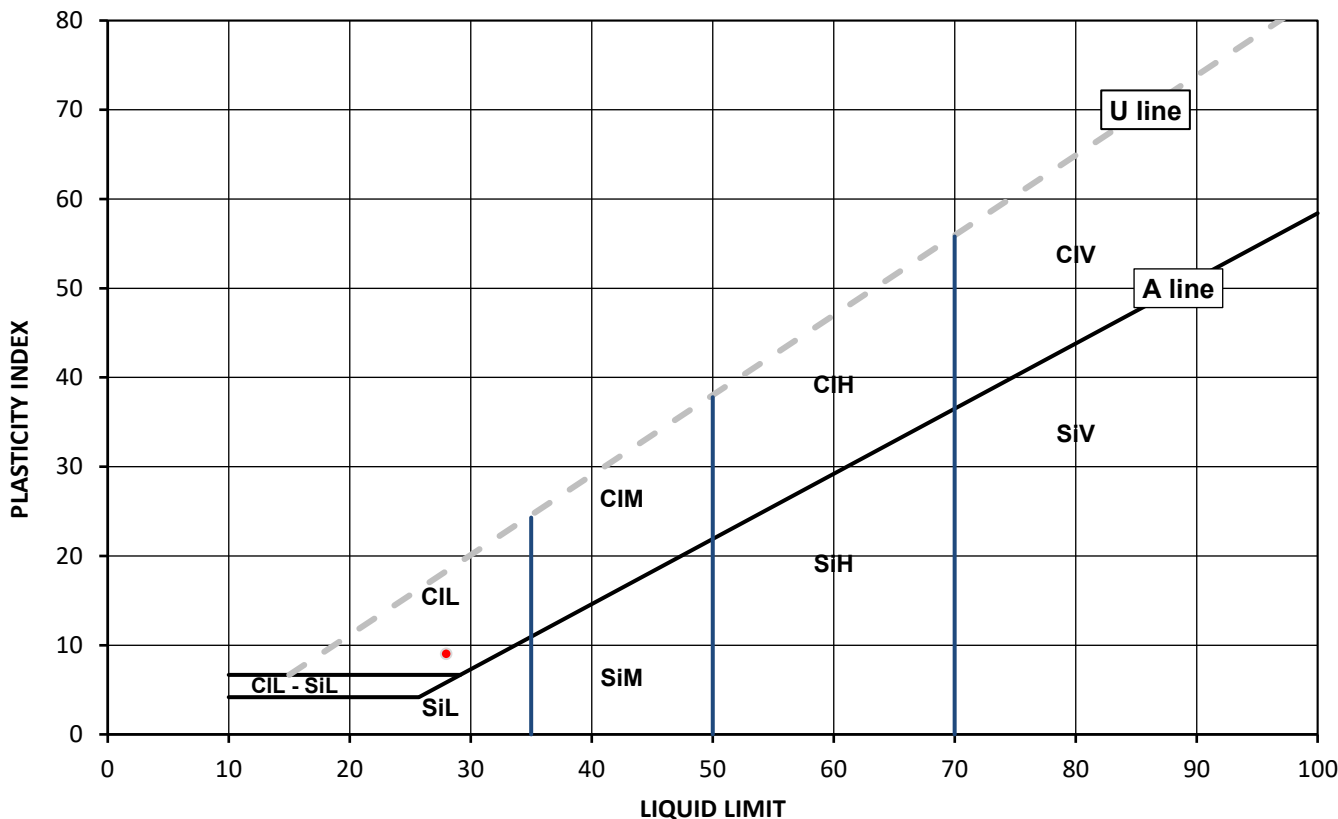
Test Results:

Laboratory Reference: 420412
Hole No.: Parcel B MWS114
Sample Reference: Not Given
Sample Description: Brown very sandy silty CLAY

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition; The water content in the sample was increased
Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
17.2	28	19	9	-0.22	1.22	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

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SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: Merebrook
Client Address: First Floor, 1 Leonard Place,
Westerham Road, Keston,
BR2 6HQ

Contact: C Oliveira
Site Address: Ingrebourne-Parcel B

BS EN ISO 17892-12:2018+A2:2022, cl 5.3.14, 5.5, Fall Cone Method, 1 Pt Test, BS 1377-2:2022, cl 5.3, 6. BS EN ISO 17892-12:2018+A2:2022 cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6. Correlation Factor by Clayton C.R.I and Jukes A.W (1978). W by BS EN ISO 17892-1:2014+A1:2022.

Client Reference: 21949BA
Job Number: 25-000670-1
Date Sampled: 16/12/2024
Date Received: 18/12/2024
Date Tested: 14/01/2025
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	W	Liquid & Plastic Limit							Density		
		Reference	Depth Top	Depth Base	Type				% Passing 425um	WL*	Correlation Factor	Wp	Ip	Cone type	Sample Preparation	bulk	dry	PD
			m	m					%	%		%	%			Mg/m3	Mg/m3	Mg/m3
420407	Parcel B MWS102	Not Given	1.00	Not Given	D	Brown mottled grey slightly gravelly very sandy CLAY	Atterberg 4 Point	20.6	95	30	-	20	10	80g/30 deg	R / I			
420408	Parcel B MWS103	Not Given	0.80	Not Given	D	Brown very sandy CLAY	Atterberg 4 Point	22.8	100	33	-	18	15	80g/30 deg	N / I			
420409	Parcel B MWS106	Not Given	0.50	Not Given	D	Brown mottled grey very sandy silty CLAY	Atterberg 4 Point	21.7	100	29	-	21	8	80g/30 deg	N / I			
420410	Parcel B MWS111	Not Given	1.00	Not Given	D	Light brown very sandy silty CLAY	Atterberg 4 Point	13.2	100	29	-	20	9	80g/30 deg	N / I			
420411	Parcel B MWS112	Not Given	1.50	Not Given	D	Brown mottled grey sandy CLAY	Atterberg 1 Point	19.3	100	36	0.968	21	15	80g/30 deg	N			
420412	Parcel B MWS114	Not Given	1.50	Not Given	D	Brown very sandy silty CLAY	Atterberg 4 Point	17.2	100	28	-	19	9	80g/30 deg	N / I			

Note: # Non accredited; NP - Non plastic; N - Tested in natural condition, R - Tested after >0,425mm removed by hand, WR - Tested after washing to remove >425mm; I - The water content in the sample was increased, D - The water content in the sample was decreased; * - One point liquid limit corrected as per the report Correlation Factor by Clayton C.R.I and Jukes A.W (1978)

Comments:

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Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd



SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS EN ISO 17892-1:2014+A1:2022, BS 1377-2: 2022, clause 4.1

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041
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Contact: C Oliveira
Site Address: Ingrebourne-Parcel B

Client Reference: 21949BA
Job Number: 25-000670-1
Date Sampled: 16/12/2024
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Date Tested: 14/01/2025
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC											
		Reference	Depth Top m	Depth Base m	Type														
420407	Parcel B MWS102	Not Given	1.00	Not Given	D	Brown mottled grey slightly gravelly very sandy CLAY		20.6											
420408	Parcel B MWS103	Not Given	0.80	Not Given	D	Brown very sandy CLAY		22.8											
420409	Parcel B MWS106	Not Given	0.50	Not Given	D	Brown mottled grey very sandy silty CLAY		21.7											
420410	Parcel B MWS111	Not Given	1.00	Not Given	D	Light brown very sandy silty CLAY		13.2											
420411	Parcel B MWS112	Not Given	1.50	Not Given	D	Brown mottled grey sandy CLAY		19.3											
420412	Parcel B MWS114	Not Given	1.50	Not Given	D	Brown very sandy silty CLAY		17.2											

Comments:

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Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd



4041

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Merebrook
Client Address: First Floor, 1 Leonard Place,
Westerham Road, Keston,
BR2 6HQ
Contact: C Oliveira
Site Address: Ingrebourne-Parcel B

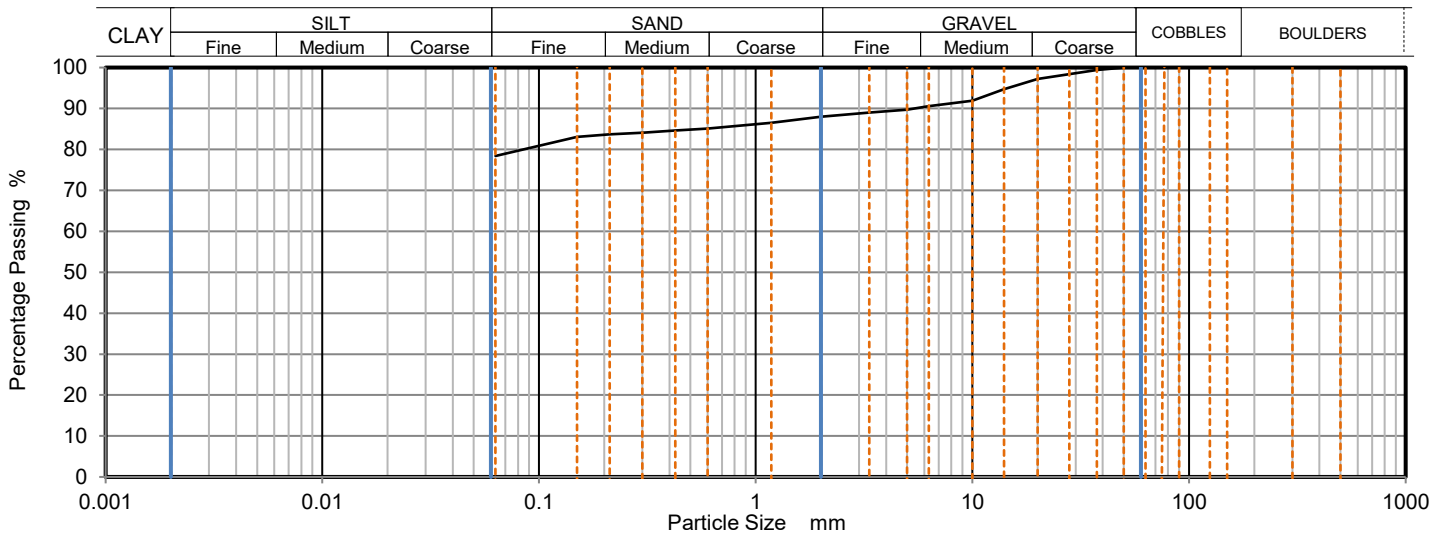
Client Reference: 21949BA
Job Number: 25-000670-1
Date Sampled: 16/12/2024
Date Received: 18/12/2024
Date Tested: 14/01/2025
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 420403
Hole No.: Parcel B MTP101
Sample Reference: Not Given
Sample Description: Light brown slightly gravelly slightly sandy SILT
Sample Preparation: Sample was whole tested, oven dried at 107.8 °C and broken down by hand.

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	99		
28	98		
20	97		
14	95		
10	92		
6.3	91		
5	90		
3.35	89		
2	88		
1.18	87		
0.6	85		
0.425	85		
0.3	84		
0.212	84		
0.15	83		
0.063	78		

Sample Proportions	% dry mass
Very coarse	0
Gravel	12
Sand	10
Fines <0.063 mm	78

Grading Analysis		
D100	mm	50
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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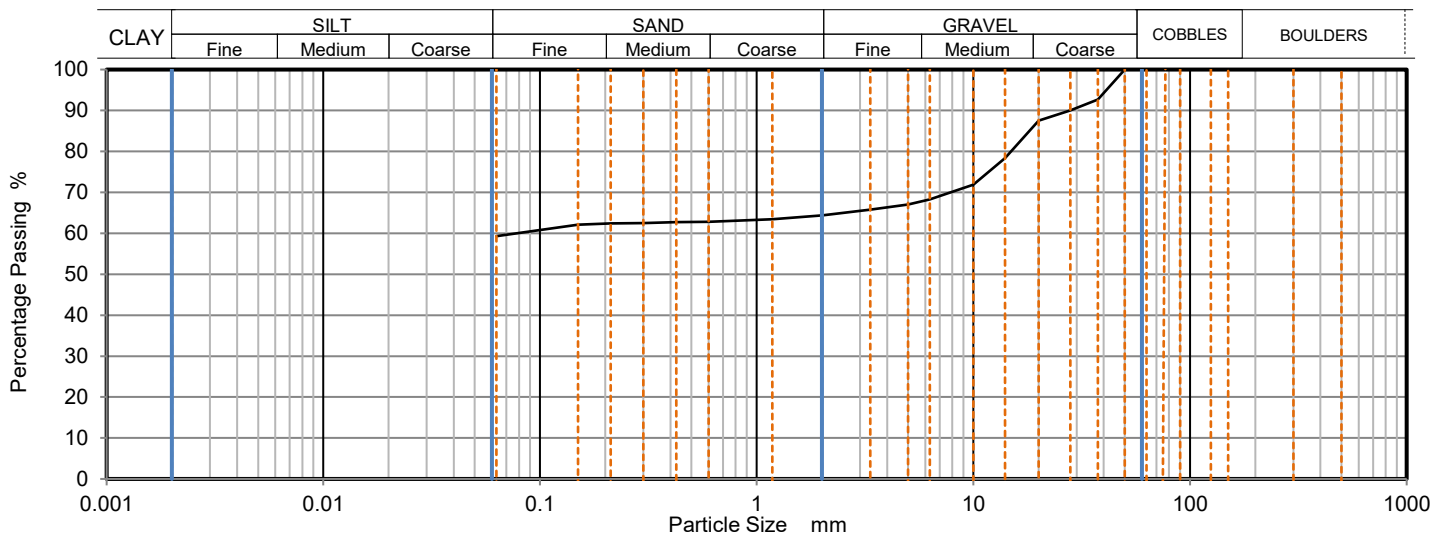
4041

TEST CERTIFICATE**DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: Merebrook
Client Address: First Floor, 1 Leonard Place,
Westerham Road, Keston,
BR2 6HQ
Contact: C Oliveira
Site Address: Ingrebourne-Parcel BClient Reference: 21949BA
Job Number: 25-000670-1
Date Sampled: 16/12/2024
Date Received: 18/12/2024
Date Tested: 14/01/2025
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 420404
Hole No.: Parcel B MTP102
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly slightly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 107.8 °C and broken down by hand.Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	93		
28	90		
20	88		
14	78		
10	72		
6.3	68		
5	67		
3.35	66		
2	64		
1.18	63		
0.6	63		
0.425	63		
0.3	63		
0.212	62		
0.15	62		
0.063	59		

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	5
Fines <0.063 mm	59

Grading Analysis	
D100	mm 50
D60	mm 0.0781
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: Merebrook
Client Address: First Floor, 1 Leonard Place,
Westerham Road, Keston,
BR2 6HQ
Contact: C Oliveira
Site Address: Ingrebourne-Parcel B

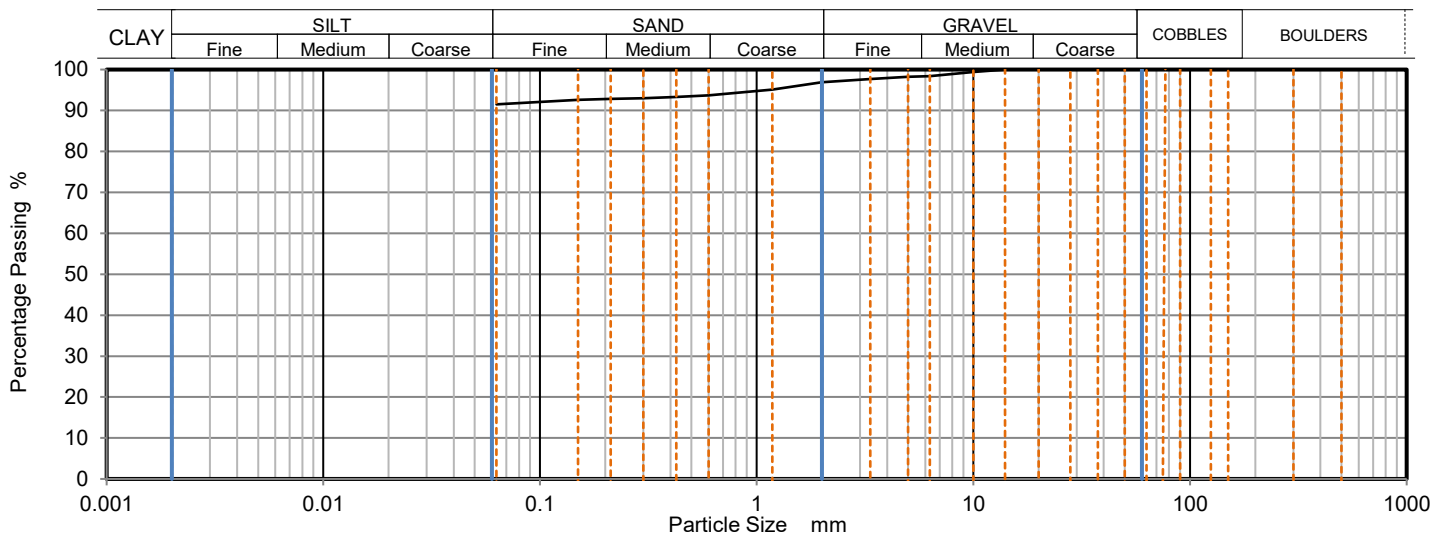
Client Reference: 21949BA
Job Number: 25-000670-1
Date Sampled: 16/12/2024
Date Received: 18/12/2024
Date Tested: 14/01/2025
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 420406
Hole No.: Parcel B MTP103
Sample Reference: Not Given
Sample Description: Yellowish brown slightly sandy slightly gravelly CLAY
Sample Preparation: Sample was quartered, oven dried at 107.8 °C and broken down by hand.

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	98		
5	98		
3.35	98		
2	97		
1.18	95		
0.6	94		
0.425	93		
0.3	93		
0.212	93		
0.15	93		
0.063	92		

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	6
Fines <0.063 mm	91

Grading Analysis		
D100	mm	14
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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SUMMARY REPORT

DETERMINATION OF POINT LOAD STRENGTH

Tested in Accordance with: ISRM: 2007, pages 125-132

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041
Client: Merebrook
Client Address: First Floor, 1 Leonard Place,
Westerham Road, Keston,
BR2 6HQ
Contact: C Oliveira
Site Address: Ingrebourne-Parcel B

Client Reference: 21949BA
Job Number: 25-000670-1
Date Sampled: 16/12/2024
Date Received: 18/12/2024
Date Tested: 14/01 - 15/01/2025
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P kN	Equivalent diameter, De mm	Point Load Strength Index	
		Reference	Depth Top m	Depth Base m	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm			Is MPa	Is(50) MPa
420402	Parcel B MTP101	Not Given	0.50	Not Given	B	Yellowish brown SANDSTONE	WC = 12.7%	1	I	U	YES	63.9	108.6	69.0	63.0	5.9	93.3	0.68	0.90
420405	Parcel B MTP103	Not Given	0.50	Not Given	B	Yellowish brown SANDSTONE	WC = 11.6%	1	I	U	YES	80.3	105.0	47.0	42.0	3.3	74.9	0.58	0.69

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Equipment No.: i2 4341 Calibration Date: 15/03/2024 - 15/03/2025

Comments:

Signed: Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

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Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

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

Analytical Report Number : 25-000672

Project / Site name:	Ingrebourne-Parcel B	Samples received on:	18/12/2024
Your job number:	21949BA	Samples instructed on/ Analysis started on:	08/01/2025
Your order number:	25-2-FDO-LABS	Analysis completed by:	21/01/2025
Report Issue Number:	1	Report issued on:	21/01/2025
Samples Analysed:	10 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

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

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

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

Analytical Report Number: 25-000672
Project / Site name: Ingrebourne-Parcel B
Your Order No: 25-2-FDO-LABS

Lab Sample Number				420415	420416	420417	420418	420419
Sample Reference				Parcel B MWS101	Parcel B MWS104	Parcel B MWS104	Parcel B MWS105	Parcel B MWS107
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)				1.50	1.00	1.85	1.60	1.00
Date Sampled				16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	38.6	< 0.1
Moisture Content	%	0.01	NONE	13	16	17	12	12
Total mass of sample received	kg	0.1	NONE	0.5	0.5	0.5	0.5	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.3	6.3	7.1	7.7	8.2
Total Sulphate as SO ₄	%	0.005	MCERTS	0.02	0.02	0.02	0.036	0.019
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	28	44	37	73	24
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	13.9	22.2	18.3	36.6	11.8
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	0.7	1.3	1.4	1.3	1.1
Total Sulphur	mg/kg	50	MCERTS	80	140	190	120	58
Total Sulphur	%	0.005	MCERTS	0.008	0.014	0.019	0.012	0.006
Ammoniacal Nitrogen as NH ₄ ⁺	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammonium as NH ₄ ⁺ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	2.9	3.4	3.8	4.7	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	5.7	6.7	7.7	9.5	< 5.0

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

Analytical Report Number: 25-000672
Project / Site name: Ingrebourne-Parcel B
Your Order No: 25-2-FDO-LABS

Lab Sample Number	420420	420421	420422	420423	420424
Sample Reference	Parcel B MWS108	Parcel B MWS108	Parcel B MWS109	Parcel B MWS109	Parcel B MWS113
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)	1.00	1.40	0.45	1.50	1.65
Date Sampled	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	0.2	40.3	38.4
Moisture Content	%	0.01	NONE	15	14	13	12	17
Total mass of sample received	kg	0.1	NONE	0.5	0.5	0.5	0.5	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.5	8	8.2	7.1	7.5
Total Sulphate as SO ₄	%	0.005	MCERTS	0.019	0.02	0.017	0.033	0.032
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	25	23	30	35	91
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	12.4	11.3	15.1	17.7	45.3
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.6	1.3	1.1	0.6	1.1
Total Sulphur	mg/kg	50	MCERTS	61	110	67	150	280
Total Sulphur	%	0.005	MCERTS	0.006	0.011	0.007	0.015	0.028
Ammoniacal Nitrogen as NH ₄ ⁺	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammonium as NH ₄ ⁺ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	4	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	2.3	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	3.3	6.7	2.8	< 2.5	3.8
Magnesium (water soluble)	mg/kg	5	NONE	6.6	14	5.5	< 5.0	7.5

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

Analytical Report Number : 25-000672

Project / Site name: Ingrebourne-Parcel B

* 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 *
420415	Parcel B MWS10	None Supplied	1.5	Brown clay and sand with gravel
420416	Parcel B MWS10	None Supplied	1	Brown sandy clay
420417	Parcel B MWS10	None Supplied	1.85	Brown sandy clay
420418	Parcel B MWS10	None Supplied	1.6	Brown clay and sand with stones
420419	Parcel B MWS10	None Supplied	1	Brown sandy clay
420420	Parcel B MWS10	None Supplied	1	Brown sandy clay
420421	Parcel B MWS10	None Supplied	1.4	Brown sandy clay
420422	Parcel B MWS10	None Supplied	0.45	Brown clay and sand with stones
420423	Parcel B MWS10	None Supplied	1.5	Brown sand with stones
420424	Parcel B MWS11	None Supplied	1.65	Brown clay and sand with stones

Analytical Report Number : 25-000672

Project / Site name: Ingrebourne-Parcel B

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
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
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
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
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

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

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

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

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

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

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

The result for sum should be interpreted with caution

APPENDIX 6

- Groundwater Chemistry
- Laboratory Analysis Certificates

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t: 01923 225404
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e: reception@i2analytical.com

Analytical Report Number : 25-000711

Project / Site name:	Parcel B - Imberhorne Lane	Samples received on:	09/01/2025
Your job number:	21949BA	Samples instructed on/ Analysis started on:	09/01/2025
Your order number:	25-2-FDO-LABS	Analysis completed by:	16/01/2025
Report Issue Number:	1	Report issued on:	16/01/2025
Samples Analysed:	3 water samples		

Signed: 

Rachel Chappell
Key Account Manager
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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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: 25-000711
Project / Site name: Parcel B - Imberhorne Lane

Your Order No: 25-2-FDO-LABS

Lab Sample Number	420630	420631	420632
Sample Reference	MWS101 - EW	MWS109 - EW	MWS114 - EW
Sample Number	None Supplied	None Supplied	None Supplied
Water Matrix	Other water	Other water	Other water
Depth (m)	None Supplied	None Supplied	None Supplied
Date Sampled	08/01/2025	08/01/2025	08/01/2025
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status

General Inorganics

pH (L099)	pH Units	N/A	NONE	7.9	7.4	7.2
Total Cyanide	µg/l	10	NONE	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	NONE	25200	68000	167000
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	0.97	1.52	3.41

Total Phenols

Total Phenols (monohydric)	µg/l	10	NONE	< 10	< 10	< 10
----------------------------	------	----	------	------	------	------

Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16
-------------------	------	------	------	--------	--------	--------

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	NONE	0.25	0.22	0.42
Cadmium (dissolved)	µg/l	0.02	NONE	< 0.02	0.03	0.04
Chromium (dissolved)	µg/l	0.2	NONE	0.4	0.2	0.4
Copper (dissolved)	µg/l	0.5	NONE	1.8	4.4	4.7
Lead (dissolved)	µg/l	0.2	NONE	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	NONE	0.7	4.4	5.2
Selenium (dissolved)	µg/l	0.6	NONE	0.7	3	5.5
Zinc (dissolved)	µg/l	0.5	NONE	< 0.5	3.7	2.7

Calcium (dissolved)	mg/l	0.012	NONE	82	91	180
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0

Analytical Report Number: 25-000711
Project / Site name: Parcel B - Imberhorne Lane

Your Order No: 25-2-FDO-LABS

Lab Sample Number	420630	420631	420632
Sample Reference	MWS101 - EW	MWS109 - EW	MWS114 - EW
Sample Number	None Supplied	None Supplied	None Supplied
Water Matrix	Other water	Other water	Other water
Depth (m)	None Supplied	None Supplied	None Supplied
Date Sampled	08/01/2025	08/01/2025	08/01/2025
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_1D_AL}	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS_1D_AL}	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS_1D_AL}	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC12 - EC16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC16 - EC21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC21 - EC35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC5 - EC35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Benzene	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	NONE	< 3.0	< 3.0	< 3.0

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

Analytical Report Number : 25-000711

Project / Site name: Parcel B - Imberhorne Lane

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
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW, GW, Hg - SW, PW, Al - SW, PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	NONE
Sulphide in water	Determination of sulphide in water by ion selective electrode	In-house method	L029-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE
Total Petroleum Hydrocarbons with carbon banding in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or Volatile Organic Compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method based on USEPA 8260	L073B	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5-diphenylcarbazide, followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method by continuous flow analyser	L080-PL	W	NONE
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Total cyanide in water	Determination of total cyanide in water by distillation followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Total Petroleum Hydrocarbons in water by HS-GC-MS	Determination of total petroleum hydrocarbons in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	NONE
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe, Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE

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

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

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

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

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

Analytical Report Number : 25-000711

Project / Site name: Parcel B - Imberhorne Lane

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
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Information in Support of Analytical Results

List of HWOL Acronyms and Operators

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

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

The result for sum should be interpreted with caution

IDOM Merebrook (Keston) Limited

1 Leonard Place
Westerham Road
Keston
BR2 6HQ

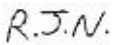
Page 1 of 1

For the attention of Dawn Drake

Report No: C9170

Issue No 1a

LABORATORY TEST REPORT

Project Name		IMBERHORNE LANE	
Project Number		C9170	
Your Ref		Date samples received	
Purchase Order		Date written instructions received	09/12/2024
24-952-DD-21949ba		Date testing commenced	16/12/2024
Please find enclosed the results as summarised below			
Item No	Test Quantity	Description	ISO 17025 Accredited
10.05	8	Insitu CBR	Yes
Remarks :			
Issued by : R Norris		Date of Issue : 28/01/2025	Key to symbols used in this report
 Approved Signatories : 28/01/2025		S/C : Testing was sub-contracted	
J.Hopkins (Laboratory Coordinator), M D Brown (Senior Quality Manager), R Norris (Supervisor), R Collett (Site Supervisor), M Bryan (Senior Lab Technician)			
Unless we are notified to the contrary, any remaining samples will be disposed of, 4 weeks after the date this report was issued Results contained in this report are provisional unless signed by an approved signatory This report should not be reproduced without written approval from Terra Tek Limited (Trading as igne) The enclosed results remain the property of Terra Tek Limited (Trading as igne) and we reserve the right to withdraw our report if we have not received cleared funds in accordance with our standard terms and conditions Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation. Feedback on this report may be left:			
https://forms.office.com/pages/responsepage.aspx?id=CwCZTjwYeUGWZfDBJbk1g0fy8UwdJQhLtt3HBD1SytUMzNYWTdFVVPmWjdHREcQUg1MDJLM09OTI4u&wdLOR=c7402C39D-A5DB-45FF-9DBB-660DBDE76494			



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Offices in Airdrie, Aston Clinton, Barnsley, Daventry

Head Office : Whistleberry Road, Hamilton, Glasgow, Scotland, ML3 0HP



Site IMBERHORNE LANE
Client IDOM Merebrook (Keston) Limited
Engineer

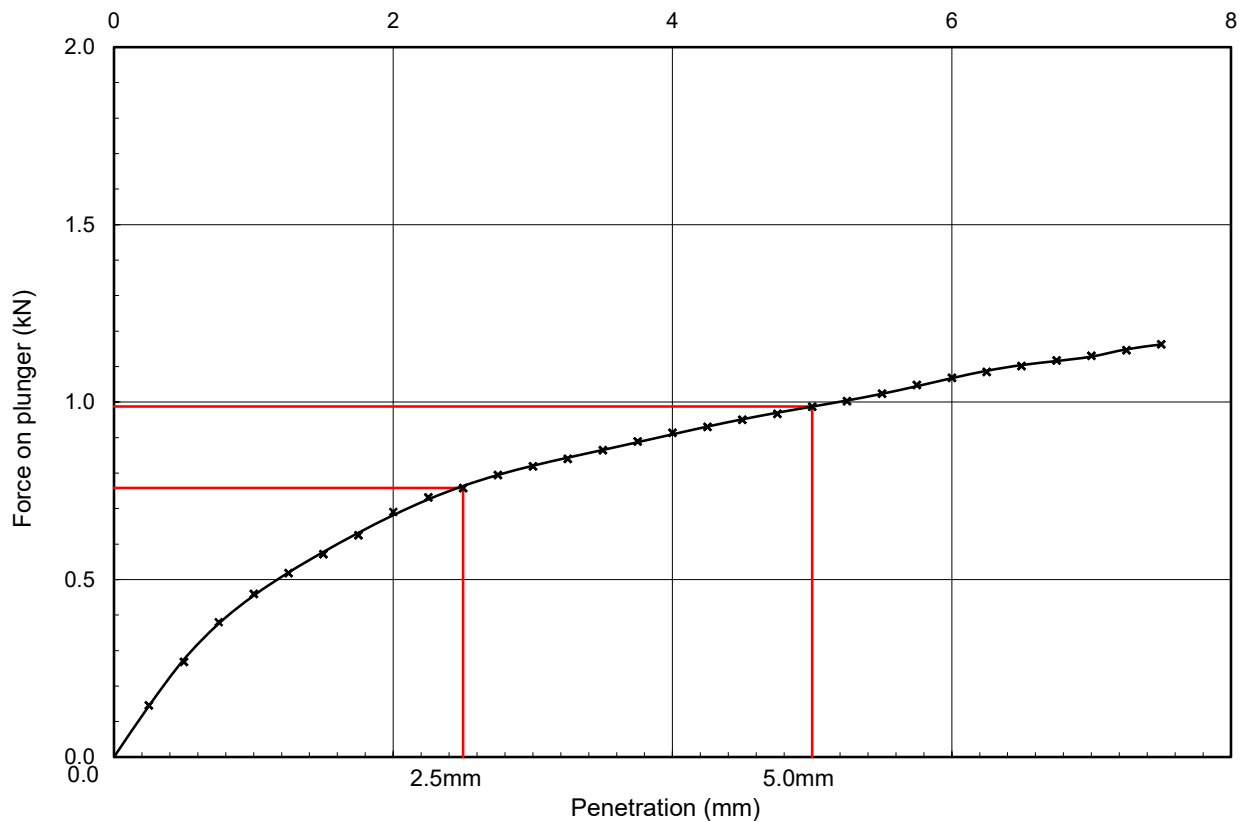
Contract No C9170
Test No CBR 01
Depth (m) 0.30
Test Date 16/12/2024

Test Location Parcel A MCBR 101
Non Engineering Description Brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.
Weather Overcast
Remarks No Particles greater than 20mm found beneath the plunger

Test Details:

Surcharge: 0.0 kg
Seating Load: 50 N
Moisture Content: 24 %
CBR Value: 5.7 %

The test load was applied using a hand operated screw jack.
The surcharge mass applied to the surface of the test area on a 250mm diameter ring. The rate of loading was maintained at 1.0 mm per minute.



Originator

Checked & Approved

RN

R.J.N.
28/01/2025

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Site IMBERHORNE LANE
Client IDOM Merebrook (Keston) Limited
Engineer

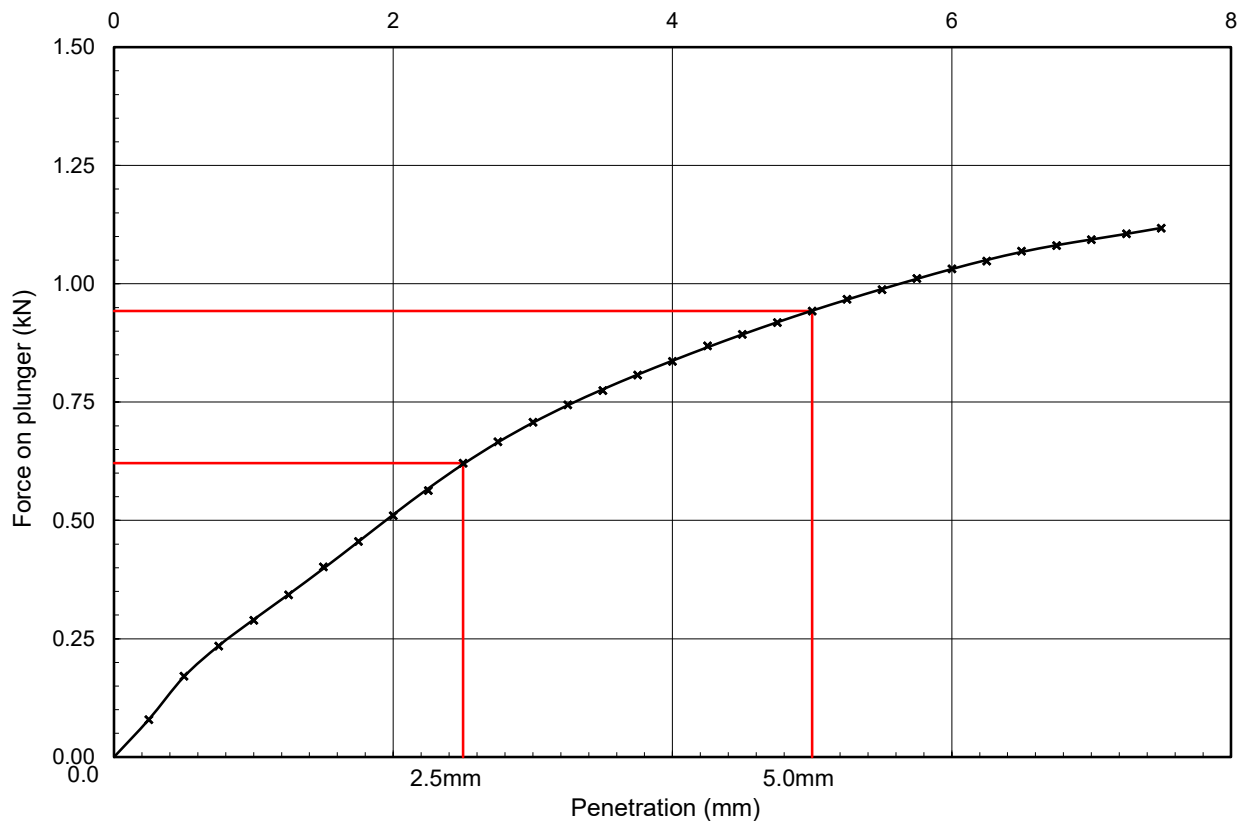
Contract No C9170
Test No CBR 02
Depth (m) 0.45
Test Date 16/12/2024

Test Location Parcel A MCBR 102
Non Engineering Description Brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.
Weather Overcast
Remarks No Particles greater than 20mm found beneath the plunger

Test Details:

Surcharge: 0.0 kg
Seating Load: 50 N
Moisture Content: 23 %
CBR Value: 4.7 %

The test load was applied using a hand operated screw jack.
The surcharge mass applied to the surface of the test area on a 250mm diameter ring. The rate of loading was maintained at 1.0 mm per minute.



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	Site	IMBERHORNE LANE	Contract No	C9170
	Client	IDOM Merebrook (Keston) Limited	Test No	CBR 03
	Engineer		Depth (m)	0.35
			Test Date	16/12/2024

Test Location

Parcel A MCBR 103

Non Engineering Description

Brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.

Weather

Overcast

Remarks

No Particles greater than 20mm found beneath the plunger

Test Details:

Surcharge:

0.0 kg

Seating Load:

50 N

Moisture Content:

18 %

CBR Value:

6.4 %

The test load was applied using a hand operated screw jack.

The surcharge mass applied to the surface of the test area on a 250mm diameter ring. The rate of loading was maintained at 1.0 mm per minute.

Force on plunger (kN)

2.0

1.5

1.0

0.5

0.0

0.0

0

2

4

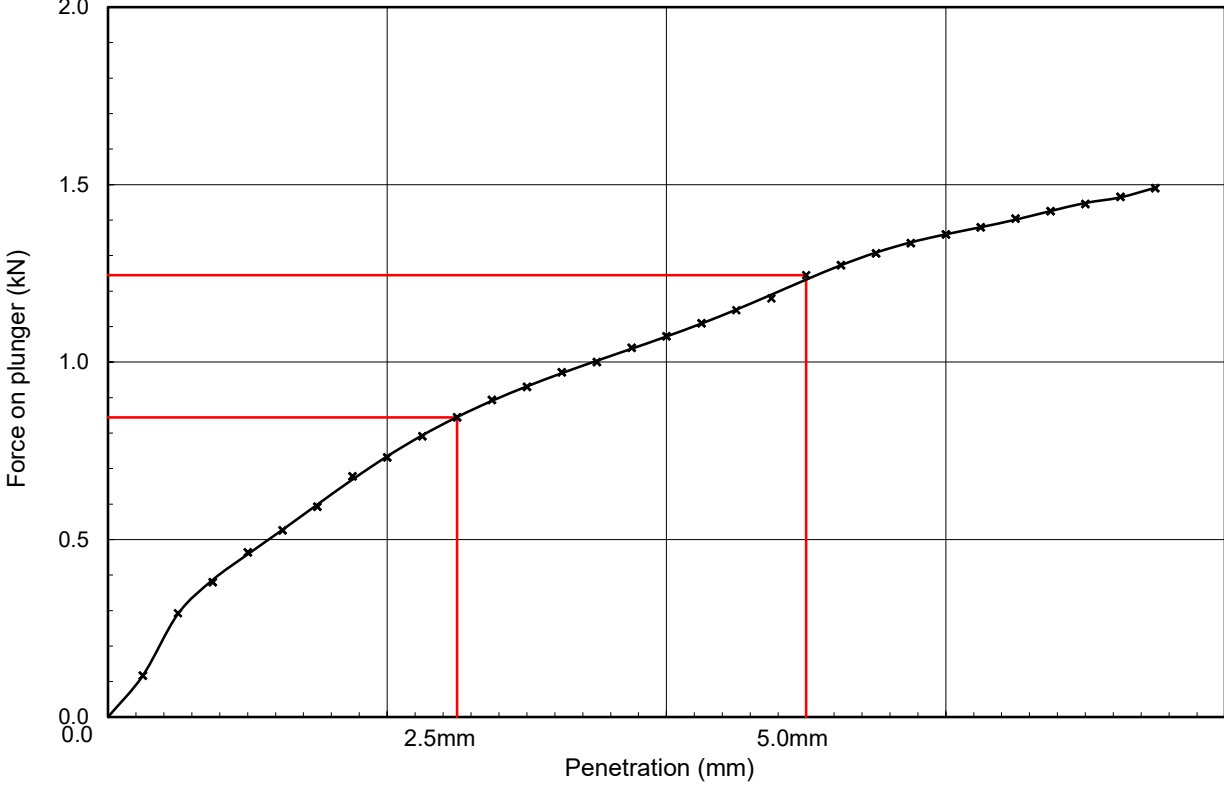
6

8

2.5mm

5.0mm

Penetration (mm)



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Sheet 1 of 1



Site IMBERHORNE LANE
Client IDOM Merebrook (Keston) Limited
Engineer

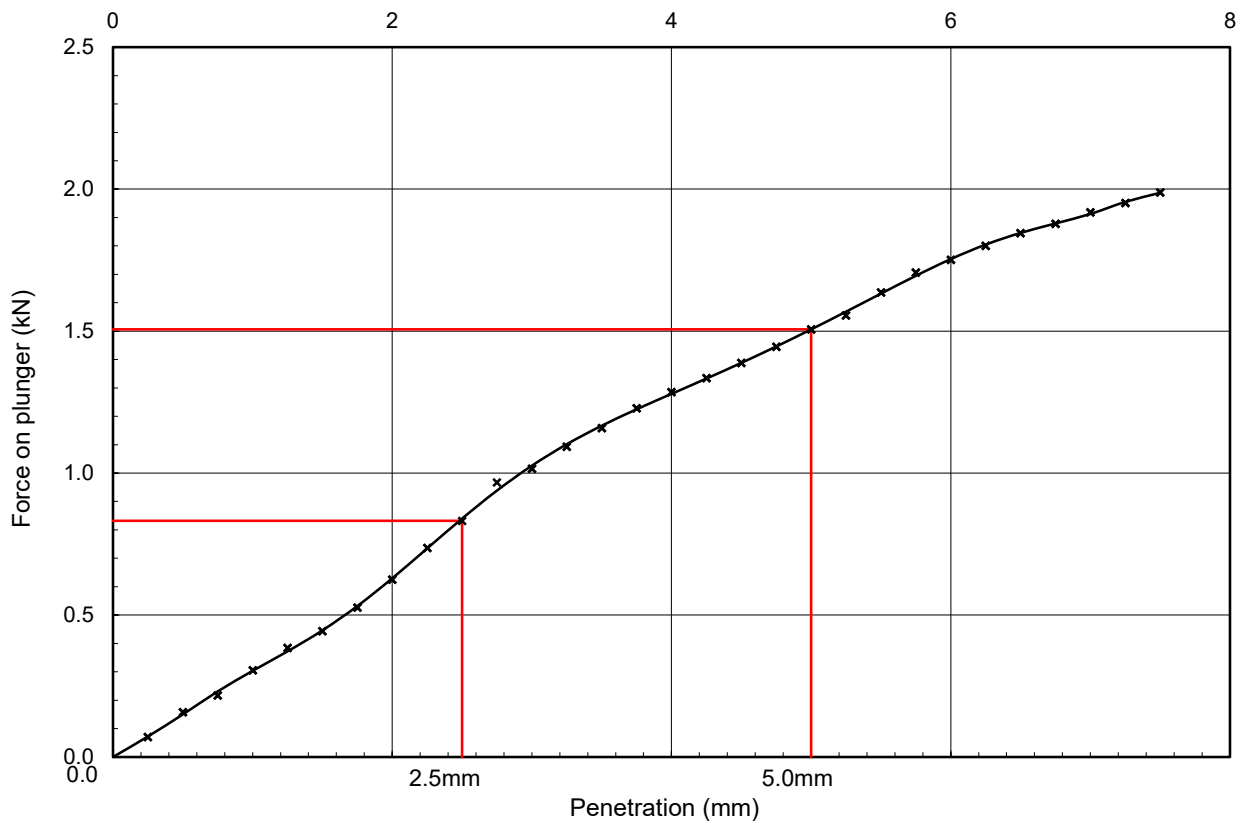
Contract No C9170
Test No CBR 04
Depth (m) 0.25
Test Date 16/12/2024

Test Location Parcel B MCBR 105
Non Engineering Description Light brown slightly gravelly very clayey SAND. Gravel is fine to coarse.
Weather Overcast
Remarks No Particles greater than 20mm found beneath the plunger

Test Details:

Surcharge: 0.0 kg
Seating Load: 50 N
Moisture Content: 20 %
CBR Value: 7.5 %

The test load was applied using a hand operated screw jack.
The surcharge mass applied to the surface of the test area on a 250mm diameter ring. The rate of loading was maintained at 1.0 mm per minute.



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Site IMBERHORNE LANE
Client IDOM Merebrook (Keston) Limited
Engineer

Contract No C9170
Test No CBR 05
Depth (m) 0.25
Test Date 16/12/2024

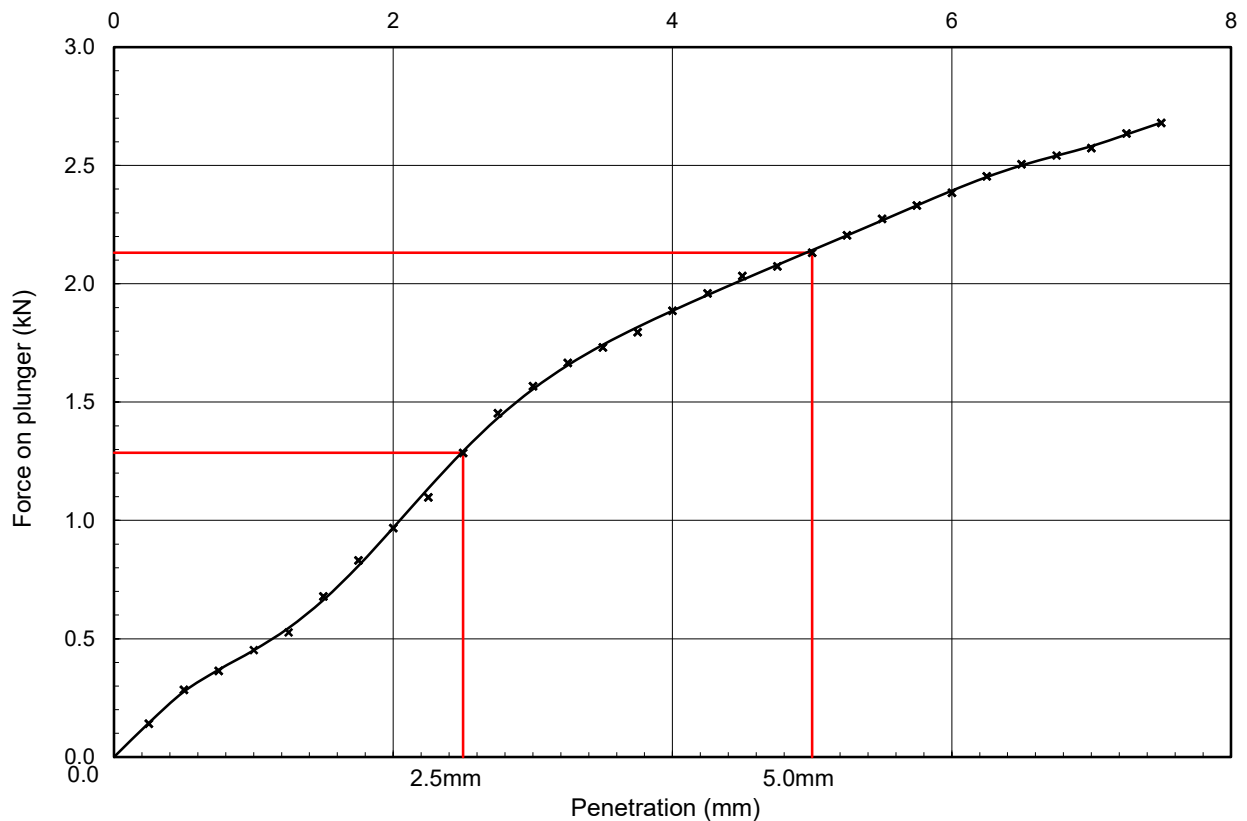
Test Location Parcel B MCBR 104
Non Engineering Description Light brown mottled grey slightly gravelly very clayey SAND. Gravel is fine to coarse with occasional cobbles.
Weather Overcast
Remarks Particles greater than 20mm found beneath the plunger

Test Details:

Surcharge: 0.0 kg
Seating Load: 50 N
Moisture Content: 20 %

The test load was applied using a hand operated screw jack.
The surcharge mass applied to the surface of the test area on a 250mm diameter ring. The rate of loading was maintained at 1.0 mm per minute.

CBR Value: 11 %



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Site IMBERHORNE LANE
Client IDOM Merebrook (Keston) Limited
Engineer

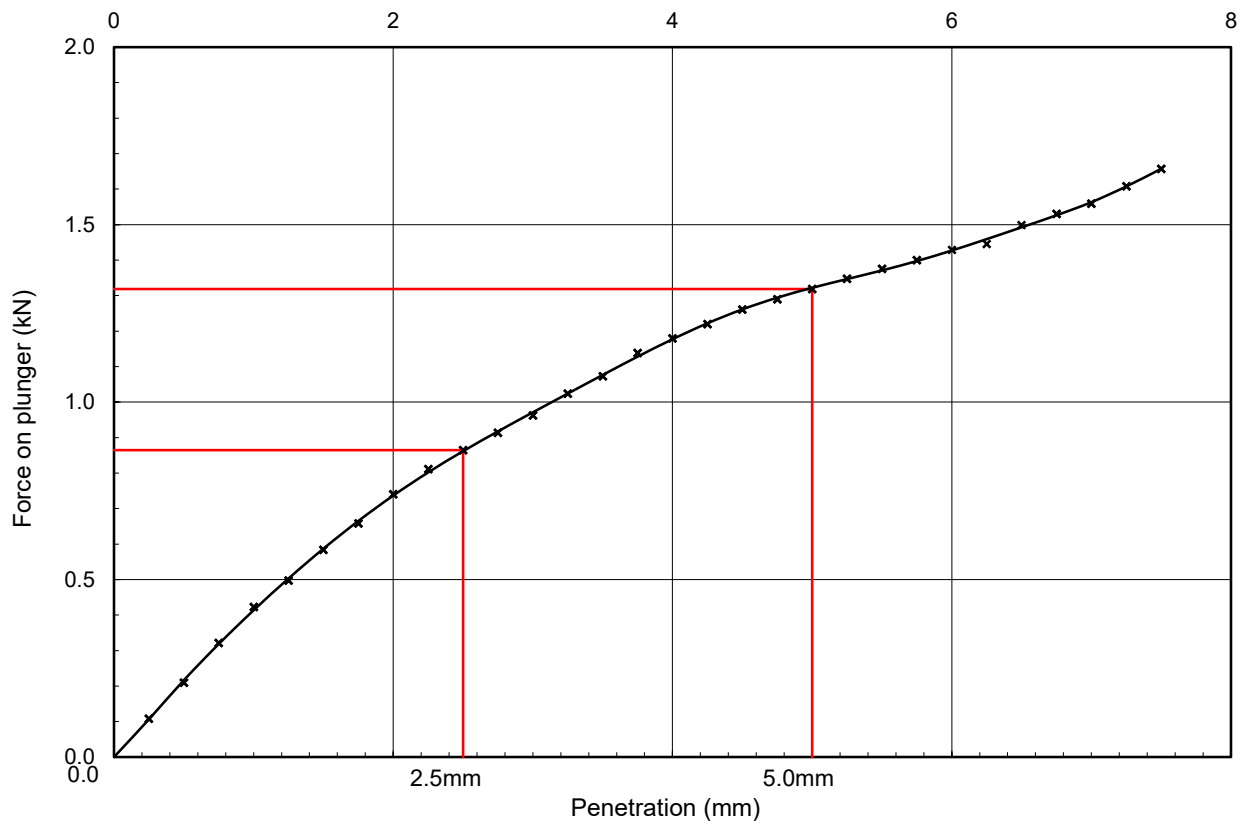
Contract No C9170
Test No CBR 06
Depth (m) 0.25
Test Date 16/12/2024

Test Location Parcel B MCBR 103
Non Engineering Description Light brown mottled grey slightly gravelly very clayey SAND. Gravel is fine to coarse.
Weather Overcast
Remarks No Particles greater than 20mm found beneath the plunger

Test Details:

Surcharge: 0.0 kg
Seating Load: 50 N
Moisture Content: 19 %
CBR Value: 6.6 %

The test load was applied using a hand operated screw jack.
The surcharge mass applied to the surface of the test area on a 250mm diameter ring. The rate of loading was maintained at 1.0 mm per minute.



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Site IMBERHORNE LANE
Client IDOM Merebrook (Keston) Limited
Engineer

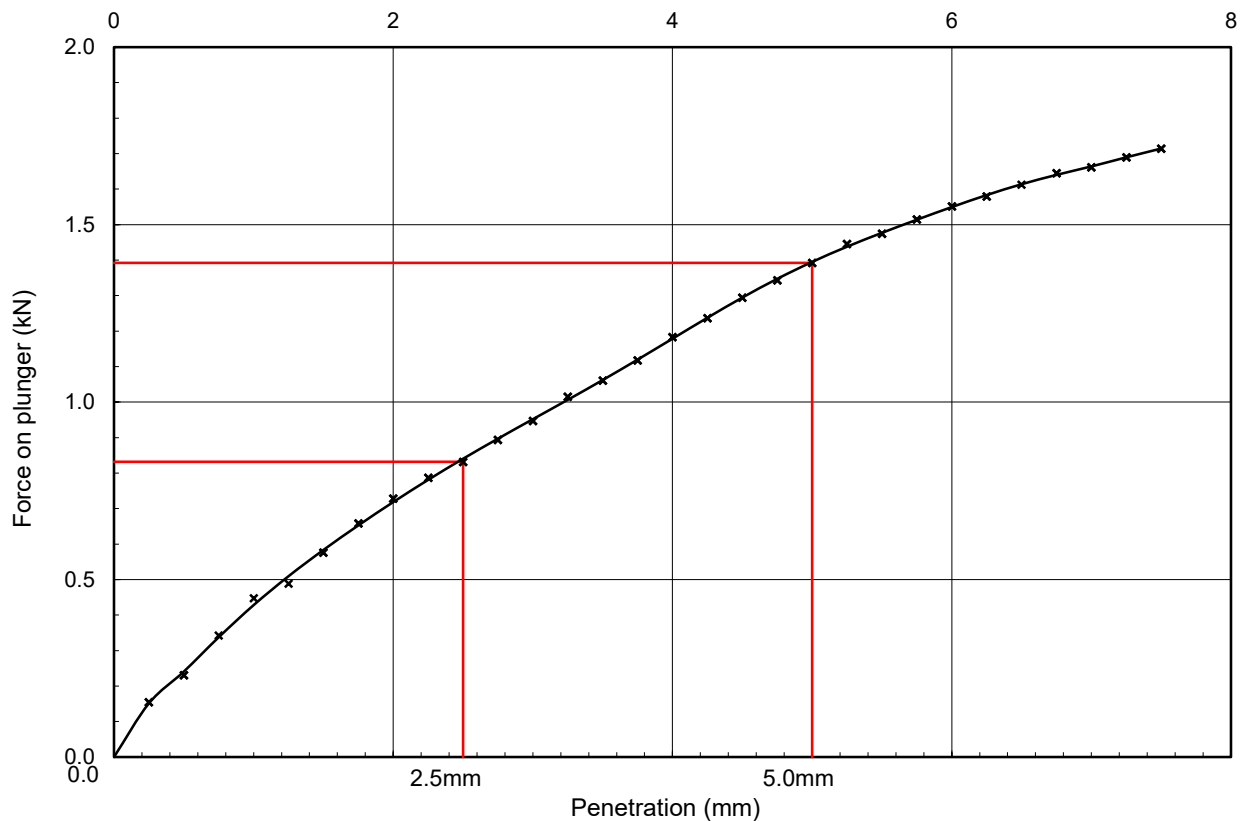
Contract No C9170
Test No CBR 07
Depth (m) 0.30
Test Date 16/12/2024

Test Location Parcel B MCBR 102
Non Engineering Description Light brown mottled grey slightly gravelly very clayey SAND. Gravel is fine to coarse.
Weather Overcast
Remarks No Particles greater than 20mm found beneath the plunger

Test Details:

Surcharge: 0.0 kg
Seating Load: 50 N
Moisture Content: 20 %
CBR Value: 7.0 %

The test load was applied using a hand operated screw jack.
The surcharge mass applied to the surface of the test area on a 250mm diameter ring. The rate of loading was maintained at 1.0 mm per minute.



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28/01/2025

CALIFORNIA BEARING RATIO

BS1377 : Part 9 : 1990 Clause 4.3





Site IMBERHORNE LANE
Client IDOM Merebrook (Keston) Limited
Engineer

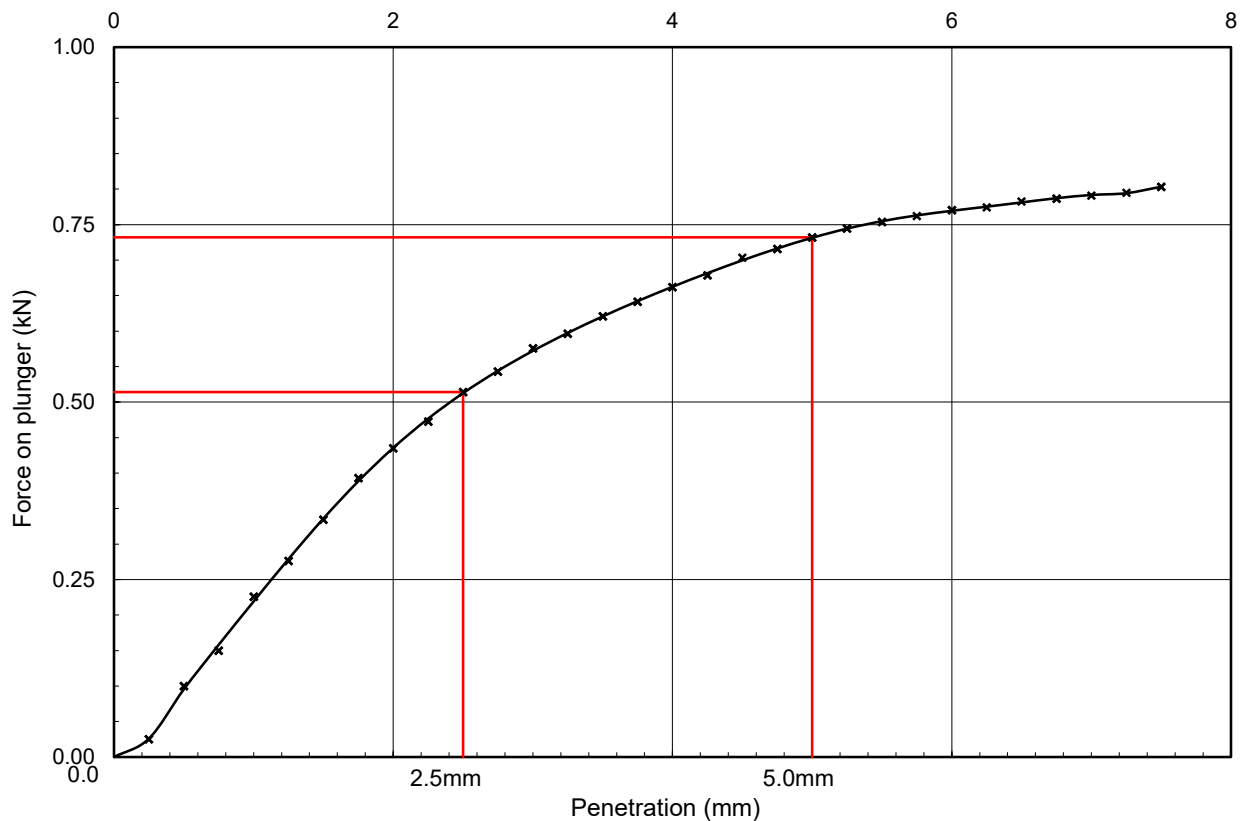
Contract No C9170
Test No CBR 08
Depth (m) 0.30
Test Date 16/12/2024

Test Location Parcel B MCBR 101
Non Engineering Description Light brown mottled grey slightly gravelly very clayey SAND. Gravel is fine to coarse.
Weather Overcast
Remarks No Particles greater than 20mm found beneath the plunger

Test Details:

Surcharge: 0.0 kg
Seating Load: 50 N
Moisture Content: 24 %
CBR Value: 3.9 %

The test load was applied using a hand operated screw jack.
The surcharge mass applied to the surface of the test area on a 250mm diameter ring. The rate of loading was maintained at 1.0 mm per minute.



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28/01/2025

CALIFORNIA BEARING RATIO

BS1377 : Part 9 : 1990 Clause 4.3



APPENDIX 7

- Field Monitoring Records
- Groundwater Level Data
- Hazardous Soil Gas Data

GAS MONITORING RECORD ROUND 1

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements								VOC Measurements		Dip Measurements		Comments		
		Flow		Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water		Depth to Base	
		max	steady																	
		l hr ⁻¹																		
MWS101	10:20	0	0	999	0	0	0	0	0.6	0.6	19.7	0	0	60.000	0.000	1	0.98	1.56	-	
MWS103	10:10	0	0	999	0	0	0	0	0.8	0.8	19.3	0	0	60.000	0.000	1	1.45	1.48	-	
MWS109	10:30	0	0	998	0	0	0	0	0.9	0.9	19.2	0	0	60.000	0.000	1	1.03	2.55	-	
MWS114	10:00	0	0	998	0	0	0	0	0.9	0.9	19	0	0	60.000	0.000	2	1.26	1.73	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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Weather:		Slightly rainy. Atmospheric Pressure falling during the past 30 hours.				nr = not recorded					Gas Analyser		PID		Site:				Imberhorne Lane, Parcel B	
						Model:					GFM436		MiniRae 3000		Project Number:				21949ba	
						Serial Number:					12228		592-931891		Monitored By:				Finn Leahy	
						Date of Last Calibration:					17/10/2024		01/02/2024		Date:				18/12/2024	

GAS MONITORING RECORD ROUND 2

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements								VOC Measurements		Dip Measurements		Comments	
		Flow		Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water		Depth to Base
		max	steady																
		l hr ⁻¹																	
MWS101	11:15	0	0	1001	0	0	0	0	0.9	0.9	20.1	0	0		0.000	0	0.90	1.60	Groundwater sample taken
MWS103	11:30	0	0	1001	0	0	0	0	0.5	0.5	20.3	0	0		0.000	1	1.00	1.50	-
MWS109	11:45	0	0	1000	0	0	0	0	0.7	0.7	19.9	0	0		0.000	1	1.30	2.55	Groundwater sample taken
MWS114	12:00	0	0	1000	0	0	0	0	1	1	19.8	0	0		0.000	1	1.20	1.73	Groundwater sample taken
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Weather:		Overcast and cloud. Atmospheric Pressure falling during 5 hours				nr = not recorded					Gas Analyser		PID		Site:			Imberhorne Lane, Parcel B	
						Model:					GFM436		MiniRae 3000		Project Number:			21949ba	
						Serial Number:					12228		592-931891		Monitored By:			Matt Baylis	
						Date of Last Calibration:					17/10/2024		01/02/2024		Date:			08/01/2025	

APPENDIX 8 ▪ Risk Assessment Methodology

RISK ASSESSMENT METHODOLOGY (FOLLOWING CIRIA C552, 2001)

The potential sources of contamination at the site and the implications with respect to development have been interpreted in accordance with the current government guidance on source-pathway-receptor risk assessment.

The existence of a pollutant linkage requires a pathway by which the receptor could be exposed to the source.

Where a complete pollutant linkage is deemed to be present, the level of *risk* is then determined taking into account the *likelihood* of significant impact and the *severity* of potential impact using the following classification tables which broadly follow the method set out in CIRIA C552.

Table A1: Classification of Severity (or Consequence)

CLASSIFICATION	DEFINITION
Severe	Short term (acute) risk to human health likely to result in “significant harm” as defined by the Environment Protection Act 1990, Part IIA. Short term risk of sensitive water resource. Catastrophic damage to buildings/property. A short term risk to a particular ecosystem or organism forming part of such ecosystem (note: the definitions of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).
Medium	Chronic damage to Human Health (“significant harm” as defined in DETR, 2000). Pollution of sensitive water resources, significant change in a particular ecosystem or organism forming part of such ecosystem.
Mild	Pollution of non sensitive water resources. Significant damage to crops, buildings, structures and services (“significant harm” as defined in the Draft Circular on Contaminated Land, DETR, 2000). Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve. Non permanent health effects to human health (easily prevented by means such as personal protective clothing, etc). Easily repairable effects of damage to buildings, structures and services.

Table A2: Classification of Likelihood (Probability)

CLASSIFICATION	DEFINITION
High Likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Table A3: Risk Estimation – Combination of Consequence and Probability(after CIRIA C552 and R&D66)

		MAGNITUDE OF POTENTIAL CONSEQUENCE (SEVERITY) OF RISK			
		SEVERE	MEDIUM	MILD	MINOR
LIKELIHOOD OF RISK	HIGH LIKELIHOOD	Very High Risk	High Risk	Moderate Risk	Low Risk
	LIKELY	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	LOW LIKELIHOOD	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	UNLIKELY	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Table A4: Description of the Classified Risks and Likely Reaction Required

CLASSIFICATION	DEFINITION
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the long term.
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

APPENDIX 9 ▪ Gas Risk Assessment

MODIFIED WILSON AND CARD GAS CHARACTERISTIC SITUATION

SITE: Imberhorne Lane, Parcel A JOB NUMBER: 21949ba 15/01/2025

Modified Wilson and Card Classification

					BS 8485:2015+A1:2019 Gas Protection Scores - refer to standard for full guidance			
					Minimum Gas Protection Score Required			
Characteristic Situation	Risk Classification	Gas Screening Value Threshold (L hr ⁻¹)	Additional Factors	Typical Source of Generation	Type A Building	Type B Building	Type C Building	Type D Building
1	very low risk	<0.07	typically methane not to exceed 1% and/or carbon dioxide 5% otherwise consider increase to situation ²	natural soils with low organic content; 'typical' made ground	0	0	0	0
2	low risk	0.07 to <0.7	borehole air flow rate not to exceed 70 L hr ⁻¹ otherwise consider increase to situation ³	natural soils with high peat/organic content; 'typical' made ground	3.5	3.5	2.5	1.5
3	moderate risk	0.7 to <3.5		old landfill, inert waste, mineworking flooded	4.5	4	3	2.5
4	moderate to high risk	3.5 to <15	quantitative risk assessment required to evaluate scope of protective measures	mineworking susceptible to flooding, completed landfill	6.5 ^{A)}	5.5 ^{A)}	4.5	3.5
5	high risk	15 to <70		mineworking unflooded inactive with shallow workings near surface	hazard too high for this method to define protection measures	6 ^{A)}	5.5	4.5
6	very high risk	>70		recent landfill site	hazard too high for this method to define protection measures	hazard too high for this method to define protection measures	hazard too high for this method to define protection measures	6

BS 8485:2015+A1:2019 Gas Protection Measures - refer to standard for full guidance					
Select two or more elements from the following three types of protection to achieve score (only one element per type permitted)					
Structural Barrier	Score ^{A)}	Ventilation Measures		Score	Gas Resistant Membrane
Precast suspended segmental subfloor (i.e. beam and block)	0	Pressure relief pathway (usually formed of low fines gravel or with a thin geocomposite blanket or strips terminating in a gravel trench external to the building)		0.5	Gas resistant membrane meeting all of the following criteria: 1. sufficiently impervious, both in the sheet material and in the sealing of sheets and sealing around sheet penetrations, to prevent any significant passage of methane and/or carbon dioxide through the membrane. A membrane with a methane gas transmission rate <40.0 ml/day/m2/atm (average) for sheets and joints (tested in accordance with BS ISO 15105-1:2007 manometric method) is regarded as sufficiently impervious. 2. sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions 3. sufficiently strong* to withstand the installation process and following trades until covered (e.g. penetration from steel fibres in fibre reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools, etc) and to withstand in-service stresses (e.g. settlement if placed below a floor slab) 5. capable, after installation, of providing a complete barrier to the entry of the relevant gas 6. verified in accordance with CIRIA C735 * For example, reinforced LDPE (virgin polymer) membranes having a minimum mass per unit area of 370 g/m2 and not significantly less than 0.4 mm thickness between the reinforcement scrim (tested in accordance with Procedure D (2 mm diameter tip) of BS EN ISO 9863-1:2016) installed above floor slabs are considered sufficiently strong to meet the performance criteria (see also C.3). Thicker and more robust membranes or an additional membrane protection layer should be installed directly beneath cast-in-situ floor slabs
Cast in situ ground-bearing floor slab (with only nominal mesh reinforcement)	0.5	Passive sub floor dispersal layer	Very good performance ^{E)}	2.5	
			Good performance ^{E)}	1.5	
Cast in situ monolithic reinforced ground bearing raft or reinforced cast in situ suspended floor slab with minimal penetrations	1 or 1.5 ^{B)}	Active dispersal layer, usually comprising fans with active abstraction (suction) from a subfloor dilution layer, with roof level vents. The dilution layer may comprise a clear void or be formed of geocomposite or polystyrene void formers ^{E)}		1.5 to 2.5	
Basement floor and walls conforming to BS 8102:2009, Grade 2 waterproofing ^{C) D)}	2	Active positive pressurization by the creation of a blanket of external fresh air beneath the building floor slab by pumps supplying air to points across the central footprint of the building into a permeable layer, usually formed of a thin geocomposite blanket ^{E)}		1.5 to 2.5	
Basement floor and walls conforming to BS 8102:2009, Grade 3 waterproofing ^{C) D)}	2.5	Ventilated car park (floor slab of occupied part of the building under consideration is underlain by a basement or undercroft car park) ^{F)}		4	

Notes

A) The scores are conditional on breaches of floor slabs, etc., being effectively sealed

C) The score is conditional on the waterproofing being provided by a suitable structural barrier with the design and detailing of the walls and floor meeting the requirements for Type B protection. The score cannot be assigned for Type A (waterproof membrane) or Type C (drained cavity wall).

E) Refer to BS 8485:2015 Annex B to determine performance and assign score

Building Types

Type A

Private ownership with no building management controls on alterations to the internal structure, the use of rooms, the ventilation of rooms or the structural fabric of the building. Some small rooms present. Probably conventional building construction (rather than civil engineering). Examples include private housing and some retail premises.

FOR TYPE A BUILDINGS ACTIVE VENTILATION MEASURES ARE INAPPROPRIATE

Type B

Private or commercial property with central building management control of any alterations to the building or its uses but limited or no central building management control of the maintenance of the building, including the gas protection measures. Multiple occupancy. Small to medium size rooms with passive ventilation of rooms and other internal spaces throughout ground floor and basement areas. May be conventional building or civil engineering construction. Examples include managed apartments, multiple occupancy offices, some retail premises and parts of some public buildings (such as schools, hospitals, leisure centres) and parts of hotels.

B) To achieve a score of 1.5 the raft or suspended slab should be well reinforced to control cracking and have minimal penetrations cast in

D) If a membrane is installed beneath and around the basement to provide Type A waterproofing (BS 8102:2009), it can be assigned a gas protection score in accordance with Table 7, if it meets all the criteria for a gas resistant membrane in that table

F) Assumes that the car park is vented to deal with car exhaust fumes, designed to Buildings Regulations 2000, Approved Document F

Type C

Commercial building with central building management control of any alterations to the building or its uses and central building management control of the maintenance of the building, including the gas protection measures. Single occupancy of ground floor and basement areas. Small to large size rooms with active ventilation or good passive ventilation of all rooms and other internal spaces throughout ground floor and basement areas. Probably civil engineering construction. Examples include offices, some retail premises, and parts of some public buildings (such as schools, hospitals, leisure centres and parts of hotels).

Type D

Industrial style building having large volume internal space(s) that are well ventilated. Corporate ownership with building management controls on alterations to the ground floor and basement areas of the building and on maintenance of ground gas protective measures. Probably civil engineering construction. Examples are retail park sales buildings, factory shop floor areas, warehouses. (Small rooms within these style buildings should be separately categorized as Type B or Type C).

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