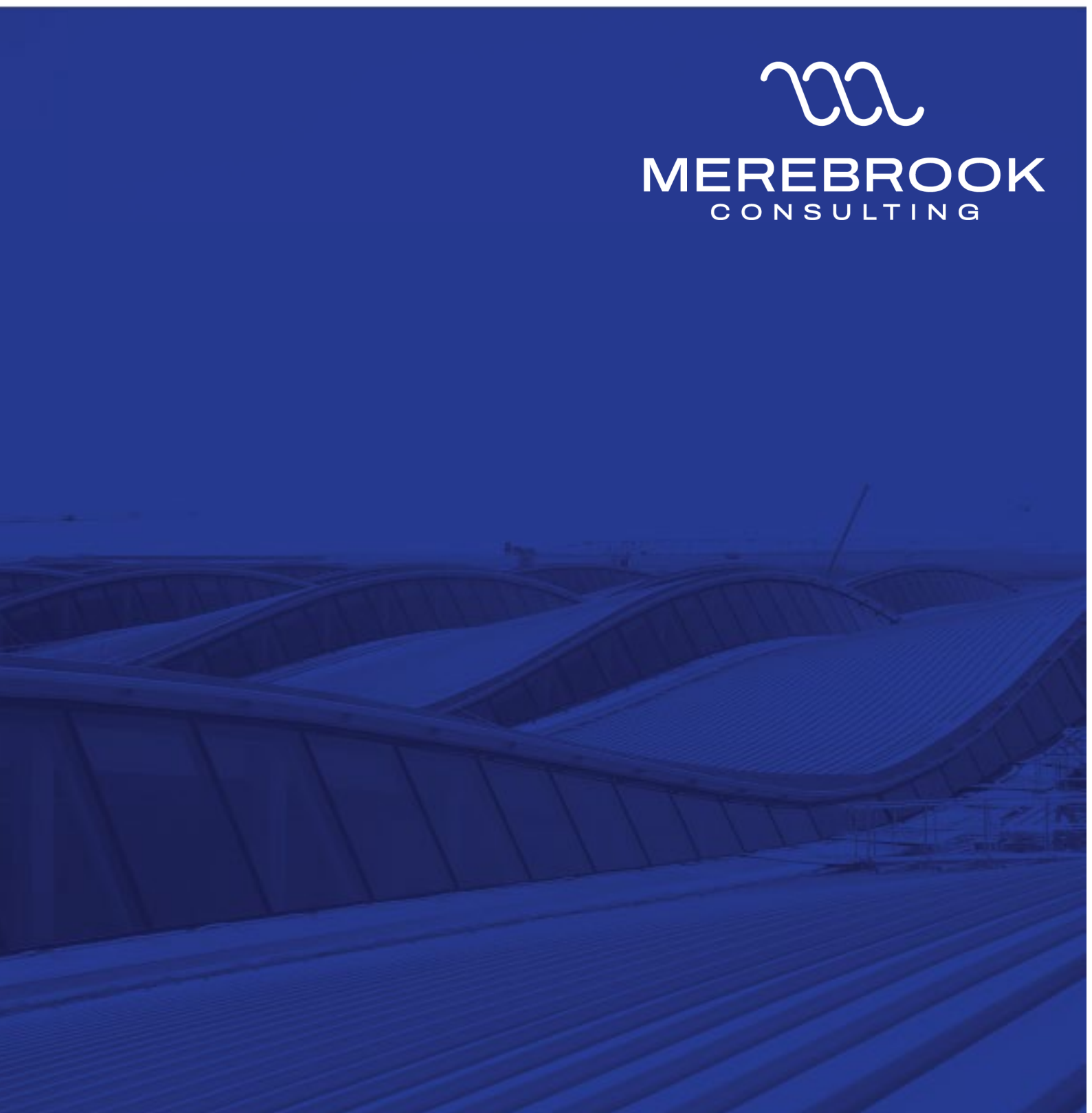


**SUPPLEMENTARY GEOENVIRONMENTAL ASSESSMENT
IMBERHORNE LANE (REST OF SITE)
EAST GRINSTEAD
VISTRY
GEA-21949BA-25-15
MARCH 2026**



MEREBROOK
CONSULTING



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Prepared by		Approved by	
Thea James		Lisa Horsley CSci, FGS	
			
Tim Stempt BSc, MSc, FGS		Richard Lavery BSc (Hons) MSc CSci MEnvSc	
			

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EXECUTIVE SUMMARY

A 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 (Rest of Site), East Grinstead* which might impact on the sites redevelopment.

SITE DETAILS				
Approximate Area (ha)	Centred on OSGB Eastings, Northings	Previous Use(s)	Current Use	Proposed Use
88	537196 , 138692	Agricultural field	Agricultural field	Residential and care village

PHASE 1 NON-INTRUSIVE INVESTIGATION							
Geology			Groundwater Aquifer		Surface Water	Radon	Flood Risk
Made Ground	Superficial	Solid	Superficial	Solid			
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	A stream is present approximately 20 m west of the site	RnC1	Rivers and sea: Negligible Surface water: Very low but elevated on the north of the site and along Eden Brook Groundwater: Negligible

PHASE 2 INTRUSIVE INVESTIGATION					
Geology			Contamination		Waste Classification
Made Ground	Superficial	Solid	Source ► Pathway ► Receptor	Risk Rating	
Topsoil across site. No made ground within development area	None recorded on site. Potential alluvial deposits in vicinity of the stream west of site.	Tunbridge Wells Sand Formation	Significant contamination was not encountered.	VERY LOW	Non-Hazardous
			Significant ground gas 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 Tunbridge Wells Sand Formation		DS1 AC-2z	Recommended 4.0% used for preliminary design subject to on-site testing	It is highly recommended that further testing is undertaken once the positions of the soakaways are determined. Borehole soakaways could also be explored as an alternative option, but these may prove ineffective based on the shallow groundwater conditions.	

RECOMMENDATIONS		
Remediation	Waste / Re-use	Geotechnical
No remediation for the protection of human health required. No ground gas protection measures are required. Further assessment required to address risks to health from future usage of the southeastern landfill land parcel as public open space.	Natural as-dug arisings (excluding topsoil) can be classed as inert waste without the requirement for WAC testing. 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.	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. Targeted investigations recommended if higher loadings are required for larger buildings such as the proposed primary school.

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 the *Remaining Areas*.
- 1.2 A site location plan (Ref 21949ba-304-001) is presented in Appendix 1 showing the intrusive investigation locations and the position of the *Remaining Areas* 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 the *Remaining Areas* is for residential houses and a Care Village. The exact layout and number of houses is yet to be determined.
- 1.4 Merebrook Consulting Limited has been commissioned by Vistry to undertake supplementary site investigation works and to advise on the geo-environmental implications of the 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 Merebrook 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 Merebrook Consulting 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 the Remaining Areas Parcel has been incorporated into a revised desk study for the Remaining Areas Parcel below.
- 2.1.2 Merebrook Consulting have also issued updated desk studies incorporated within Geo-environmental Assessment Reports for the Land Parcels A and B (ref: GEA-21949ba-25-14 and GEA-21949ba-25-18 respectively).

2.2 SITE SETTING

- 2.2.1 Merebrook Consulting 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 in use as agricultural land since at least 1874 with no significant changes throughout that time.
- 2.2.2 The site occupies an area of approximately 88 hectares located at National Grid Reference 537196, 138692.
- 2.2.3 The surrounding area north of the site comprises arable fields with an industrial estate and a school academy beyond. The north western portion of site is bound to the north by the Fellbridge Water stream. East of the site lies arable fields with residential dwellings beyond. South of the site lies a tarmac track with several workshops, a farm and agricultural fields beyond and west of the site lies further arable fields. The site generally dipped down to the north with a change in elevation over the site of 20m.
- 2.2.4 An off-site water feature (known as Weir Wood Reservoir Eutrophic Lake) was indicated in the desk study which is approximately 50 m south and upstream of the site. The outflow from the Lake is a stream (Eden Brook) which runs north-south across the east of the site and flows northwards. Parcel A is also located proximal to Eden Brook.
- 2.2.5 Given the nature of the historical mapping process (scale, representation of conditions at discrete time intervals frequency *etc.*), any such maps and plans may not provide a comprehensive account of a site's history. Identification of pertinent land uses and associated potentially contaminative activities, may therefore be absent from mapping records.

2.3 GEOLOGY

- 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 is in turn underlain by Grinstead Clay Member (mudstone). It was noted that Alluvial deposits may be present in the vicinity of the stream west of the site.

2.4 HYDROGEOLOGY

2.4.1 The Tunbridge Wells Sand Formation is classified as a Secondary A Aquifer and the underlying Grinstead Clay Member is an unproductive stratum.

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

2.5 HYDROLOGY

2.5.1 Surface water features are present in the form of a stream on site and a lake 20m south of site. The nearest surface water abstraction is 420m northwest.

2.5.2 The site is not indicated to be in an area benefitting from flood defences. Historical flood events are not indicated to have occurred on the site.

2.5.3 Environment Agency Flood Zone information is used within the planning system to help determine whether flood risk assessments are required for development. Flood Zones do not take into account any flood defences. The site is designated as Flood Zone 1.

2.5.4 The risk of surface water flooding across the majority of the remaining area parcel is considered to be very low with 1 in 1000 year chance of flooding. However isolated low areas within the parcel and along Eden Brook were at risk of up to 1 in 30 year risks of flooding. This is particularly true along the northernmost boundary however it is important to note that these areas of the site have proposed uses as a school playing field and public open space and no new structures are proposed in these areas of the site. An excerpt of the surface water flood risk mapping is presented in Figure 1 below.

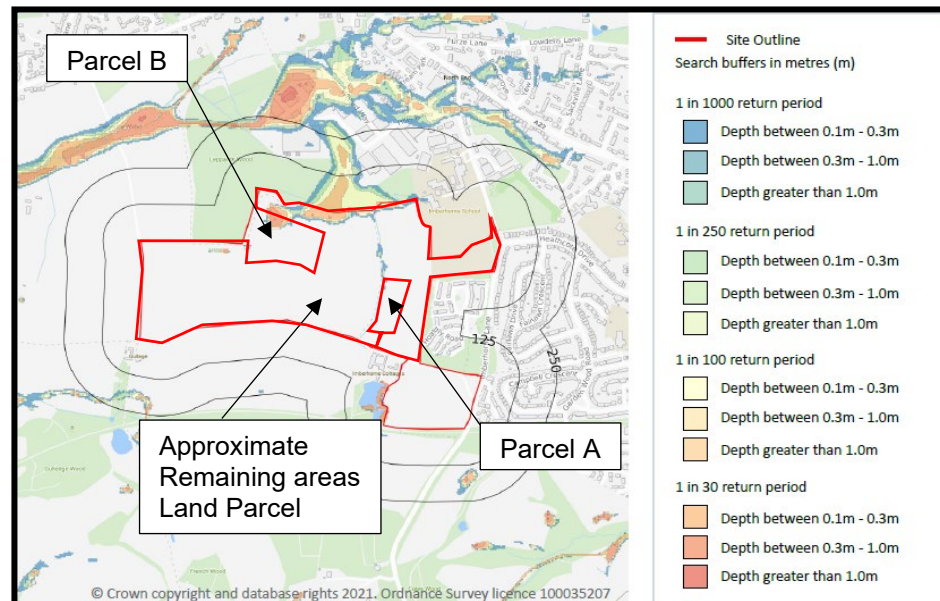


Figure 1- An excerpt from the Groundsure Report highlighting the surface water flood risk on the Remaining Areas Parcel

- 2.5.5 The risk of groundwater flooding is considered to be negligible.
- 2.5.6 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.
- 2.6 **OTHER POTENTIALLY CONTAMINATIVE USES**
- 2.6.1 Potentially significant environmental issues have been investigated within relevant distances of the Remaining Areas, based on the desk study conducted by Campbell Reith.
- 2.6.2 Two historical landfills are located on site, one on the southern boundary to the west of Eden Brook and the other in the southeastern field. A further landfill was located off site approximately 20 m south west of site. Each of the historical landfills were recorded to have received inert waste material and their licenses were surrendered in 1980. The position of the landfills identified by the desk study are indicated in Figure 2 below.

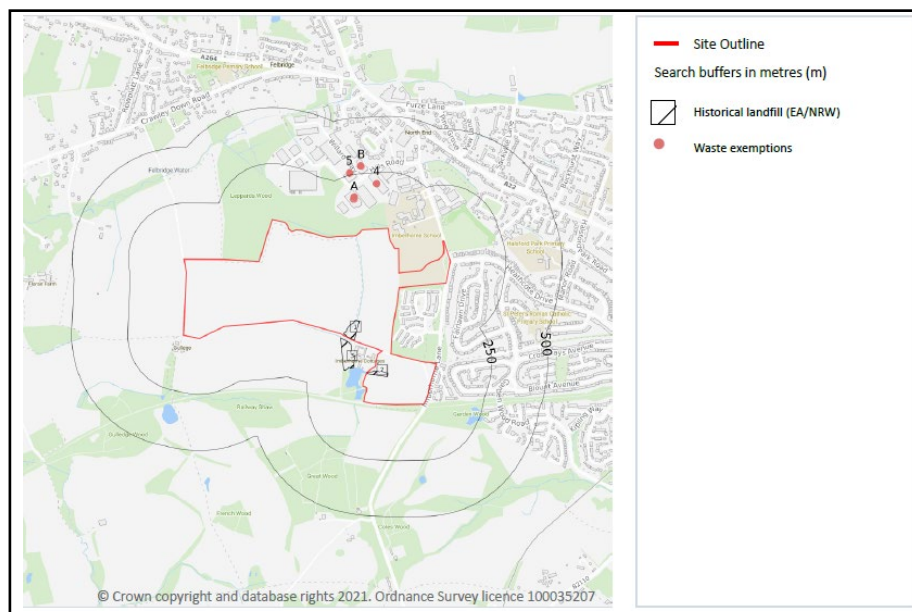


Figure 2: Extract from the Groundsure report included within the Campbell Reith desk study.

- 2.6.3 The north and northwestern boundaries of the site are adjacent to designated Ancient replanted Woodland named The Birches.
- 2.6.4 A vehicle repair, testing and service centre located approximately 50 m south of the site.
- 2.6.5 No water discharge, pollution incidents or statutory authorisations were identified within relevant distances of the site.
- 2.6.6 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.
- 2.7 **RADON**
 - 2.7.1 Merebrook Consulting 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.
- 2.8 **PREVIOUS INTRUSIVE INVESTIGATIONS**
 - 2.8.1 A Phase 2 Ground Investigation was undertaken for the wider site by Omnia (Ref: A118987/1.1) in December 2022.

- 2.8.2 The investigation conducted within the Remaining Areas comprised the following scope of work:
- i.* Eighteen machine-dug trial holes (TP201 – TP203 and TP208 – TP222) to depths of between 1.13 and 1.72 m bgl;
 - ii.* Fifteen Windowless Samples (WS201 – WS215), and;
 - iii.* Eight Dynamic Cone Penetrometer tests (CBR202 - CBR209).
- 2.8.3 Topsoil was encountered at thickness levels between 0.32 m and 0.40 m. Topsoil comprised dark brown gravelly clayey sand with gravels comprised of quartzite. The Tunbridge Wells Sand Formation was encountered at depths between 0.32 and 0.40 m bgl consisting of grey and dark clayey sand, gravelly sand and silty sand with gravels comprising siltstone and sandstone. The base of each trial pit met with refusal at depths between 1.13 and 1.72 m bgl.
- 2.8.4 Within the Omnia investigation, two trial pits (TP208 and TP209) were excavated into an inert landfill pocket in the south of the site, adjacent to Eden Brook. These found made ground to extend to 1.50m bgl. The Made Ground comprised sand and clay containing sandstone, brick concrete, cement and metal. No putrescible materials were recorded within this made ground.
- 2.8.5 Within the Remaining Areas land parcel, three topsoil samples were collected from exploratory hole locations TP201, TP215 and TP220, and were submitted for chemical analysis by Omnia and analysed against risk-based criteria protective of a residential development where the consumption of homegrown produce is expected. No exceedances of the applicable screening criteria were encountered in the topsoil samples.
- 2.8.6 Six soil samples were also collected from the wider site and did not identify the presence of asbestos. These also recorded no exceedances when screened against residential with homegrown produce land use scenario.
- 2.8.7 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.
- 2.8.8 A Ground Investigation was also undertaken by Harrison Group Environmental Limited and was included in the Campbell Reith Desk Study.

- 2.8.9 The ground investigation undertaken comprised:
- i.* 8no. dynamic continuous sampling holes (maximum depth 5.45m bgl);
 - ii.* 7no. ground gas and groundwater monitoring installations;
 - iii.* 15no. trial pits (maximum depth 3.20m bgl);
 - iv.* 3no. dynamic continuous penetration tests (maximum depth 1.00m bgl);
 - v.* 32no. in-situ standard penetration tests;
 - vi.* 23no. hand shear vanes.
- 2.8.10 Three monitoring visits were made to the site to measure groundwater levels and gas concentrations of carbon dioxide and oxygen with Volatile Organic Compound measurements being taken on the same visits using a PID meter.
- 2.8.11 Exceedances of a number of determinants were identified in the Harrison 2021 investigation either within or in close proximity to the southeastern historical landfill. The identified exceedances were of:
- i.* Asbestos
 - ii.* Beryllium
 - iii.* Lead
 - iv.* Benzo(a)anthracene
 - v.* Benzo(b)fluoranthene
 - vi.* Benzo(a)pyrene
 - vii.* Dibenzo(a,h)anthracene
- 2.8.12 The inert landfill pocket in the southeastern corner of the site was investigated. A total of nine intrusive locations were placed into this area of landfill in the historical investigations. These include (TP201, WS201 and WS203) as a part of the omnia investigation and (TP02, TP03, WS01, WS02, WS04 and TP15) undertaken by Harrison Group Environmental.
- 2.8.13 These eight investigation locations revealed the thickness of landfill to range to depths of between 1.60 and 2.70 m bgl. The made ground was found to include brick concrete, metal, glass, ceramic, sandstone, paper, ash, clinker, decomposing wood and wood fragments, hair, rubber, leather, shoes, paint cans, newspaper, plastic and slag and was stated to have a distinct organic odour. Clay-rich made ground was encountered at surface and clay rich soils were encountered beneath the made ground in all locations, suggesting that the landfill was constructed with a basal seal and a capping seal. Photographs of the landfill material are enclosed in the Harrison group environmental desk study appended within the desk study by Campbell Reith. No other visual or olfactory evidence of contamination was identified.
- 2.8.14 Asbestos was encountered within two locations within the south eastern landfill (WS01 at 1.50m bgl: 0.055% chrysotile; and TP02 at 0.70m bgl: <0.001% chrysotile). The first was quantified as hard/cement type material. The second was loose fibres of chrysotile.

- 2.8.15 Groundwater strikes were also recorded within the landfill materials on the southwest of the site.
- 2.8.16 Groundwater strikes were recorded within the Harrison Ground Environmental Report to range between 1.0 and 4.0 m bgl across the site.
- 2.8.17 All identified contaminants listed above were restricted to the south-eastern landfill. If the development proposal is changed within this area of the site, then this landfill would require further targeted investigation and updated risk assessment.
- 2.8.18 It is important to note that no structures are proposed in this southeastern field and this field lies outside of the area investigated under this GEA. The only development proposal in the southeastern landfill area is understood to be a footpath and an access road. This southeastern landfill area is therefore being treated in the context of future usage a public open space and is effectively an off-site source for the purposes of ground gas risk assessment for future human receptors on the main site.

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 8. 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

		MAGNITUDE OF POTENTIAL CONSEQUENCE (SEVERITY) OF RISK			
		SEVERE	MEDIUM	MILD	MINOR
	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 With the exception of the southeastern landfill area (which will be public open space) no specific on-site sources of contamination have been identified by the desk study. The previous investigations are 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. 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 It is acknowledged that there is contamination associated with the southeastern landfill and an assessment of the risks to the development in a public open space usage scenario will be required in due course. No further data has been obtained on the southeastern landfill as part of this investigation and this risk assessment does not cover the former landfill area.

3.2.3 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.

3.2.4 The risk to water supply pipes is considered to be low as minimal contamination has been identified but again, allowing for uncertainty.

3.2.5 The risk to adjacent site users is considered to be very low as dust suppression measures should be employed by any competent contractors.

3.2.6 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.

3.2.7 The risk to surface waters is considered to be moderate / low with Eden Brook immediately west 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.

3.2.8 The risk 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.

3.2.9 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
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

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
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 Asbestos has been identified within made ground in the south eastern landfilled field and should be subject to further assessment in due course.
- 3.3.2 The presence of asbestos on the wider 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 to moderate / low.
- 3.3.3 Table 3 below summarises the level of risk assigned to each receptor from asbestos contamination of soils:

Table 3: Risks from soil contamination (asbestos) (excluding southeastern landfilled area)

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 The two on-site and one off-site historic landfills identified are potential sources of ground gas generation, with up to 2.20 m of made ground expected. These landfills are not within the footprint of the proposed development, however there is potentially permeable strata between the development area and the landfills. The licences for these landfills were surrendered by 1980 and it is unlikely that there would be sufficient driving force for lateral flow, so any gas generation would likely be constricted to this area.

3.5.2 Natural strata are not expected to be significantly gas-generating.

3.5.3 The risk of hazardous gas to present site users is considered to be very low as there are no confined spaces on site that gas may collect. Similarly, the risk to construction workers is very low as confined spaces would be under construction. The greatest risk for gas is considered to be the future residents. The risk to adjacent site users from site-derived soil gas is low as it is unlikely that there would be sufficient driving force for lateral flow.

3.5.4 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	unlikely	minor	VERY LOW
Residents of future development		low likelihood	severe	MODERATE

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
Construction workers	foundations / utility trenches / service penetrations. Outdoor inhalation in confined excavations.	low likelihood	minor	VERY LOW
Adjacent site users		low likelihood	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.	unlikely	mild	VERY LOW
Residents of future development		unlikely	mild	VERY LOW
Construction workers		unlikely	mild	VERY LOW

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
Adjacent site users / general public	Outdoor inhalation in confined excavations / localised spills.	unlikely	mild	VERY LOW

3.7 RADON

3.7.1 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).

3.7.2 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

SECTION 4 COMBINED CSM AND RISK ASSESSMENT

4.1 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	MODERATE	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 5 SITE INVESTIGATION RATIONALE

5.1 INTRODUCTION

- 5.1.1 After reviewing the desk study and existing site investigation data Merebrook designed a supplementary site investigation to obtain additional environmental and geotechnical data in order to reduce uncertainty.
- 5.1.2 The southeastern field containing the known landfill was not incorporated into the site investigation scope as no development is proposed within this area of the site, due to the presence of the landfill. With regard to ground gas and groundwater risks, the landfill itself is being considered as an off-site source and groundwater and gas monitoring wells have been placed strategically to assess the risk from this landfill. Further assessment of the landfill will be required in due course in the context of health risks associated with it's future use as public open space.
- 5.1.3 Intrusive sampling locations were chosen on the basis of providing broad spatial coverage of the central area of the site as no obvious features suggesting contaminative use were identified in this area which required targeted investigation.

5.2 SITE INVESTIGATION METHODS

- 5.2.1 An intrusive investigation was carried out by Merebrook Consulting between the 9 and 16 December 2024 comprising the following scope of work:
- i.* Eighteen shallow windowless sample probe holes (MWS101 to MWS118) to a maximum depth of 3.50 m bgl; and
 - ii.* Four machine-dug trial holes (MTP101 to MTP104) to a maximum depth of 1.10 m bgl.
- 5.2.2 Exploratory hole locations are indicated on drawing 21949ba-304-001 in Appendix 1. Logging of exploratory holes was undertaken by an Merebrook Officer. Exploratory hole logs are contained in Appendix 3.
- 5.2.3 Standard Penetration Tests (SPTs) were performed at approximate 1 metre intervals. The tests involved driving a steel cone tipped series of rods into the ground over a distance of 450 mm using the repeated blows of a 63.5 kg weight allowed to free fall over a distance of 760 mm. The total number of blows required for the final 300 mm penetration (the 'N' value) is recorded on the window sample logs.
- 5.2.4 Details of monitoring installations in boreholes 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
MWS102	0.55	1.00	Tunbridge Wells Sand Formation
MWS104	1.00	2.00	Tunbridge Wells Sand Formation
MWS106	0.60	1.60	Tunbridge Wells Sand Formation
MWS108	1.00	2.00	Tunbridge Wells Sand Formation
MWS112	0.45	1.40	Tunbridge Wells Sand Formation
MWS116	1.00	2.00	Tunbridge Wells Sand Formation
MWS117	0.40	1.40	Tunbridge Wells Sand Formation
MWS118	0.35	2.40	Tunbridge Wells Sand Formation

- 5.2.5 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.
- 5.2.6 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 6 GROUND CONDITIONS

6.1 SUMMARY

- 6.1.1 At the time of the investigation the site comprised an agricultural field. The surface was covered by sparse crop vegetation.
- 6.1.2 Exploratory hole locations encountered topsoil over Tunbridge Wells Sand Formation which was consistent with the published BGS records.
- 6.1.3 A summary of the ground conditions encountered is presented in Table 11, whilst a more detailed assessment of the strata is contained in the following sections of the report.

Table 11: Summary of sub-surface ground conditions

Strata	Depth to Top of Range (m bgl)	Thickness Range (m)
Topsoil	Surface level	0.20 – 0.75
Tunbridge Wells Sand Formation	0.20 – 0.75	> 0.25 – > 3.05

6.2 TOPSOIL

6.2.1 Topsoil was encountered in all exploratory holes. The topsoil was typically described as very soft brown sandy clay / gravelly sandy clay with gravels of flint. Rare inclusions of brick were encountered in the topsoil in MWS103.

6.2.2 No visual or olfactory evidence of contamination was encountered in the topsoil.

6.2.3 No perched groundwater was encountered within the topsoil.

6.3 TUNBRIDGE WELLS SAND FORMATION

6.3.1 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.

6.3.2 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.

6.3.3 One groundwater strike was recorded within the Tunbridge Wells Sand Formation within MWS118 at 2.00 m bgl.

6.3.4 No visual or olfactory evidence of contamination was encountered in the Tunbridge Wells Sand Formation.

6.3.5 SPTs undertaken within the Tunbridge Wells Sand Formation recorded 'N' values ranging from 6 to 50 (refusal), two low strength areas were noted across the site within cohesive soils that recorded SPT 'N' blow counts ranging between 6 and 8 in locations (MWS106 and MWS118). MWS118 was close to the inert landfill on the south of the site and proximal to Eden Brook. MWS106 was located in northwest of the site. The remaining locations recorded SPT 'N' blow counts of between 9 and 50 indicative of medium to very high strength ground conditions.

6.3.6 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.

6.3.7 A total of 12 Atterberg plasticity limits tests were undertaken across the Remaining Areas Parcel and recorded modified plasticity indices of between 8 and 18

classifying the soils as non-shrinkable to low volume change potential in accordance with NHBC Standards 2025.

- 6.3.8 Two 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: 1 - 5%

Sand: 2 - 10%

Fines (clay/silt): 85 - 97%

SECTION 7 PRELIMINARY GEOTECHNICAL RECOMMENDATIONS

7.1 FOUNDATIONS

- 7.1.1 The proposed development for Remaining Area Parcel comprises residential housing as well as the local centre, care village, primary school and playing field. The exact layout and number of houses is yet to be determined.
- 7.1.2 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 1.40 m bgl in MWS106.
- 7.1.3 Beneath the cohesive upper layer of the Tunbridge Wells Sand Formation, sandstone and siltstone were encountered. All trial holes met refusal by 3.50 m bgl with most reaching refusal by 2.0 m bgl, SPTs typically recorded 'N' values between 9 and 50 indicative of medium to very high strength ground conditions. Notable exceptions to that were MWS118 and MWS106 which were indicated to be low strength at 1.0 m bgl. The Tunbridge Wells Sand Formation is considered to be a suitable founding stratum.
- 7.1.4 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 particularly in locations around MWS118 and MWS106.
- 7.1.5 Furthermore, foundations must not be cast within made ground, such as the inert landfill on the south of the site and foundations must be extended deeper in these locations into the natural Tunbridge Wells Sand Formation.

- 7.1.6 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.
- 7.1.7 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 the soft clay soils near surface would be bypassed.
- 7.1.8 Buildings such as the care site and primary school may require higher loadings than provided above. Once the positions are determined, targeted investigations would be recommended to advise on suitable foundation solutions for the proposals.

7.2 EXCAVATIONS AND GROUNDWATER

- 7.2.1 Excavations across the remaining areas land parcel were noted to be marginally stable. Groundwater was only encountered in MWS118 but was encountered in other parcels within the site and previous investigations and therefore dewatering of deeper excavation trenches should be allowed for.

7.3 FLOOR SLABS

- 7.3.1 Atterberg plasticity limits tests classified the Tunbridge Wells Sand Formation as non-shrinkable to low volume change potential. Suspended floor slabs should therefore be used.

7.4 BURIED CONCRETE

- 7.4.1 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 the remaining areas parcel.
- 7.4.2 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.
- 7.4.3 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.
- 7.4.4 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.

7.5 ROADS AND PAVED AREAS

- 7.5.1 No CBR tests were undertaken as a part of the investigation on the remaining areas parcel of the site, however CBR tests were undertaken on Parcel A and B. From the tests on Parcels A and B, a preliminary design value of 4% would be recommended with *in situ* testing to be undertaken prior to finalising the design.

7.6 SOAKAWAYS

- 7.6.1 Infiltration tests were undertaken in a total of four locations (MSP101-MSP104). Of the four locations, three were not suitable as a drainage stratum remaining static after initial settlement.
- 7.6.2 One location (MSP101) was effective in draining and recorded infiltration rates of between 1.53 and 2.25×10^{-5} m/s. The ground conditions were noted to predominantly comprise a slightly sandy silt and it may therefore be the case that this one test was within an isolated pocket of sand that would not continue to drain in the long term.
- 7.6.3 It is highly recommended that further testing is undertaken once the positions of the soakaways are determined. Borehole soakaways could also be explored as an alternative option, but these may prove ineffective based on the shallow groundwater conditions.

SECTION 8 ENVIRONMENTAL ASSESSMENT – SOIL QUALITY

8.1 RESULTS

- 8.1.1 A total of 15 soil samples were submitted to the laboratory for chemical analysis from within topsoil. The laboratory chemical analysis certificates are contained in Appendix 4. The results of the analysis are summarised in Table 12 below.
- 8.1.2 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

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.

Level² has been used as this is based on updated toxicological data and a low risk to human health.

- 8.1.3 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 12: 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	15	ND	ND	Detected	0
pH	15	8.1	7.5	5 – 9	0
Arsenic	15	11.0	8.2	37	0
Barium	15	77.0	46.5	1300	0
Cadmium	15	0.4	0.3	11	0
Chromium (III)	15	35.0	20.7	910	0
Hexavalent Chromium	15	1.8	1.8	6	0
Lead	15	29.0	21.7	200	0
Mercury	15	0.3	0.3	40	0
Nickel	15	18.0	13.0	130	0
Selenium	15	1.2	1.0	250	0
Vanadium	15	43.0	27.1	410	0
TPH Aliphatic >EC ₅ - EC ₆	15	0.010	0.010	42	0
TPH Aliphatic >EC ₆ - EC ₈	15	0.010	0.010	100	0
TPH Aliphatic >EC ₈ - EC ₁₀	15	0.010	0.010	27	0
TPH Aliphatic >EC ₁₀ - EC ₁₂	15	1.00	1.00	130	0
TPH Aliphatic >EC ₁₂ - EC ₁₆	15	2.00	2.00	1100	0
TPH Aliphatic >EC ₁₆ - EC ₂₁	15	8.00	8.00	65000	0
TPH Aliphatic >EC ₂₁ - EC ₃₅	15	8.00	8.00	65000	0
TPH Aromatic >EC ₅ - EC ₇	15	0.010	0.010	70	0
TPH Aromatic >EC ₇ - EC ₈	15	0.010	0.010	130	0
TPH Aromatic >EC ₈ - EC ₁₀	15	0.020	0.020	34	0
TPH Aromatic >EC ₁₀ - EC ₁₂	15	1.20	1.01	74	0
TPH Aromatic >EC ₁₂ - EC ₁₆	15	2.00	2.00	140	0
TPH Aromatic >EC ₁₆ - EC ₂₁	15	10.00	10.00	260	0
TPH Aromatic >EC ₂₁ - EC ₃₅	15	10.00	10.00	1100	0
Benzene	15	0.005	0.005	0.087	0
Toluene	15	0.005	0.005	130	0
Ethylbenzene	15	0.005	0.005	47	0
Xylene	15	0.013	0.013	56	0

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*
Naphthalene	15	1.30	0.38	2.3	0
Acenaphthylene	15	0.13	0.07	170	0
Acenaphthene	15	0.06	0.05	210	0
Fluorene	15	0.09	0.06	170	0
Phenanthrene	15	0.21	0.09	95	0
Anthracene	15	0.05	0.05	2400	0
Fluoranthene	15	0.19	0.06	280	0
Pyrene	15	0.14	0.06	620	0
Benzo(a)anthracene	15	0.05	0.05	7.2	0
Chrysene	15	0.05	0.05	15	0
Benzo(b)fluoranthene	15	0.05	0.05	2.6	0
Benzo(k)fluoranthene	15	0.05	0.05	77	0
Benzo(a)pyrene	15	0.05	0.05	2.2	0
Indeno(1,2,3-c,d)pyrene	15	0.05	0.05	27	0
Dibenzo(a,h)anthracene	15	0.05	0.05	0.24	0
Benzo(g,h,i)perylene	15	0.05	0.05	320	0
PHYTOTOXICITY RISK ASSESSMENT					
Copper	15	20.0	13.2	200	0
Nickel	15	18.0	13.0	110	0
Zinc	15	55.0	42.1	300	0

Notes: * Number of samples exceeding screening level

nd = not detected

8.1.4 No exceedances of zootoxic metals, phytotoxic metals, organic contaminants or inorganic contaminants were found.

SECTION 9 ENVIRONMENTAL ASSESSMENT – GROUNDWATER QUALITY

9.1 RESULTS

9.1.1 Groundwater was encountered during drilling and excavation at one location (MWS118) at 2.00 m bgl. This was within the Tunbridge Wells Sand Formation.

9.1.2 During subsequent monitoring, standing groundwater was found at levels between 0.25 m and 3.0 m bgl with sufficient volumes of water to enable sampling.

9.1.3 Three samples (MWS106, MWS108 and MWS116) 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 13.

Table 13: Summary of groundwater chemical analysis results

Contaminant	Units	Max	Mean	No. Tests	Screen Level (SL)	No. > SL
pH	-	7.4	7.4	2	6.5**	0
Arsenic	µg.l ⁻¹	0.33	0.24	3	10	0
Cadmium	µg.l ⁻¹	0.06	0.03	3	5	0
Chromium (total)	µg.l ⁻¹	0.2	<0.2	3	50	0
Copper	µg.l ⁻¹	4.6	4.13	3	2000	0
Lead	µg.l ⁻¹	<0.2	<0.2	3	10	0
Mercury	µg.l ⁻¹	<0.05	<0.05	3	1	0
Nickel	µg.l ⁻¹	9.1	4.93	3	20	0
Selenium	µg.l ⁻¹	0.7	0.63	3	10	0
Zinc	µg.l ⁻¹	3.8	2.73	3	5000	0
Cyanide	µg.l ⁻¹	<10	<10	3	50	0
Sulphate	mg.l ⁻¹	53.9	30.2	3	250	0
TPH	µg.l ⁻¹	<10	<10	3	10	0
BTEX	µg.l ⁻¹	<3.0	<3.0	3	-	0
PAH (total)	µg.l ⁻¹	<0.16	<0.016	3	-	0
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	-	0
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

9.2 DISCUSSION

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

SECTION 10 ENVIRONMENTAL ASSESSMENT - HAZARDOUS GAS

10.1 RESULTS

10.1.1 Gas monitoring has been undertaken on six occasions (18 December 2024, 8 January, 29 January, 7 February, 27 February and 6 March 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. Groundwater levels were also recorded and flooded response zones have been highlighted in the data tables below where data is not considered to be representative.

10.1.2 The full results are presented in Appendix 9 and a summary of key readings for each strata monitored are presented in Table 14.

Table 14: Summary of hazardous gas monitoring data with all or part of response zone within the Tunbridge Wells Sand Formation

Monitoring Well Reference				MWS102		
Top of Response Zone (m bgl)				0.55		
Bottom of Response Zone (m bgl)				1.00		
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	997	0.0	0.0	0.0	2.4	Dry
2	998	0.0	0.0	0.0	2.8	DRY
3	992	0.0	0.0	0.0	1.1	0.80
4	1006	0.0	0.0	0.0	1.0	0.85
5	1017	-1.2	-1.3	0.0	0.5	1.10
6	1008	0.0	0.0	0.0	0.8	DRY

Monitoring Well Reference				MWS104		
Top of Response Zone (m bgl)				1.00		
Bottom of Response Zone (m bgl)				2.00		
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	997	0.0	0.0	0.0	0.6	1.84
2	1002	0.0	0.0	0.0	0.8	1.82
3	992	0.0	0.0	0.0	1.1	DRY
4	1007	0.0	0.0	0.0	1.3	DRY
5	1008	0.0	0.0	0.0	0.8	3.00
6	1008	0.0	0.0	0.0	0.4	1.89

Monitoring Well Reference				MWS106		
Top of Response Zone (m bgl)				0.60		
Bottom of Response Zone (m bgl)				1.60		
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	0.94
2	1002	0.0	0.0	0.0	1.1	0.90
3	992	0.0	0.0	0.0	0.2	1.18
4	1008	0.0	0.0	0.0	0.4	1.35

5	1010	0.0	0.0	0.0	0.5	Dry
6	1008	0.0	0.0	0.0	0.5	1.85

Monitoring Well Reference				MWS108		
Top of Response Zone (m bgl)				1.00		
Bottom of Response Zone (m bgl)				2.00		
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	997	0.0	0.0	0.0	0.5	0.98
2	1002	0.0	0.0	0.0	0.7	0.25
3	992	0.0	0.0	0.0	0.3	DRY
4	1007	0.0	0.0	0.0	0.6	DRY
5	1009	0.0	0.0	0.0	0.5	1.96
6	1008	0.0	0.0	0.0	0.2	DRY

* Response zone flooded

Monitoring Well Reference				MWS112		
Top of Response Zone (m bgl)				0.45		
Bottom of Response Zone (m bgl)				1.40		
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	0.8	Dry
2	1001	0.0	0.0	0.0	0.9	DRY
3	992	0.0	0.0	0.0	3.0	DRY
4	1006	0.0	0.0	0.0	3.1	DRY
5	1010	0.0	0.0	0.0	3.5	Dry
6	1008	0.0	0.0	0.0	3.4	DRY

Monitoring Well Reference				MWS116		
Top of Response Zone (m bgl)				1.00		
Bottom of Response Zone (m bgl)				2.00		
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	0.8	0.40
2	1000	0.0	0.0	0.0	0.5	0.50

3	-	-	-	-	-	0.80
4	-	-	-	-	-	0.30
5	1017	0.0	0.0	0.0	0.5	1.60
6	1008	0.0	0.0	0.0	1.1	0.62

* Response zone flooded

Monitoring Well Reference				MWS117		
Top of Response Zone (m bgl)				0.40		
Bottom of Response Zone (m bgl)				1.40		
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	0.8	0.62
2	999	0.0	0.0	0.0	1.3	0.45
3	992	0.0	0.0	0.0	2.3	0.64
4	1007	0.0	0.0	0.0	2.7	0.70
5	1017	-1.5	-1.6	0.0	1.2	1.15
6	1008	0.0	0.0	0.0	1.9	0.92

Monitoring Well Reference				MWS118		
Top of Response Zone (m bgl)				0.35		
Bottom of Response Zone (m bgl)				2.40		
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	1.4	1.02
2	999	0.0	0.0	0.0	1.6	0.90
3	992	0.0	0.0	0.0	3.7	1.12
4	1009	0.0	0.0	0.0	3.3	1.20
5	1017	-0.7	-0.8	0.0	4.2	1.60
6	1008	0.0	0.0	0.0	1.0	1.34

- 10.1.3 The response zones within MWS108 and MWS116 were inundated with water during the time of the first two monitoring visits, as well as the sixth monitoring for MWS116, are not considered to be representative. Only the data from the other boreholes are considered to be viable for further assessment.
- 10.1.4 The monitoring rounds were undertaken at barometric pressures ranging from 992 to 1017 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 4.2% v/v with a corresponding depleted oxygen concentration of 7.1 % v/v.

SECTION 11 ENVIRONMENTAL ASSESSMENT - VAPOUR

11.1 RESULTS

- 11.1.1 Vapour monitoring has been undertaken concurrently. 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.
- 11.1.2 VOC concentrations ranged from 0.0 to 1.4 ppm with the highest concentration recorded at MWS117. This is not considered to be indicative of contamination with volatile organic compounds.

SECTION 12 WASTE CLASSIFICATION, OFF-SITE DISPOSAL OR RE-USE

12.1 WASTE CLASSIFICATION

- 12.1.1 Solid chemical data demonstrates that the natural 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.
- 12.1.2 Materials, including waste soils which are not to be retained on site, should be removed and disposed of in accordance with all relevant statutes.
- 12.1.3 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.

SECTION 13 RE-USE CONSIDERATIONS

- 13.1.1 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.
- 13.1.2 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.

13.1.3 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.

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

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

SECTION 14 GENERIC QUANTITATIVE RISK ASSESSMENT (TIER 2)

14.1 INTRODUCTION

14.1.1 The Merebrook site investigation has not identified any potentially significant on-site contaminant sources.

14.1.2 The southeastern landfill is considered as a potential source of ground gas as waste materials are present with potentially permeable soils in between the landfill and the new dwellings. It is understood that no new structures are proposed on the southeastern landfill itself. Further assessment of the southeast landfill will be required in due course in the context of future usage a public open space.

14.1.3 The risk assessment has been updated with regard to the following receptors interpreted in accordance with the current government guidance on source-pathway-receptor risk assessment as set out in Section 3 above:

- 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;
- vii.* Controlled waters.

14.2 SOIL CONTAMINATION (HEAVY METALS AND HYDROCARBONS)

14.2.1 Significant contamination was not encountered during the investigation.

14.2.2 Table 15 below summarises the level of risk assigned to each receptor from soil contamination:

Table 15: 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	unlikely	minor	VERY LOW
		dermal exposure	unlikely	minor	VERY LOW
		ingestion of fruit / vegetables	unlikely	minor	VERY LOW
Construction workers		dust inhalation	unlikely	minor	VERY LOW
		direct ingestion	unlikely	minor	VERY LOW
		dermal exposure	unlikely	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
Protected habitat		dust deposition (demolition / construction phase)	unlikely	minor	VERY LOW
		direct ingestion (fauna feeding / drinking)	unlikely	minor	VERY LOW

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
	dermal exposure (fauna)	unlikely	minor	VERY LOW
	direct contact (flora)	unlikely	minor	VERY LOW
	groundwater flow to hydrologically connected habitat	unlikely	minor	VERY LOW
	surface water / sediment run-off	unlikely	minor	VERY LOW

14.3 SOIL CONTAMINATION (ASBESTOS)

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

14.3.2 Table 16 below summarises the level of risk assigned to each receptor from asbestos contamination:

Table 16: 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

14.4 CONTROLLED WATERS (GROUNDWATER)

14.4.1 No groundwater contamination was encountered during the investigation

14.4.2 Table 17 below summarises the level of risk to surface water receptors:

Table 17: 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

14.5 HAZARDOUS GAS

14.5.1 It is proposed to develop the site for residential use. The primary cause of soil gas entering a building is the pressure difference that exists between inside and outside the building: this tends to draw soil gas into the building from the ground below. Typically, soil gases can enter buildings through:

- i. gaps around service pipes;
- ii. cracks in walls below ground and floor slabs;
- iii. construction joints; and
- iv. wall cavities.

14.5.2 A potential source and pathway have been identified and therefore the soil gas regime at the site should be established through risk assessment in accordance with BS 8485:2015+A1:2019.

14.5.3 Borehole hazardous gas flow rates (Q_{hg}) for carbon dioxide and methane were calculated using the maximum concentration recorded during each monitoring event together with steady state values of gas flow.

14.5.4 Using the worst case carbon dioxide reading, the Q_{hg} for carbon dioxide is calculated as 0.0042 L.hr⁻¹. This corresponds with *Characteristic Situation 1, very low risk*.

14.5.5 The Q_{hg} values for methane and carbon dioxide across all monitoring events are presented in Table 18.

Table 18: Borehole hazardous gas flow rates for all monitoring events

Monitoring Standpipe Reference	Gas	Borehole Hazardous Gas Flow Rate Calculated Using Peak Concentration and Steady State Flow					
		Round 1 Q_{hg}	Round 2 Q_{hg}	Round 3 Q_{hg}	Round 4 Q_{hg}	Round 5 Q_{hg}	Round 6 Q_{hg}
MWS104	methane	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	carbon dioxide	0.0006	0.0008	0.0011	0.0013	0.0008	0.0004
MWS106	methane	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	carbon dioxide	-	-	0.0002	0.0004	0.0005	0.0005
MWS108	methane	-	-	0.0001	0.0001	0.0001	0.0001
	carbon dioxide	0.0005	0.0007	0.0003	0.0006	0.0005	0.0002
MWS112	methane	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	carbon dioxide	0.0008	0.0009	0.0030	0.0031	0.0035	0.0034
MWS116	methane	-	-	-	-	-	0.0001
	carbon dioxide	-	-	-	-	-	0.0011
MWS117	methane	0.0001	0.0001	0.0001	0.0001	-0.0016	0.0001
	carbon dioxide	0.0008	0.0013	0.0023	0.0027	-0.0192	0.0019
MWS118	methane	0.0001	0.0001	0.0001	0.0001	-0.0008	0.0001
	carbon dioxide	0.0014	0.0016	0.0037	0.0033	-0.0336	0.0010

MWS102	methane	0.0001	0.0001	0.0001	0.0001	-0.0013	0.0001
	carbon dioxide	0.0024	0.0028	0.0011	0.0010	-0.0065	0.0008

14.5.6 Table 19 below presents the Modified Wilson and Card Classifications and their corresponding hazard potentials as defined in BS 8485. The Modified Wilson and Card classification as presented in CIRIA C665 *Assessing risks posed by hazardous ground gases to buildings* instead defines this as the risk classification. The higher the classification the greater the risk posed by the presence of gas.

Table 19: Characteristic Situation and Risk

Characteristic Situation	Modified Wilson and Card Risk Classification
CS1	Very Low
CS2	Low
CS3	Moderate
CS4	Moderate to High
CS5	High
CS6	Very High

14.5.7 The risk classification for the site has been used to develop overall risk ratings for each identified receptor.

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 putrescible material 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

14.5.8 In summary, the ground gas regime on the site was classified as Characteristic Situation 1 (CS1) and no gas protection measures are required.

14.6 VAPOUR

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

14.6.2 Table 21 below 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 15 UPDATED COMBINED CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

15.1 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 (excluding the southeastern landfill parcel)

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	VERY LOW	VERY LOW			VERY LOW			VERY LOW
	DIRECT	DIRECT	INGESTION	VERY LOW	VERY LOW	VERY LOW						VERY LOW
	DIRECT	DIRECT	DERMAL EXPOSURE	VERY LOW	VERY LOW	VERY LOW						VERY LOW
	DIRECT	DIRECT	DIRECT CONTACT / UPTAKE				VERY LOW	VERY LOW				VERY LOW
	PLANT UPTAKE	GARDEN FRUIT AND VEGETABLES	INGESTION	VERY LOW	VERY LOW							
	INFILTRATION / LEACHING	GROUNDWATER FLOW	DIRECT								VERY LOW	VERY LOW
	RUNOFF	SURFACE WATER FLOW	DIRECT							VERY LOW		VERY LOW
MADE GROUND (ASBESTOS)	FIBRE RELEASE	AIR	INHALATION	VERY LOW	VERY LOW	VERY LOW			VERY LOW			
SOIL (PUTRESCIBLE)	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		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 16 DETAILED QUANTITATIVE RISK ASSESSMENT (TIER 3)

- 16.1 This investigation has not obtained any additional soil data from the southeastern landfill area. Further assessment will be required to address risks to health from future usage of this land parcel as public open space.

SECTION 17 PRELIMINARY REMEDIATION STRATEGY AND RECOMMENDATIONS

- 17.1 No significant soil contamination has been identified within the areas of site examined within this site investigation.
- 17.2 The ground gas risk assessment indicates ground gas protection measures are not required.
- 17.3 Given the presence of an adjacent 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.
- 17.4 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.
- 17.5 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.
- 17.6 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.
- 17.7 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.
- 17.8 Materials, including waste soils which are not to be retained on site, should be removed and disposed of in accordance with all relevant statutes.

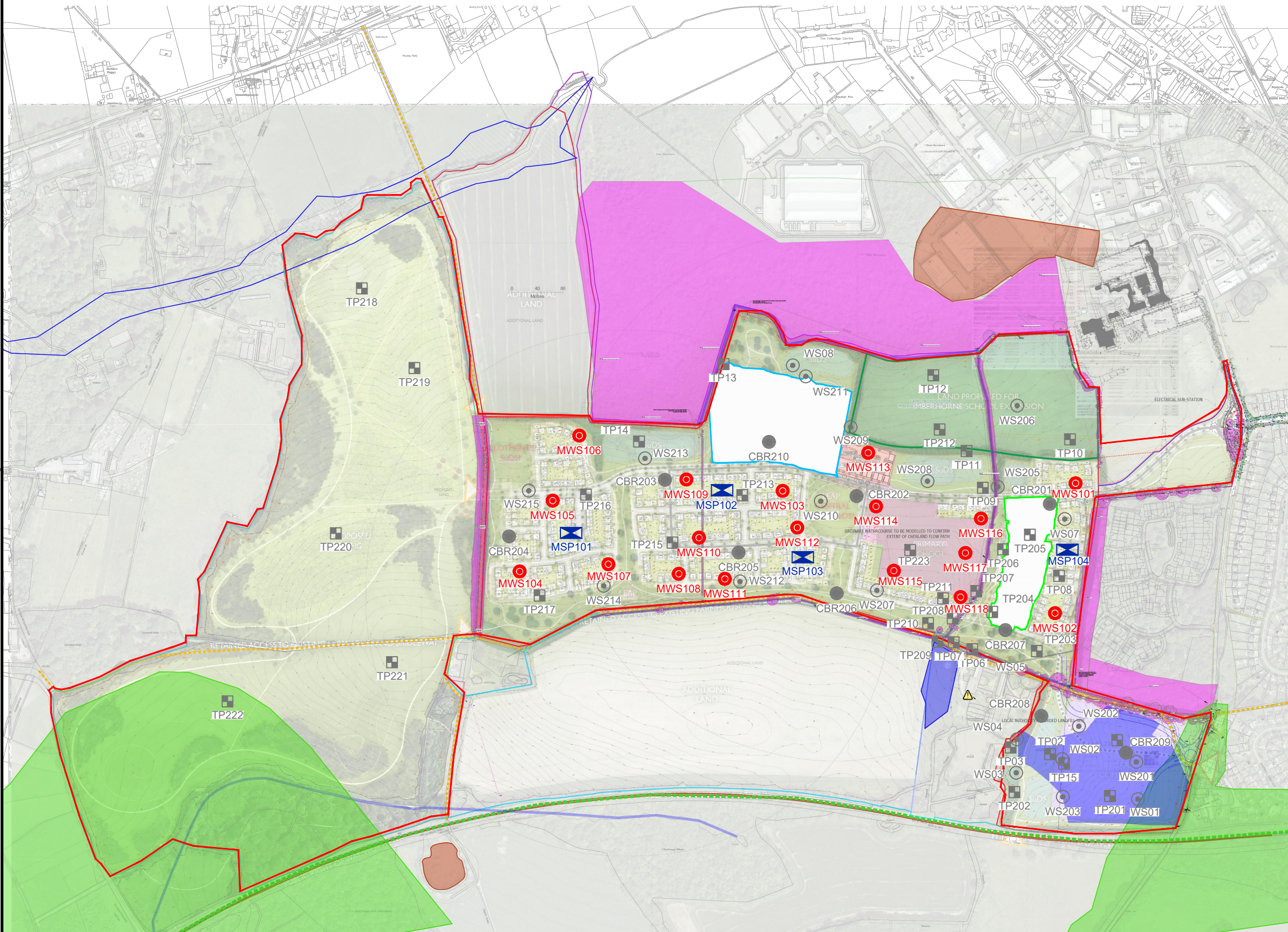
- 17.9 Further assessment will be required to address risks to health from future usage of the southeastern landfill land parcel as public open space.
- 17.10 It is recommended that this report is submitted to the regulators (Local Authority EHO and Planners, Environment Agency Planning Liaison and NHBC) for approval prior to commencement of the works.
- 17.11 Any observations of ground conditions atypical of those already described should be reported to Merebrook Consulting immediately so that an assessment of appropriate action can be made.

SECTION 18 CONCLUSIONS

- 18.1 The ground conditions were generally consistent with the published geology, with topsoil overlying Tunbridge Wells Sand Formation.
- 18.2 No significant contamination was identified during the investigation.
- 18.3 Hazardous ground gas/ vapours were found not to be of concern.
- 18.4 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).
- 18.5 An allowable bearing pressure has been provided for strip footings founded at a minimum depth of 0.9m within the Tunbridge Wells Sand Formation. Footings must be founded within the granular Tunbridge Wells Sand Formation.
- 18.6 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.
- 18.7 Targeted investigations recommended if higher loadings are required for larger buildings such as the proposed primary school.
- 18.8 Further assessment will be required to address risks to health from future usage of the southeastern landfill land parcel as public open space.

APPENDIX 1

- Site Location Plan
- Proposed Development Plan



- 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 ratio test with location reference

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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 ↗.

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- liaise, at your request, with anyone acting formally on your behalf

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

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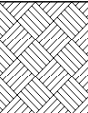


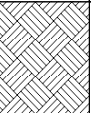
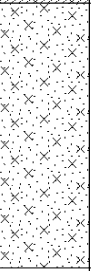
APPENDIX 3 ▪ Exploratory Hole Logs



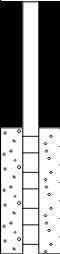
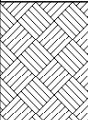
IDOM

IDOM		Trial Pit Log									
Project Name: Imberholne Lane				Client: Vistry				Date: 17/12/2024			
Location: East Grinstead				Contractor: IDOM							
Project No. : 21949ba				Crew Name: BPH				Equipment: 360 Excavator			
Location Number Remaining Areas MSP102		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								
	0.45	B		0.20			TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.		0.5		
	0.80	B					Light yellow silty fine SAND. [UPPER TUNBRIDGE WELL SAND]				
					1.00			End of Borehole at 1.00m		1.0	
									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: Imberholne Lane				Client: Vistry				Date: 17/12/2024			
Location: East Grinstead				Contractor: IDOM							
Project No. : 21949ba				Crew Name: BPH				Equipment: 360 Excavator			
Location Number Remaining Areas MSP403		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								
	0.80	B		0.30			TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravels are subangular to subrounded fine to medium brick and flint.				
				1.00			Yellowish brown silty fine SAND with rare lenses of sandstone. [UPPER TUNBRIDGE WELLS SAND]	0.5			
							End of Borehole at 1.00m	1.0			
								1.5			
								2.0			
								2.5			
								3.0			
								3.5			
								4.0			
Dimensions			Trench Support and Comment					Pumping Data			
Pit Length 2.50	Pit Width 0.55	Pit Stability Stable	Shoring Used	Remarks			Date	Rate	Remarks		
Remarks								IDOM			

IDOM		Trial Pit Log										
Project Name: Imberholne Lane				Client: Vistry				Date: 17/12/2024				
Location: East Grinstead				Contractor: IDOM								
Project No. : 21949ba				Crew Name: BPH				Equipment: 360 Excavator				
Location Number Remaining Areas MSP104		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			
							Light yellow silty fine SAND. [UPPER TUNBRIDGE WELL SAND]					
				1.00			End of Borehole at 1.00m		1.0			
												1.5
												2.0
												2.5
												3.0
												3.5
												4.0
Dimensions				Trench Support and Comment				Pumping Data				
Pit Length 2.40		Pit Width 0.55		Pit Stability Stable		Shoring Used		Remarks		Date	Rate	Remarks
Remarks											IDOM	

IDOM					Borehole Log					Borehole No. Remaining Areas MWS101	
Project Name: Imberholne Lane					Client: Vistry					Date: 09/12/2024	
Location: East Grinstead					Contractor:						
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.			
		0.90	D		0.75			Firm brown slightly sandy CLAY. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]			
		1.00	SPT	N=50 (1,1/50 for 245mm)	1.00			End of Borehole at 1.00m		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. Remaining Areas MWS102		
Project Name: Imberholne Lane				Client: Vistry				Date: 09/12/2024		
Location: East Grinstead				Contractor:						
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.		
		0.55	ES		0.50			Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]		
		0.80			0.80			Very dense silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]		
		1.00 1.00	D SPT	N=50 (10,12/12,12,13,13)	1.00			End of Borehole at 1.00m	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				Groundwater Details						
Top (m bgl)	Base (m bgl)	Duration (mins)	Depth Strike (m bgl)						Depth Rose (m bgl)	Time Elapsed (mins)

IDOM					Borehole Log					Borehole No. Remaining Areas MWS103		
Project Name: Imberholne Lane					Client: Vistry					Date: 11/12/2024		
Location: East Grinstead					Contractor:							
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.		1		
		0.45	D						Firm orangish brown slightly sandy CLAY. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]			
									Yellowish brown silty fine SAND with rare sandstone nodules. [UPPER TUNBRIDGE WELLS SAND]			
		1.00	SPT						N=33 (2,3/6,8,8,11)		1.00	Extremely weak light yellow mottled orangish brown fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]
		1.45	SPT					16 (7,17/16 for 70mm)	1.45		End of Borehole at 1.45m	
										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. Remaining Areas MWS104	
Project Name: Imberholne Lane				Client: Vistry				Date: 12/12/2024	
Location: East Grinstead				Contractor:					
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=42 (5,8/10,11,10,11)	1.00		TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.	1	
							0.60		Orangish brown mottled silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]
							1.00		Dense orangish brown mottled silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]
		1.50	D						
		2.00	SPT	50 (25 for 75mm/50 for 75mm)	2.00		End of Borehole at 2.00m	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)			

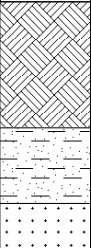
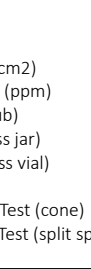
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Project Name: Imberholne Lane					Client: Vistry					Date: 12/12/2024	
Location: East Grinstead					Contractor:						
Project No: 21949ba					Weather:					Drilling Equipment: Premier Compact Series	
Logged By MB		Checked By			Level		Hole Type WLS		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=10 (1,1/2,2,3,3)	0.40			TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.	1		
		0.45	ES					Firm orangish brown sandy CLAY with nodules of sandstone. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]			
		1.00 1.00	D SPT					Firm orangish brown sandy SILT with occasional nodules of siltstone. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]			
		1.70						Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]			
		2.00	SPT	50 (25 for 55mm/50 for 20mm)	2.00			End of Borehole at 2.00m	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)

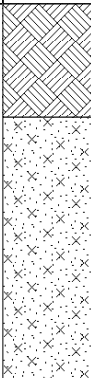
IDOM				Borehole Log				Borehole No. Remaining Areas MWS106		
Project Name: Imberholne Lane				Client: Vistry				Date: 12/12/2024		
Location: East Grinstead				Contractor:						
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series		
Logged By MB		Checked By		Level		Hole Type 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		TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.	1		
							Soft brown sandy CLAY with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]			
		0.80	D		N=6 (0,0/0,1,1,4)		Orangish brown mottled grey silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]	2		
		1.00	SPT						Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]	
									End of Borehole at 1.60m	
		1.80	SPT	50 (25 for 75mm/50 for 160mm)	1.80			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				Groundwater Details						
Top (m bgl)	Base (m bgl)	Duration (mins)	Depth Strike (m bgl)						Depth Rose (m bgl)	Time Elapsed (mins)

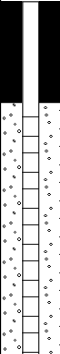
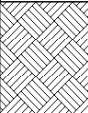
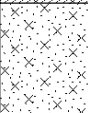
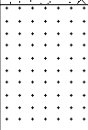
IDOM					Borehole Log					Borehole No. Remaining Areas MWS107	
Project Name: Imberholne Lane					Client: Vistry				Date: 12/12/2024		
Location: East Grinstead					Contractor:						
Project No: 21949ba					Weather:				Drilling Equipment: Premier Compact Series		
Logged By MB		Checked By			Level		Hole 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=15 (2,3/3,4,4,4)	0.40		TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.	1			
		0.60	D				Light yellow silty fine SAND occasional sandstone nodules. [UPPER TUNBRIDGE WELLS SAND]				
		1.00	SPT				Medium dense orangish brown mottled brown silty fine SAND with occasional bands of sandstone. [UPPER TUNBRIDGE WELLS SAND]				
		2.00 2.00	D SPT	N=36 (3,4/7,7,11,11)	2.00		Dense orangish brown mottled brown silty fine SAND with occasional bands of sandstone. [UPPER TUNBRIDGE WELLS SAND]		2		
		2.30	SPT	50 (25 for 105mm/50 for 10mm)	2.30		End of Borehole at 2.30m		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. Remaining Areas MWS108		
Project Name: Imberholne Lane				Client: Vistry				Date: 12/12/2024		
Location: East Grinstead				Contractor:						
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=9 (1,1/0,1,4,4)	0.30			TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.	1	
										Very soft orangish brown slightly sandy CLAY with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]
		0.80	D							
		1.00	SPT							
					1.10				Firm orangish brown slightly sandy CLAY with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]	2
					1.35				Very dense brown silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]	
		2.00	D	50 (3,14/50 for 145mm)	2.00		End of Borehole at 2.00m			
		2.00	SPT							
									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. Remaining Areas MWS109		
Project Name: Imberholne Lane				Client: Vistry				Date: 12/12/2024		
Location: East Grinstead				Contractor:						
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		0.45			TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.		
		0.65	D					Soft brown slightly sandy CLAY. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]		
		1.00	SPT	N=17 (2,2/3,5,5,4)	1.00		Medium dense orangish brown silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]	1		
		2.00	SPT	N=15 (3,3/5,4,3,3)	2.60			Very stiff orangish brown sandy CLAY with rare nodules of sandstone. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]	2	
		2.70	D							
		3.00	SPT	N=29 (2,2/4,6,10,9)	3.20		Very weak orangish brown mottled light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]	3		
		3.50 3.50	D SPT	50 (25 for 25mm/50 for 25mm)	3.50		End of Borehole at 3.50m	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. Remaining Areas MWS110	
Project Name: Imberholne Lane					Client: Vistry				Date: 12/12/2024		
Location: East Grinstead					Contractor:						
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							
		0.60	D	N=50 (4,9/50 for 295mm)	1.00			TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.			1
								Soft orangish brown sandy CLAY. San is fine. [UPPER TUNBRIDGE WELLS SAND]			
								Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]			
								End of Borehole at 1.00m			
		1.00	SPT	N=50 (4,9/50 for 295mm)	1.00						2
		1.00	SPT	N=50 (4,9/50 for 295mm)	1.00						3
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				Groundwater Details		
Top (m bgl)	Base (m bgl)	Duration (mins)					Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)		

IDOM					Borehole Log					Borehole No. Remaining Areas MWS111	
Project Name: Imberholne Lane					Client: Vistry				Date: 12/12/2024		
Location: East Grinstead					Contractor:						
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=44 (4,4/6,8,16,14)	0.45		TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.				
		1.00	SPT				Dense orangish brown silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]				
				1.50 1.50	D SPT	50 (7,16/50 for 225mm)	1.50		End of Borehole at 1.50m		

IDOM				Borehole Log				Borehole No. Remaining Areas MWS112		
Project Name: Imberholne Lane				Client: Vistry				Date: 13/12/2024		
Location: East Grinstead				Contractor:						
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.		
									Light brown silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]	
		1.00	SPT	N=27 (4,5/5,6,8,8)					Very weak grey fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SANDSTONE]	1
		1.40 1.40	D SPT	50 (25 for 50mm/50 for 55mm)					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)	

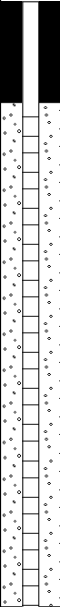
IDOM				Borehole Log				Borehole No. Remaining Areas MWS113		
Project Name: Imberholne Lane				Client: Vistry				Date: 13/12/2024		
Location: East Grinstead				Contractor:						
Project No: 21949ba				Weather:				Drilling Equipment: Premier Compact Series		
Logged By MB		Checked By		Level		Hole Type 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.		
					0.35			Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]		
					0.45			Orangish brown mottled light grey silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]		
		1.00	SPT	N=30 (5,7/7,7,8,8)	1.00			Medium dense light brown silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]	1	
					1.30			Medium dense reddish brown silty fine SAND with occasional nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]		
		1.50	SPT	50 (25 for 75mm/50 for 25mm)	1.50			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								Groundwater Details		
Top (m bgl)	Base (m bgl)	Duration (mins)						Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)

IDOM				Borehole Log				Borehole No. Remaining Areas MWS114	
Project Name: Imberholne Lane				Client: Vistry				Date: 13/12/2024	
Location: East Grinstead				Contractor:					
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 slightly gravelly sandy CLAY. Sand is fine to coarse.	
		0.50	D					Yellowish brown mottled orange silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]	
		0.75	SPT	50 (25 for 75mm/50 for 190mm)	0.70 0.75			Extremely weak light yellow fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND] End of Borehole at 0.75m	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. Remaining Areas MWS115	
Project Name: Imberholne Lane					Client: Vistry				Date: 13/12/2024		
Location: East Grinstead					Contractor:						
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	50 (25 for 35mm/50 for 20mm)	0.40			TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.			1
		0.45	ES					Light yellow silty fine SAND with rare sandstone nodules. [UPPER TUNBRIDGE WELLS SAND]			
		0.60	D								
		0.70	SPT								
					0.70			End of Borehole at 0.70m			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								Groundwater Details			
Top (m bgl)	Base (m bgl)	Duration (mins)						Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)	

IDOM				Borehole Log				Borehole No. Remaining Areas MWS116		
Project Name: Imberholne Lane				Client: Vistry				Date: 13/12/2024		
Location: East Grinstead				Contractor:						
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						
					0.25			TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.		
								Soft to firm orangish brown mottled sandy CLAY with occasional roots. Sand is fine. [UPPER TUNBRIDGE WELLS]		
		1.00	SPT	N=12 (1,1/2,2,4,4)		1.30				1
		1.50	D					Medium dense to dense silty fine SAND with frequent nodules of sandstone. [UPPER TUNBRIDGE WELLS SAND]		
		2.00	SPT	50 (2,12/50 for 65mm)	2.00			End of Borehole at 2.00m	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)

[illegible]

IDOM				Borehole Log				Borehole No. Remaining Areas MWS118			
Project Name: Imberholne Lane				Client: Vistry				Date: 13/12/2024			
Location: East Grinstead				Contractor:							
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		0.35 0.55			TOPSOIL comprising crop vegetation over very soft brown slightly gravelly sandy CLAY. Sand is fine to coarse.			
								Soft orangish brown sandy CLAY. Sand is fine. [UPPER TUNBRIDGE WELLS SAND]			
		1.00	SPT	N=8 (0,1/1,2,2,3)	1.00			Orangish brown silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]		1	
								Loose light brown silty fine SAND. [UPPER TUNBRIDGE WELLS SAND]			
		2.00	SPT	N=34 (1,1/3,4,12,15)	2.00 2.10			No recovery		2	
2.40	SPT	N=50 (10,11/50 for 245mm)	2.40			Very weak orangish brown fine grained SANDSTONE. [UPPER TUNBRIDGE WELLS SAND]					
End of Borehole at 2.40m											
											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)		

- APPENDIX 4**
- Soil Chemistry
 - Summary Spreadsheet
 - Laboratory Analysis Certificates

Merebrook
First Floor
1 Leonard Place
Westerham Road
Keston
BR2 6HQ

t: 01689 889980

e: coliveira@idom.com
mbaylis@idom.com

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

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

Analytical Report Number : 24-059671

Project / Site name:	Remaining Areas - 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:	30/12/2024
Report Issue Number:	1	Report issued on:	30/12/2024
Samples Analysed:	9 soil samples		

Signed: _____

Anna Goc
PL Head of Reporting Team
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: 24-059671

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				409373	409374	409375	409376	409377
Sample Reference				RA - MWS103 - ES	RA - MWS104 - ES	RA - MWS105 - ES	RA - MWS105 - ES	RA - MWS106 - 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	0.45	0.20
Date Sampled				11/12/2024	12/12/2024	12/12/2024	12/12/2024	12/12/2024
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	15	16	18	17	17
Total mass of sample received	kg	0.1	NONE	0.3	0.8	0.8	0.7	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	JSW	JSW	JSW	-	JSW

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8	7.6	7.2	7.9	7.2
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	22	22	22	27	26
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0108	0.0108	0.0108	0.0133	0.0128
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	10.8	10.8	10.8	13.3	12.8
Organic Matter (automated)	%	0.1	MCERTS	1.1	1.8	2.5	0.6	2.1
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	1	1.5	0.4	1.2

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	0.15	0.1	0.06	0.08	0.12
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.06	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.1	0.07	0.15	0.06	0.06
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	0.19	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.14	< 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: 24-059671

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				409373	409374	409375	409376	409377
Sample Reference				RA - MWS103 - ES	RA - MWS104 - ES	RA - MWS105 - ES	RA - MWS105 - ES	RA - MWS106 - 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	0.45	0.20
Date Sampled				11/12/2024	12/12/2024	12/12/2024	12/12/2024	12/12/2024
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	7.6	10	7.6	10	9.1
Barium (aqua regia extractable)	mg/kg	1	MCERTS	45	61	53	50	77
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3	0.2	< 0.2	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	22	22	19	35	24
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	23	20	35	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	10	13	14	20	14
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17	25	28	18	29
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	12	15	13	15	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.2	1.2	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	31	31	26	43	34
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	35	52	52	41	55

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: 24-059671

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				409373	409374	409375	409376	409377
Sample Reference				RA - MWS103 - ES	RA - MWS104 - ES	RA - MWS105 - ES	RA - MWS105 - ES	RA - MWS106 - 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	0.45	0.20
Date Sampled				11/12/2024	12/12/2024	12/12/2024	12/12/2024	12/12/2024
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	-	-
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	-	-

Acid Herbicides

4-CPA	µg/kg	10	NONE	-	-	< 10	-	-
Dinoseb	µg/kg	10	NONE	-	-	< 10	-	-
Flamprop	µg/kg	10	NONE	-	-	< 10	-	-
Ioxynil	µg/kg	10	NONE	-	-	< 10	-	-
2,3,6-TBA	µg/kg	10	NONE	-	-	< 10	-	-
Bromacil	µg/kg	10	NONE	-	-	< 10	-	-
Diclofop	µg/kg	10	NONE	-	-	< 10	-	-
Flamprop-Isopropyl	µg/kg	10	NONE	-	-	< 10	-	-
MCPP (Mecoprop)	µg/kg	10	NONE	-	-	< 10	-	-
Bromoxynil	µg/kg	10	NONE	-	-	< 10	-	-
Dichlorprop	µg/kg	10	NONE	-	-	< 10	-	-
Clopyralid	µg/kg	10	NONE	-	-	< 10	-	-
2,4-D	µg/kg	10	NONE	-	-	< 10	-	-
2,4-DB	µg/kg	10	NONE	-	-	< 10	-	-
Dicamba	µg/kg	10	NONE	-	-	< 10	-	-
2,4,5-TP (Fenoprop)	µg/kg	10	NONE	-	-	< 10	-	-

Analytical Report Number: 24-059671

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				409373	409374	409375	409376	409377
Sample Reference				RA - MWS103 - ES	RA - MWS104 - ES	RA - MWS105 - ES	RA - MWS105 - ES	RA - MWS106 - 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	0.45	0.20
Date Sampled				11/12/2024	12/12/2024	12/12/2024	12/12/2024	12/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
MCPB	µg/kg	10	NONE	-	-	< 10	-	-
Picloram	µg/kg	10	NONE	-	-	< 10	-	-
2,4,5-T	µg/kg	10	NONE	-	-	< 10	-	-
MCPA	µg/kg	10	NONE	-	-	< 10	-	-

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

Analytical Report Number: 24-059671

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				409378	409379	409380	409381
Sample Reference				RA - MWS107 - ES	RA - MWS108 - ES	RA - MWS109 - ES	RA - MWS111 - ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				0.20	0.20	0.20	0.20
Date Sampled				12/12/2024	12/12/2024	12/12/2024	12/12/2024
Time Taken				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
Moisture Content	%	0.01	NONE	16	16	17	19
Total mass of sample received	kg	0.1	NONE	0.8	0.7	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	JSW	JSW	JSW	JSW

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.6	7.1	8.1	7
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	25	39	31	50
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0125	0.0196	0.0155	0.0251
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	12.5	19.6	15.5	25.1
Organic Matter (automated)	%	0.1	MCERTS	1.5	1.7	1.9	2.3
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.9	1	1.1	1.3

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.06	0.08	0.06	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.05	< 0.05	< 0.05	0.06
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.06
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 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
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 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
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 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
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Analytical Report Number: 24-059671

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				409378	409379	409380	409381
Sample Reference				RA - MWS107 - ES	RA - MWS108 - ES	RA - MWS109 - ES	RA - MWS111 - ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				0.20	0.20	0.20	0.20
Date Sampled				12/12/2024	12/12/2024	12/12/2024	12/12/2024
Time Taken				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	8.3	8.6	9.4	7.7
Barium (aqua regia extractable)	mg/kg	1	MCERTS	42	50	59	53
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.2	0.3	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	20	21	22	18
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	21	23	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	14	14	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	20	26	25
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	14	16	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	26	27	29	25
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	45	41	46	45

Petroleum Hydrocarbons

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

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

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	< 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
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-059671

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				409378	409379	409380	409381
Sample Reference				RA - MWS107 - ES	RA - MWS108 - ES	RA - MWS109 - ES	RA - MWS111 - ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				0.20	0.20	0.20	0.20
Date Sampled				12/12/2024	12/12/2024	12/12/2024	12/12/2024
Time Taken				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	-	-	-	-

Acid Herbicides

4-CPA	µg/kg	10	NONE	-	-	-	-
Dinoseb	µg/kg	10	NONE	-	-	-	-
Flamprop	µg/kg	10	NONE	-	-	-	-
Ioxynil	µg/kg	10	NONE	-	-	-	-
2,3,6-TBA	µg/kg	10	NONE	-	-	-	-
Bromacil	µg/kg	10	NONE	-	-	-	-
Diclofop	µg/kg	10	NONE	-	-	-	-
Flamprop-Isopropyl	µg/kg	10	NONE	-	-	-	-
MCPP (Mecoprop)	µg/kg	10	NONE	-	-	-	-
Bromoxynil	µg/kg	10	NONE	-	-	-	-
Dichlorprop	µg/kg	10	NONE	-	-	-	-
Clopyralid	µg/kg	10	NONE	-	-	-	-
2,4-D	µg/kg	10	NONE	-	-	-	-
2,4-DB	µg/kg	10	NONE	-	-	-	-
Dicamba	µg/kg	10	NONE	-	-	-	-
2,4,5-TP (Fenoprop)	µg/kg	10	NONE	-	-	-	-

Analytical Report Number: 24-059671

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				409378	409379	409380	409381
Sample Reference				RA - MWS107 - ES	RA - MWS108 - ES	RA - MWS109 - ES	RA - MWS111 - ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				0.20	0.20	0.20	0.20
Date Sampled				12/12/2024	12/12/2024	12/12/2024	12/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status				
MCPB	µg/kg	10	NONE	-	-	-	-
Picloram	µg/kg	10	NONE	-	-	-	-
2,4,5-T	µg/kg	10	NONE	-	-	-	-
MCPA	µg/kg	10	NONE	-	-	-	-

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

Analytical Report Number : 24-059671
Project / Site name: Remaining Areas - 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 *
409373	2A - MWS103 - E	None Supplied	0.2	Brown clay and sand
409374	2A - MWS104 - E	None Supplied	0.2	Brown clay
409375	2A - MWS105 - E	None Supplied	0.2	Brown clay with vegetation
409376	2A - MWS105 - E	None Supplied	0.45	Brown clay and sand
409377	2A - MWS106 - E	None Supplied	0.2	Brown clay with vegetation
409378	2A - MWS107 - E	None Supplied	0.2	Brown clay and sand
409379	2A - MWS108 - E	None Supplied	0.2	Brown clay and sand with gravel and vegetation
409380	2A - MWS109 - E	None Supplied	0.2	Brown clay and sand with vegetation
409381	2A - MWS111 - E	None Supplied	0.2	Brown clay and sand with vegetation and gravel

Analytical Report Number : 24-059671

Project / Site name: Remaining Areas - 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
Acid Herbicides by LC-MS	Determination of Acid Herbicides in soil by LC -MS	In-house method	PL	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 : 24-059671

Project / Site name: Remaining Areas - 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 30oC.

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

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

The result for sum should be interpreted with caution

Analytical Report Number : 24-059671

Project / Site name: Remaining Areas - Imberhorne Lane

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
RA - MWS105 - ES	N/A	S	409375	b	BTEX and/or Volatile organic compounds in soil	L073B	b
RA - MWS105 - ES	N/A	S	409375	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	b

Merebrook
First Floor
1 Leonard Place
Westerham Road
Keston
BR2 6HQ

t: 01689 889980

e: mbaylis@idom.com
coliveira@idom.com

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

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 24-059874

Project / Site name:	Remaining Areas - Imberhorne Lane	Samples received on:	17/12/2024
Your job number:	21949BA	Samples instructed on/ Analysis started on:	17/12/2024
Your order number:	24-2-FDO-LABS	Analysis completed by:	23/12/2024
Report Issue Number:	1	Report issued on:	23/12/2024
Samples Analysed:	6 soil samples		

Signe

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: 24-059874
 Project / Site name: Remaining Areas - Imberhorne Lane
 Your Order No: 24-2-FDO-LABS

Lab Sample Number	410317	410318	410319	410320	410321
Sample Reference	RA - MWS112	RA - MWS113	RA - MWS115	RA - MWS115	RA - MWS117
Sample Number	ES	ES	ES	ES	ES
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.20	0.20	0.20	0.45	0.20
Date Sampled	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
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	17	19	16	17
Total mass of sample received	kg	0.1	NONE	0.8	0.7	0.8	0.7	1.1

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	MBI	MBI	MBI	-	MBI

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.6	7.6	7.6	7.9	7.2
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	47	35	23	41	33
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0235	0.0176	0.0117	0.0204	0.0167
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	23.5	17.6	11.7	20.4	16.7
Organic Matter (automated)	%	0.1	MCERTS	1.6	2	1.9	0.3	1.6
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.9	1.2	1.1	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	1.3	0.56	1.2	0.3	0.68
Acenaphthylene	mg/kg	0.05	MCERTS	0.09	0.06	0.13	0.06	0.09
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.06	< 0.05	0.09	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.21	0.08	0.1	0.07	0.09
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	1.67	< 0.80	1.56	< 0.80	0.86
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Analytical Report Number: 24-059874
Project / Site name: Remaining Areas - Imberhorne Lane
Your Order No: 24-2-FDO-LABS

Lab Sample Number	410317	410318	410319	410320	410321
Sample Reference	RA - MWS112	RA - MWS113	RA - MWS115	RA - MWS115	RA - MWS117
Sample Number	ES	ES	ES	ES	ES
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.20	0.20	0.20	0.45	0.20
Date Sampled	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
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	11	6.2	5.9	7.2	5.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	41	29	39	20	36
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	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	19	16	16	23	13
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	17	17	23	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	9.7	12	11	11
Lead (aqua regia extractable)	mg/kg	1	MCERTS	23	21	23	8.6	20
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	12	8.8	11	9.1	9.8
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	25	21	20	25	17
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	41	34	43	26	33

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	1.2	< 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: 24-059874

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number	410317	410318	410319	410320	410321
Sample Reference	RA - MWS112	RA - MWS113	RA - MWS115	RA - MWS115	RA - MWS117
Sample Number	ES	ES	ES	ES	ES
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.20	0.20	0.20	0.45	0.20
Date Sampled	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
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	-	-	-
Bifenthrin	µg/kg	10	NONE	-	< 10	-	-	-
Cyhalothrin (Lambda)	µg/kg	10	NONE	-	< 10	-	-	-
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	-	< 10	-	-	-
Omethoate	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	-	-	-
Dimethylvinphos	µg/kg	10	NONE	-	< 10	-	-	-
Demeton-O	µg/kg	10	NONE	-	< 10	-	-	-
Demeton-S	µg/kg	10	NONE	-	< 10	-	-	-
Endrin Aldehyde	µg/kg	10	NONE	-	< 10	-	-	-
Endrin Ketone	µg/kg	10	NONE	-	< 10	-	-	-
Hexachlorobutadiene	µg/kg	10	NONE	-	< 10	-	-	-
Phosphamidon (Sum)	µg/kg	10	NONE	-	< 10	-	-	-
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	-	< 10	-	-	-
Cis-Permethrin	µg/kg	10	NONE	-	< 10	-	-	-
Endosulfan sulfate	µg/kg	10	NONE	-	< 10	-	-	-
Etrinfos	µg/kg	10	NONE	-	< 10	-	-	-
Fenvalerate (Sum)	µg/kg	10	NONE	-	< 10	-	-	-
Hexachlorobenzene	µg/kg	10	NONE	-	< 10	-	-	-
Mevinphos, E+Z	µg/kg	10	NONE	-	< 10	-	-	-
Pentachlorobenzene	µg/kg	10	NONE	-	< 10	-	-	-
Pirimiphos-ethyl	µg/kg	10	NONE	-	< 10	-	-	-
Propetamphos	µg/kg	10	NONE	-	< 10	-	-	-
Tecnazene	µg/kg	10	NONE	-	< 10	-	-	-
Triadimefon	µg/kg	10	NONE	-	< 10	-	-	-
Trans-Permethrin	µg/kg	10	NONE	-	< 10	-	-	-
Aldrin	µg/kg	10	NONE	-	< 10	-	-	-
Azinphos-methyl	µg/kg	10	NONE	-	< 10	-	-	-
Beta-BHC	µg/kg	10	NONE	-	< 10	-	-	-
Cis-Chlordane	µg/kg	10	NONE	-	< 10	-	-	-
Chlorfenvinphos	µg/kg	10	NONE	-	< 10	-	-	-
Chlorpyrifos	µg/kg	10	NONE	-	< 10	-	-	-
Chlorothalonil	µg/kg	10	NONE	-	< 10	-	-	-
Carbophenothion	µg/kg	10	NONE	-	< 10	-	-	-
Cyfluthrin (Sum)	µg/kg	10	NONE	-	< 10	-	-	-
Delta-BHC	µg/kg	10	NONE	-	< 10	-	-	-
Dieldrin	µg/kg	10	NONE	-	< 10	-	-	-
Deltamethrin	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	-	-	-
Fenthion	µg/kg	10	NONE	-	< 10	-	-	-
Isodrin	µg/kg	10	NONE	-	< 10	-	-	-
Methacrifos	µg/kg	10	NONE	-	< 10	-	-	-
O,p'-DDD	µg/kg	10	NONE	-	< 10	-	-	-
O,p'-DDE	µg/kg	10	NONE	-	< 10	-	-	-

Analytical Report Number: 24-059874

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				410317	410318	410319	410320	410321
Sample Reference				RA - MWS112	RA - MWS113	RA - MWS115	RA - MWS115	RA - MWS117
Sample Number				ES	ES	ES	ES	ES
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.20	0.20	0.45	0.20
Date Sampled				13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
O,p'-DDT	µg/kg	10	NONE	-	< 10	-	-	-
Parathion	µg/kg	10	NONE	-	< 10	-	-	-
Parathion-methyl	µg/kg	10	NONE	-	< 10	-	-	-
Pendimethalin	µg/kg	10	NONE	-	< 10	-	-	-
Phorate	µg/kg	10	NONE	-	< 10	-	-	-
Phosalone	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	-	-	-
Propyzamide	µg/kg	10	NONE	-	< 10	-	-	-
Triazophos	µg/kg	10	NONE	-	< 10	-	-	-
Trans-Chlordane	µg/kg	10	NONE	-	< 10	-	-	-
Cypermethrin (Sum)	µg/kg	10	NONE	-	< 10	-	-	-
Dichlorvos	µg/kg	10	NONE	-	< 10	-	-	-
Dimethoate	µg/kg	10	NONE	-	< 10	-	-	-
Diazinon	µg/kg	10	NONE	-	< 10	-	-	-
Ethion	µg/kg	10	NONE	-	< 10	-	-	-
Fenitrothion	µg/kg	10	NONE	-	< 10	-	-	-
Malathion	µg/kg	10	NONE	-	< 10	-	-	-
Pirimiphos-methyl	µg/kg	10	NONE	-	< 10	-	-	-
Trifluralin	µg/kg	10	NONE	-	< 10	-	-	-
Azinphos-ethyl	µg/kg	10	NONE	-	< 10	-	-	-

Acid Herbicides

4-CPA	µg/kg	10	NONE	-	< 10	-	-	-
Dinoseb	µg/kg	10	NONE	-	< 10	-	-	-
Flamprop	µg/kg	10	NONE	-	< 10	-	-	-
Ioxynil	µg/kg	10	NONE	-	< 10	-	-	-
2,3,6-TBA	µg/kg	10	NONE	-	< 10	-	-	-
Bromacil	µg/kg	10	NONE	-	< 10	-	-	-
Diclofop	µg/kg	10	NONE	-	< 10	-	-	-
Flamprop-Isopropyl	µg/kg	10	NONE	-	< 10	-	-	-
MCPP (Mecoprop)	µg/kg	10	NONE	-	< 10	-	-	-
Bromoxynil	µg/kg	10	NONE	-	< 10	-	-	-
Dichlorprop	µg/kg	10	NONE	-	< 10	-	-	-
Clopyralid	µg/kg	10	NONE	-	< 10	-	-	-
2,4-D	µg/kg	10	NONE	-	< 10	-	-	-
2,4-DB	µg/kg	10	NONE	-	< 10	-	-	-
Dicamba	µg/kg	10	NONE	-	< 10	-	-	-
2,4,5-TP (Fenoprop)	µg/kg	10	NONE	-	< 10	-	-	-
MCPB	µg/kg	10	NONE	-	< 10	-	-	-
Picloram	µg/kg	10	NONE	-	< 10	-	-	-
2,4,5-T	µg/kg	10	NONE	-	< 10	-	-	-
MCPA	µg/kg	10	NONE	-	< 10	-	-	-

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

Analytical Report Number: 24-059874
 Project / Site name: Remaining Areas - Imberhorne Lane
 Your Order No: 24-2-FDO-LABS

Lab Sample Number	410322			
Sample Reference	RA - MWS118			
Sample Number	ES			
Water Matrix	N/A			
Depth (m)	0.20			
Date Sampled	13/12/2024			
Time Taken	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	14
Total mass of sample received	kg	0.1	NONE	1.1

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.2
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	71
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0355
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	35.5
Organic Matter (automated)	%	0.1	MCERTS	1.2
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.7

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.84
Acenaphthylene	mg/kg	0.05	MCERTS	0.11
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.08
Phenanthrene	mg/kg	0.05	MCERTS	0.1
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.13
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Analytical Report Number: 24-059874

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				410322
Sample Reference				RA - MWS118
Sample Number				ES
Water Matrix				N/A
Depth (m)				0.20
Date Sampled				13/12/2024
Time Taken				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	8.2
Barium (aqua regia extractable)	mg/kg	1	MCERTS	43
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	42

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS,1D,AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS,1D,AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS,1D,AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH,CU,1D,AL}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH,CU,1D,AL}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH,CU,1D,AL}	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH,CU,1D,AL}	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 _{EH,CU,1D,AL}	mg/kg	10	NONE	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH,CU+HS,1D,AL}	mg/kg	10	NONE	< 10
TPHCWG - Aliphatic >EC5 - EC40 _{EH,CU+HS,1D,AL}	mg/kg	10	NONE	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS,1D,AR}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS,1D,AR}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS,1D,AR}	mg/kg	0.02	MCERTS	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH,CU,1D,AR}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH,CU,1D,AR}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH,CU,1D,AR}	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH,CU,1D,AR}	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH,CU,1D,AR}	mg/kg	10	NONE	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH,CU+HS,1D,AR}	mg/kg	10	NONE	< 10
TPHCWG - Aromatic >EC5 - EC40 _{EH,CU+HS,1D,AR}	mg/kg	10	NONE	< 10

TPH Total >EC5 - EC40 _{EH,CU+HS,1D,TOTAL}	mg/kg	10	NONE	< 10
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VOCs

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

Analytical Report Number: 24-059874

Project / Site name: Remaining Areas - Imberhorne Lane

Your Order No: 24-2-FDO-LABS

Lab Sample Number				410322
Sample Reference				RA - MWS118
Sample Number				ES
Water Matrix				N/A
Depth (m)				0.20
Date Sampled				13/12/2024
Time Taken				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	-
Bifenthrin	µg/kg	10	NONE	-
Cyhalothrin (Lambda)	µg/kg	10	NONE	-
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	-
Omethoate	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	-
Dimethylvinphos	µg/kg	10	NONE	-
Demeton-O	µg/kg	10	NONE	-
Demeton-S	µg/kg	10	NONE	-
Endrin Aldehyde	µg/kg	10	NONE	-
Endrin Ketone	µg/kg	10	NONE	-
Hexachlorobutadiene	µg/kg	10	NONE	-
Phosphamidon (Sum)	µg/kg	10	NONE	-
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	-
Cis-Permethrin	µg/kg	10	NONE	-
Endosulfan sulfate	µg/kg	10	NONE	-
Etrinfos	µg/kg	10	NONE	-
Fenvalerate (Sum)	µg/kg	10	NONE	-
Hexachlorobenzene	µg/kg	10	NONE	-
Mevinphos, E+Z	µg/kg	10	NONE	-
Pentachlorobenzene	µg/kg	10	NONE	-
Pirimiphos-ethyl	µg/kg	10	NONE	-
Propetamphos	µg/kg	10	NONE	-
Tecnazene	µg/kg	10	NONE	-
Triadimefon	µg/kg	10	NONE	-
Trans-Permethrin	µg/kg	10	NONE	-
Aldrin	µg/kg	10	NONE	-
Azinphos-methyl	µg/kg	10	NONE	-
Beta-BHC	µg/kg	10	NONE	-
Cis-Chlordane	µg/kg	10	NONE	-
Chlorfenvinphos	µg/kg	10	NONE	-
Chlorpyrifos	µg/kg	10	NONE	-
Chlorothalonil	µg/kg	10	NONE	-
Carbophenothion	µg/kg	10	NONE	-
Cyfluthrin (Sum)	µg/kg	10	NONE	-
Delta-BHC	µg/kg	10	NONE	-
Dieldrin	µg/kg	10	NONE	-
Deltamethrin	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	-
Fenthion	µg/kg	10	NONE	-
Isodrin	µg/kg	10	NONE	-
Methacrifos	µg/kg	10	NONE	-
O,p'-DDD	µg/kg	10	NONE	-
O,p'-DDE	µg/kg	10	NONE	-

Analytical Report Number: 24-059874
 Project / Site name: Remaining Areas - Imberhorne Lane
 Your Order No: 24-2-FDO-LABS

Lab Sample Number				410322
Sample Reference				RA - MWS118
Sample Number				ES
Water Matrix				N/A
Depth (m)				0.20
Date Sampled				13/12/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	
O,p'-DDT	µg/kg	10	NONE	-
Parathion	µg/kg	10	NONE	-
Parathion-methyl	µg/kg	10	NONE	-
Pendimethalin	µg/kg	10	NONE	-
Phorate	µg/kg	10	NONE	-
Phosalone	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	-
Propyzamide	µg/kg	10	NONE	-
Triazophos	µg/kg	10	NONE	-
Trans-Chlordane	µg/kg	10	NONE	-
Cypermethrin (Sum)	µg/kg	10	NONE	-
Dichlorvos	µg/kg	10	NONE	-
Dimethoate	µg/kg	10	NONE	-
Diazinon	µg/kg	10	NONE	-
Ethion	µg/kg	10	NONE	-
Fenitrothion	µg/kg	10	NONE	-
Malathion	µg/kg	10	NONE	-
Pirimiphos-methyl	µg/kg	10	NONE	-
Trifluralin	µg/kg	10	NONE	-
Azinphos-ethyl	µg/kg	10	NONE	-

Acid Herbicides

4-CPA	µg/kg	10	NONE	-
Dinoseb	µg/kg	10	NONE	-
Flamprop	µg/kg	10	NONE	-
Ioxynil	µg/kg	10	NONE	-
2,3,6-TBA	µg/kg	10	NONE	-
Bromacil	µg/kg	10	NONE	-
Diclofop	µg/kg	10	NONE	-
Flamprop-Isopropyl	µg/kg	10	NONE	-
MCPP (Mecoprop)	µg/kg	10	NONE	-
Bromoxynil	µg/kg	10	NONE	-
Dichlorprop	µg/kg	10	NONE	-
Clopyralid	µg/kg	10	NONE	-
2,4-D	µg/kg	10	NONE	-
2,4-DB	µg/kg	10	NONE	-
Dicamba	µg/kg	10	NONE	-
2,4,5-TP (Fenoprop)	µg/kg	10	NONE	-
MCPB	µg/kg	10	NONE	-
Picloram	µg/kg	10	NONE	-
2,4,5-T	µg/kg	10	NONE	-
MCPA	µg/kg	10	NONE	-

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

Analytical Report Number : 24-059874

Project / Site name: Remaining Areas - 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 *
410317	RA - MWS112	ES	0.2	Brown clay and sand
410318	RA - MWS113	ES	0.2	Brown clay and sand
410319	RA - MWS115	ES	0.2	Brown clay and sand
410320	RA - MWS115	ES	0.45	Brown clay and sand
410321	RA - MWS117	ES	0.2	Brown clay and sand
410322	RA - MWS118	ES	0.2	Brown clay and sand

Analytical Report Number : 24-059874

Project / Site name: Remaining Areas - 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
Acid Herbicides by LC-MS	Determination of Acid Herbicides in soil by LC -MS	In-house method	PL	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 : 24-059874

Project / Site name: Remaining Areas - 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

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

Analytical Report Number : 24-059874

Project / Site name: Remaining Areas - Imberhorne Lane

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
RA - MWS113	ES	S	410318	b	BTEX and/or Volatile organic compounds in soil	L073B	b
RA - MWS113	ES	S	410318	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	b
RA - MWS115	ES	S	410319	b	BTEX and/or Volatile organic compounds in soil	L073B	b
RA - MWS115	ES	S	410319	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	b

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 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 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: Tim Stempt
Site Address: Ingrebourne Remaining Areas

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

Client Reference: 21949BA
Job Number: 25-000726-1
Date Sampled: 16/12/2024
Date Received: 17/12/2024
Date Tested: 13/01/2025
Sampled By: Client - Tim Stempt

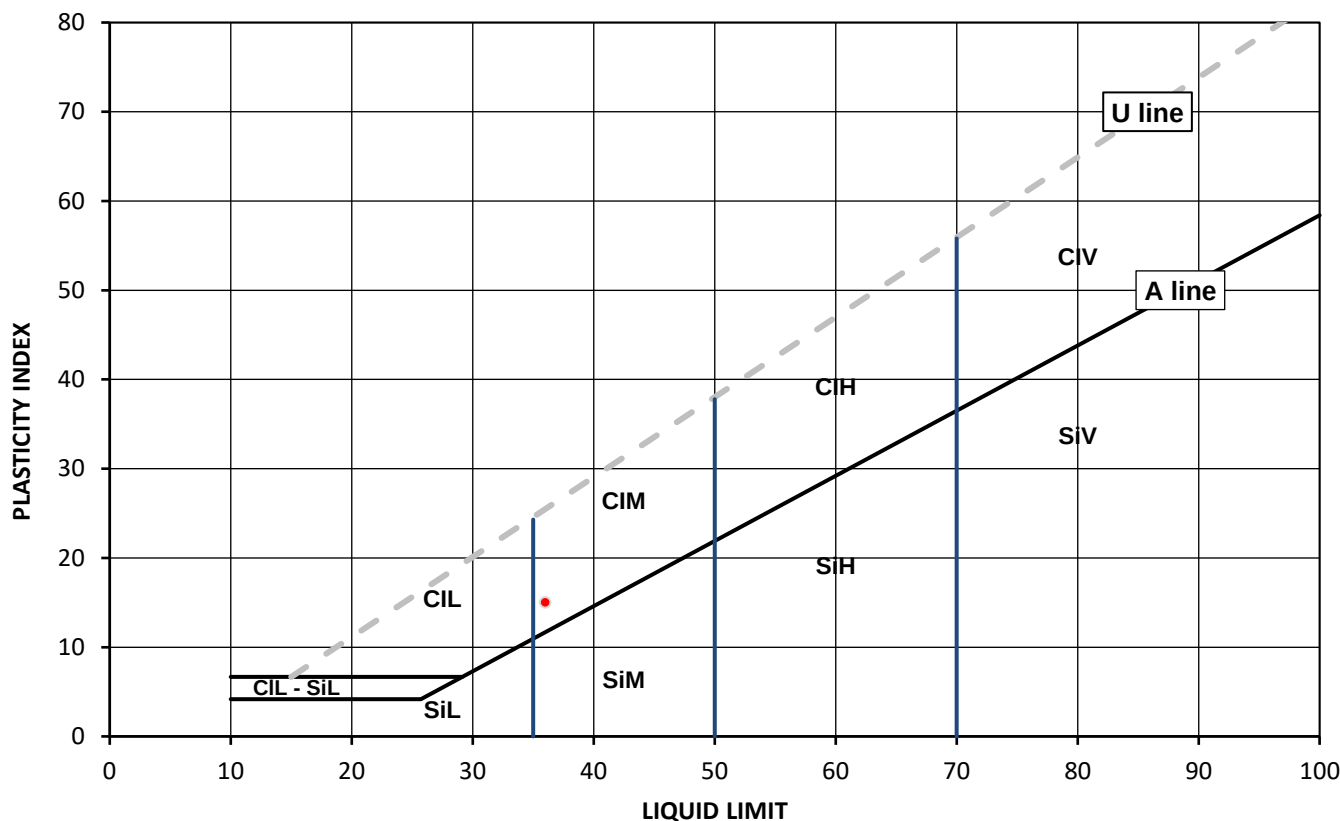
Test Results:

Laboratory Reference: 420705
Hole No.: Remaining Areas MSP102
Sample Reference: Not Given
Sample Description: Brownish grey slightly gravelly sandy CLAY

Depth Top [m]: 0.15
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >0.425mm; 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
21.3	36	21	15	0.00	1.00	94



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:

Katarzyna Koziel
Geotechnical Reporting Team Leader
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.



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

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: Tim Stempt
Site Address: Ingrebourne Remaining Areas

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

Client Reference: 21949BA
Job Number: 25-000726-1
Date Sampled: 16/12/2024
Date Received: 17/12/2024
Date Tested: 13/01/2025
Sampled By: Client - Tim Stempt

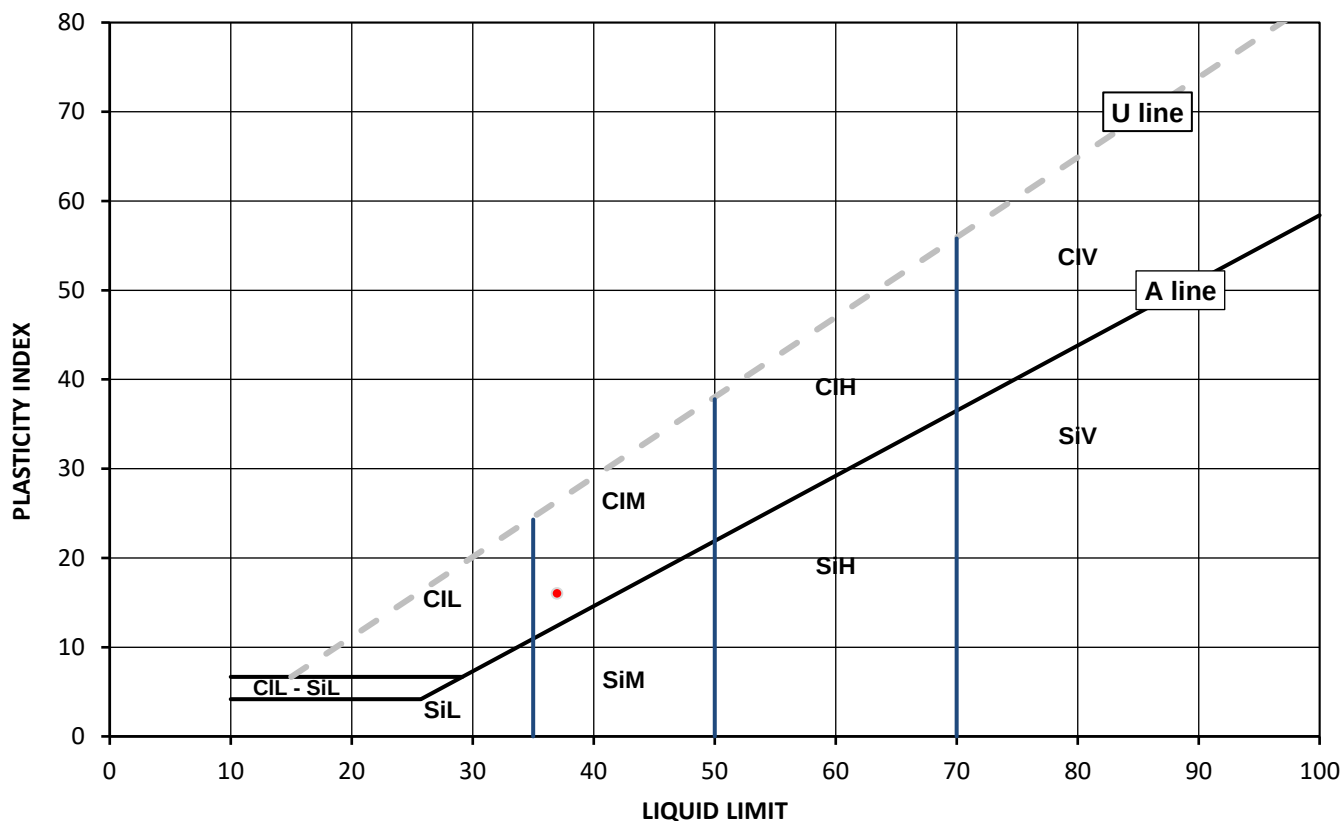
Test Results:

Laboratory Reference: 420706
Hole No.: Remaining Areas MSP102
Sample Reference: Not Given
Sample Description: Yellowish brown slightly sandy slightly gravelly CLAY

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

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
20.0	37	21	16	-0.06	1.06	94



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:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

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Page 1

Date Reported: 21/01/2025

GF 337.14



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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Date Tested: 13/01/2025
Sampled By: Client - Tim Stempt

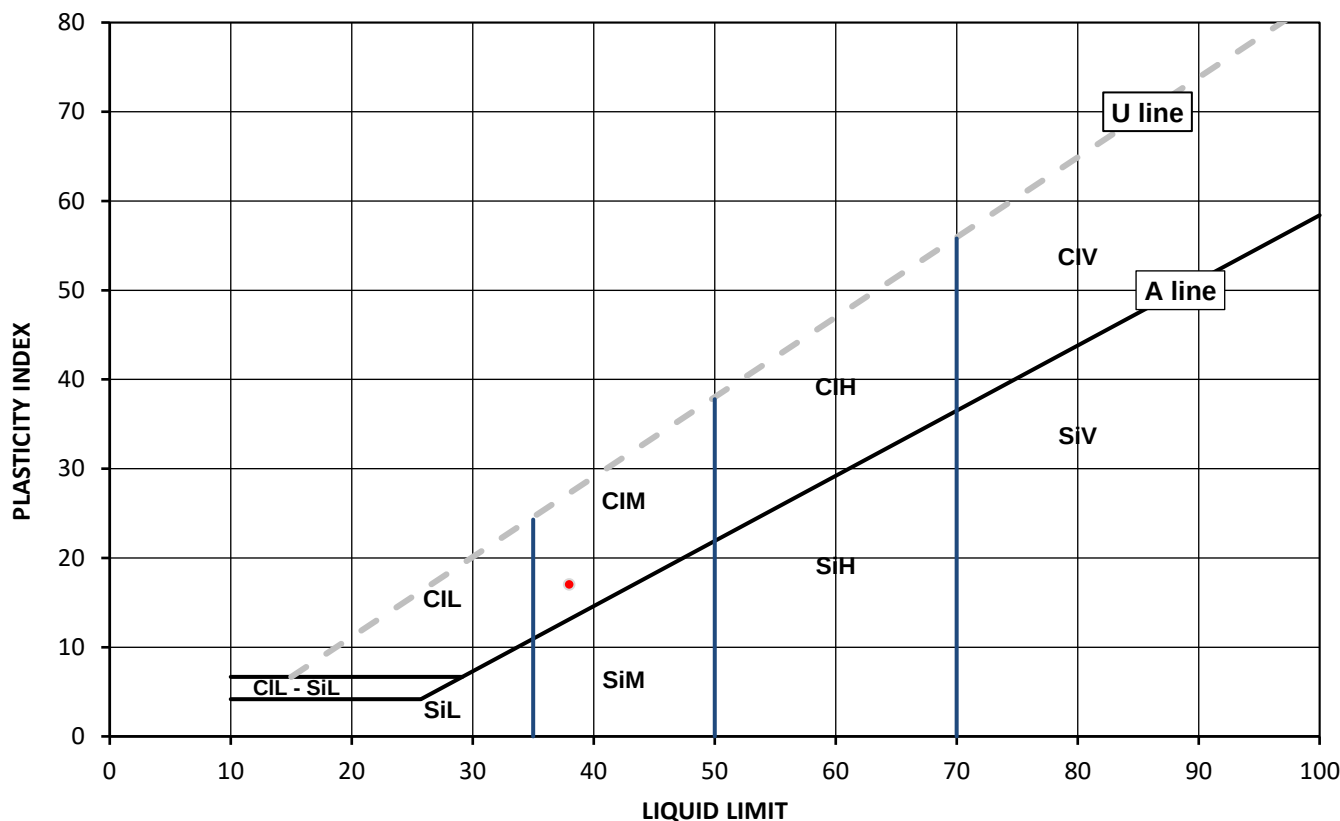
Test Results:

Laboratory Reference: 420707
Hole No.: Remaining Areas MSP103
Sample Reference: Not Given
Sample Description: Yellowish brown slightly sandy CLAY

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

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
20.0	38	21	17	-0.06	1.06	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

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Sampled By: Client - Tim Stempt

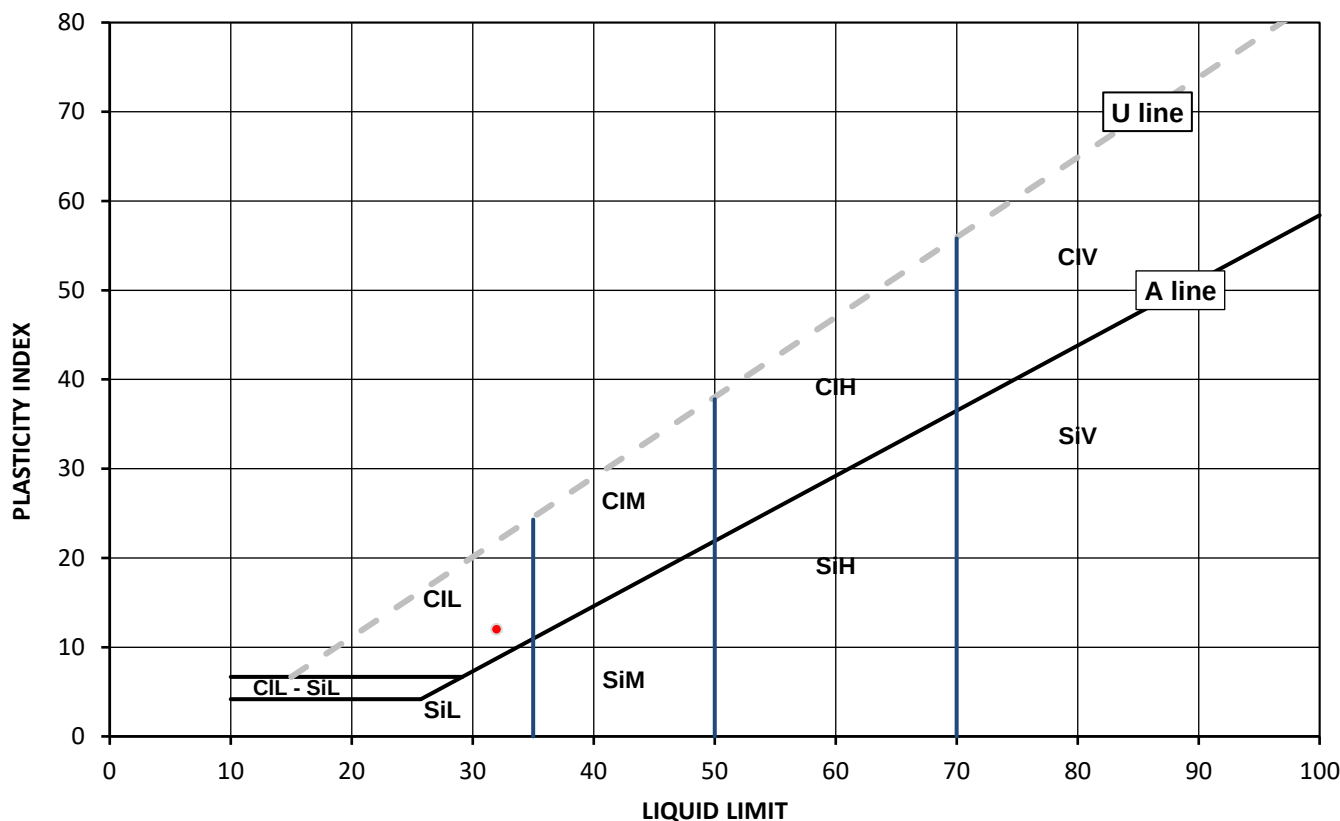
Test Results:

Laboratory Reference: 420708
Hole No.: Remaining Areas MSP104
Sample Reference: Not Given
Sample Description: Yellowish brown very sandy CLAY

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

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
19.3	32	20	12	-0.08	1.08	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

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Job Number: 25-000726-1
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Sampled By: Client - Tim Stempt

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

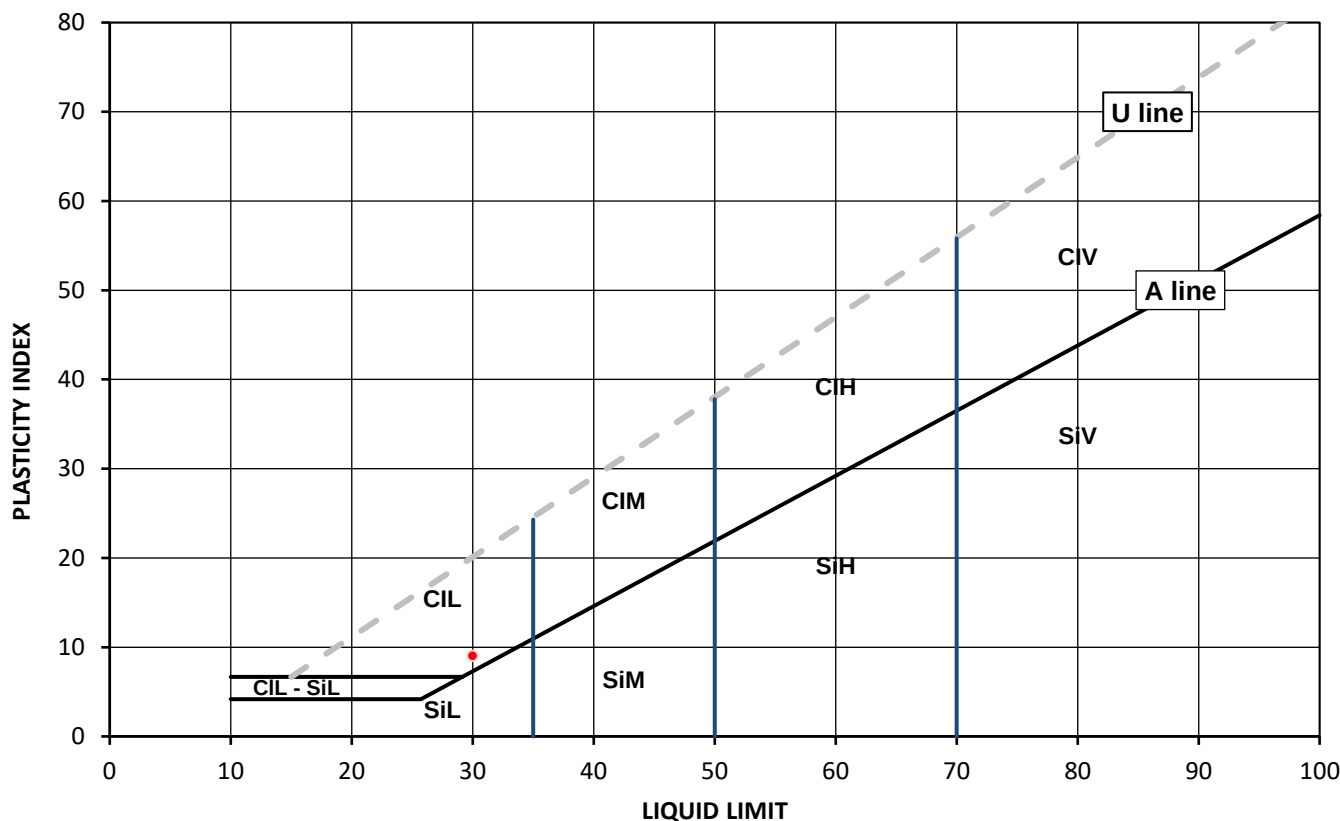
Test Results:

Laboratory Reference: 420709
Hole No.: Remaining Areas MSP104
Sample Reference: Not Given
Sample Description: Brown slightly gravelly very sandy silty CLAY

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

Sample Preparation: Tested after washing to remove >0.425mm; 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
14.7	30	21	9	-0.67	1.67	82



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

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Sampled By: Client - Tim Stempt

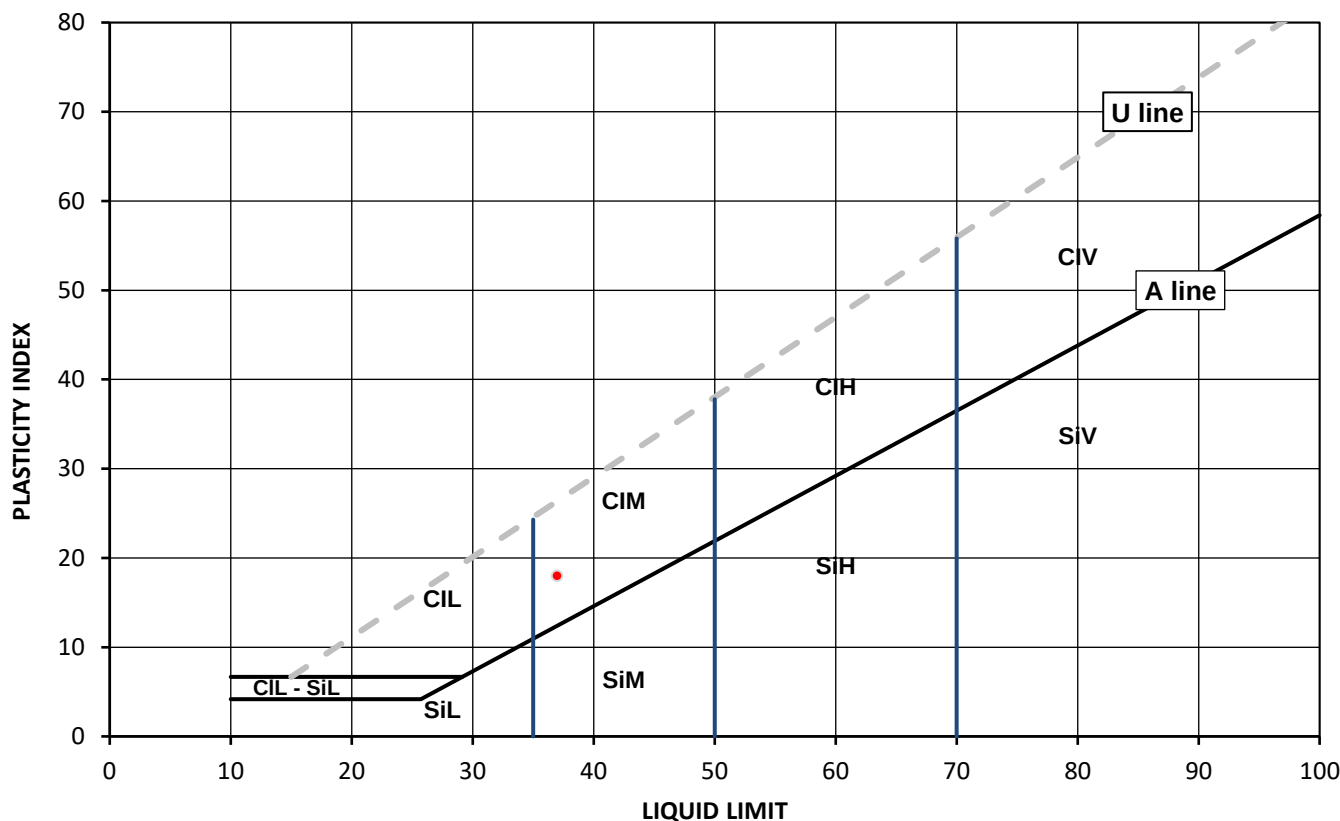
Test Results:

Laboratory Reference: 420710
Hole No.: Remaining Areas MSP106
Sample Reference: Not Given
Sample Description: Brown 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
25.1	37	19	18	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

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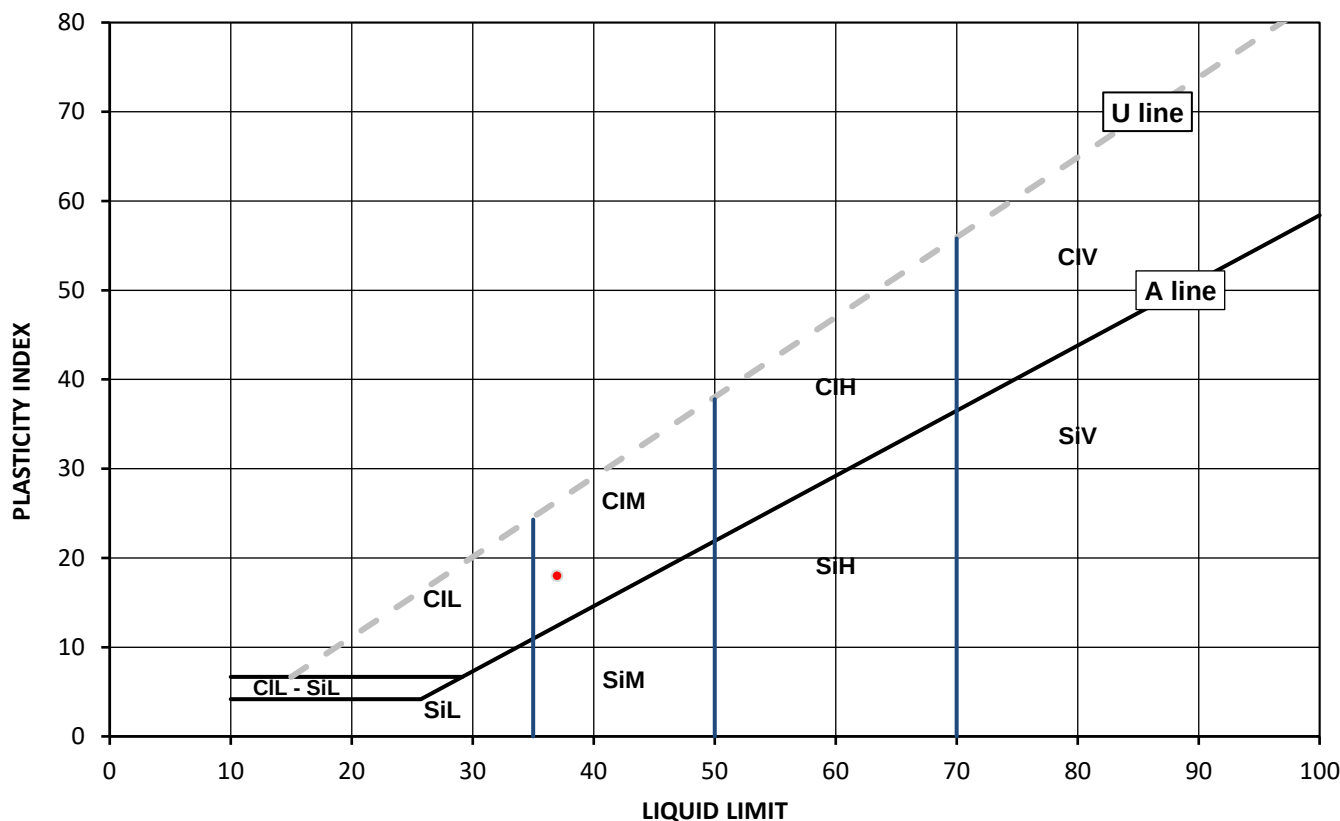
Test Results:

Laboratory Reference: 420711
Hole No.: Remaining Areas MSP109
Sample Reference: Not Given
Sample Description: Brown sandy CLAY

Depth Top [m]: 0.65
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
20.3	37	19	18	0.06	0.94	100



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

	Plasticity	Liquid Limit
Cl	Clay	L Low below 35
Si	Silt	M Medium 35 to 50
		H High 50 to 70
		V Very high exceeding 70
	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

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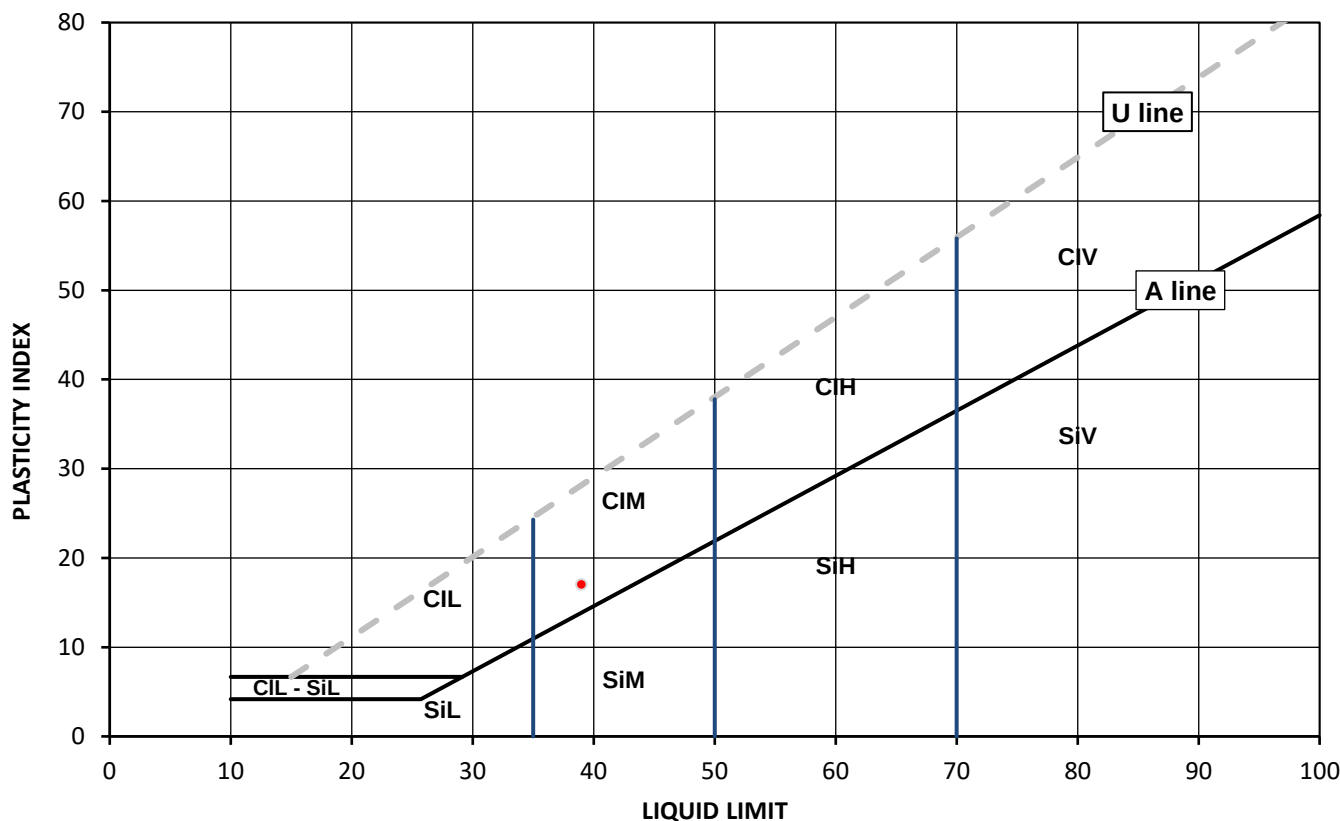
Test Results:

Laboratory Reference: 420712
Hole No.: Remaining Areas MWS109
Sample Reference: Not Given
Sample Description: Brown slightly gravelly sandy CLAY

Depth Top [m]: 2.70
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
21.8	39	22	17	0.00	1.00	99



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

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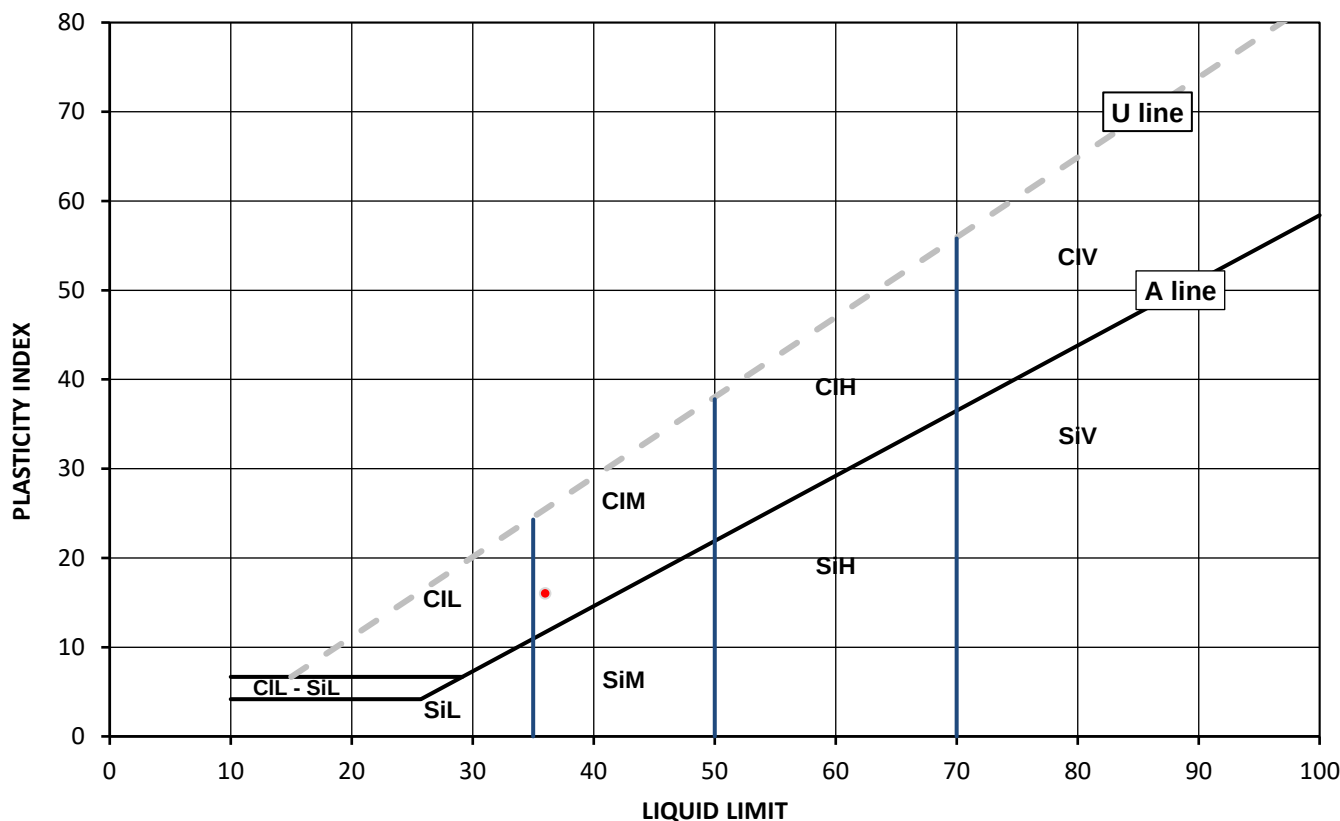
Test Results:

Laboratory Reference: 420713
Hole No.: Remaining Areas MWS110
Sample Reference: Not Given
Sample Description: Brown sandy CLAY

Depth Top [m]: 0.60
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
22.5	36	20	16	0.19	0.81	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
		50 to 70
		exceeding 70
		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

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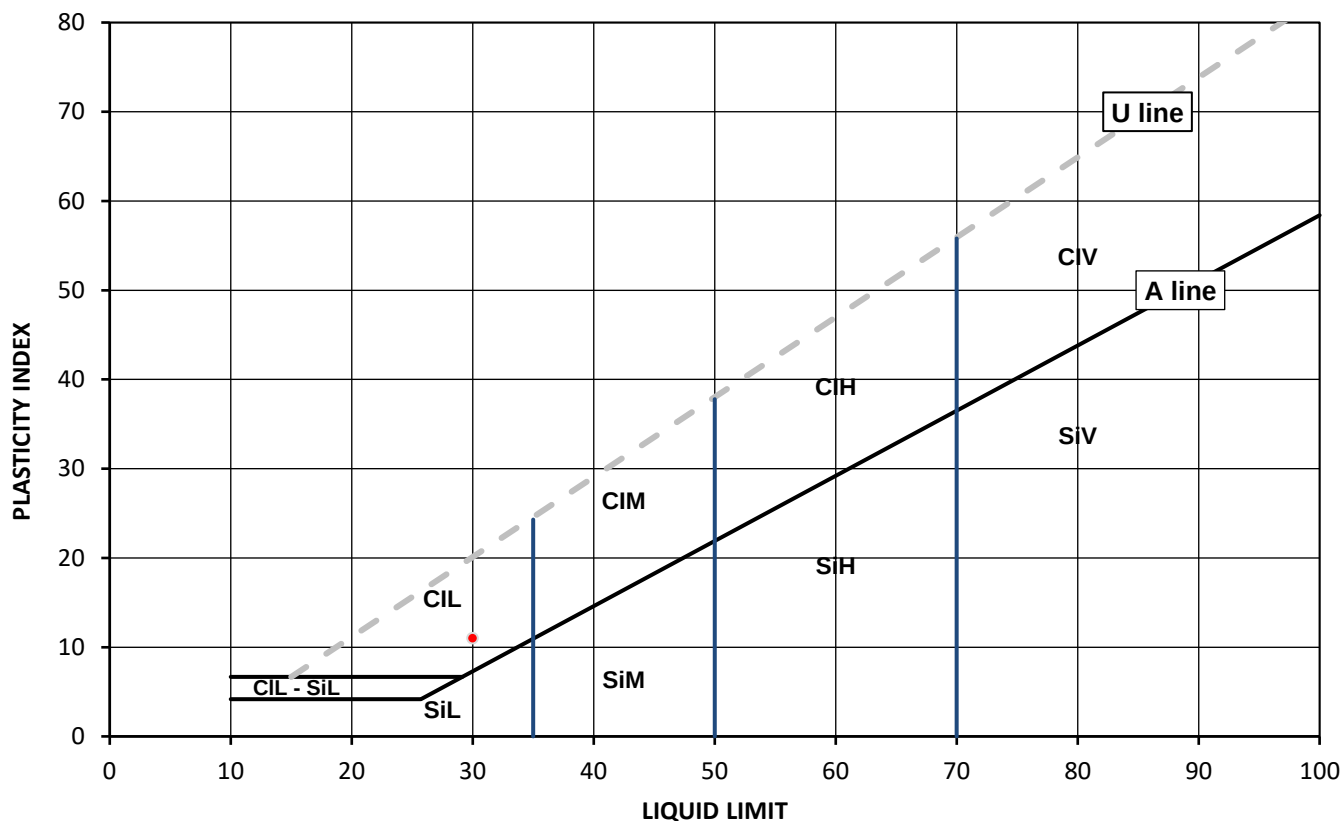
Test Results:

Laboratory Reference: 420714
Hole No.: Remaining Areas MWS114
Sample Reference: Not Given
Sample Description: Brown very sandy 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
20.8	30	19	11	0.18	0.82	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 CIHO)

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

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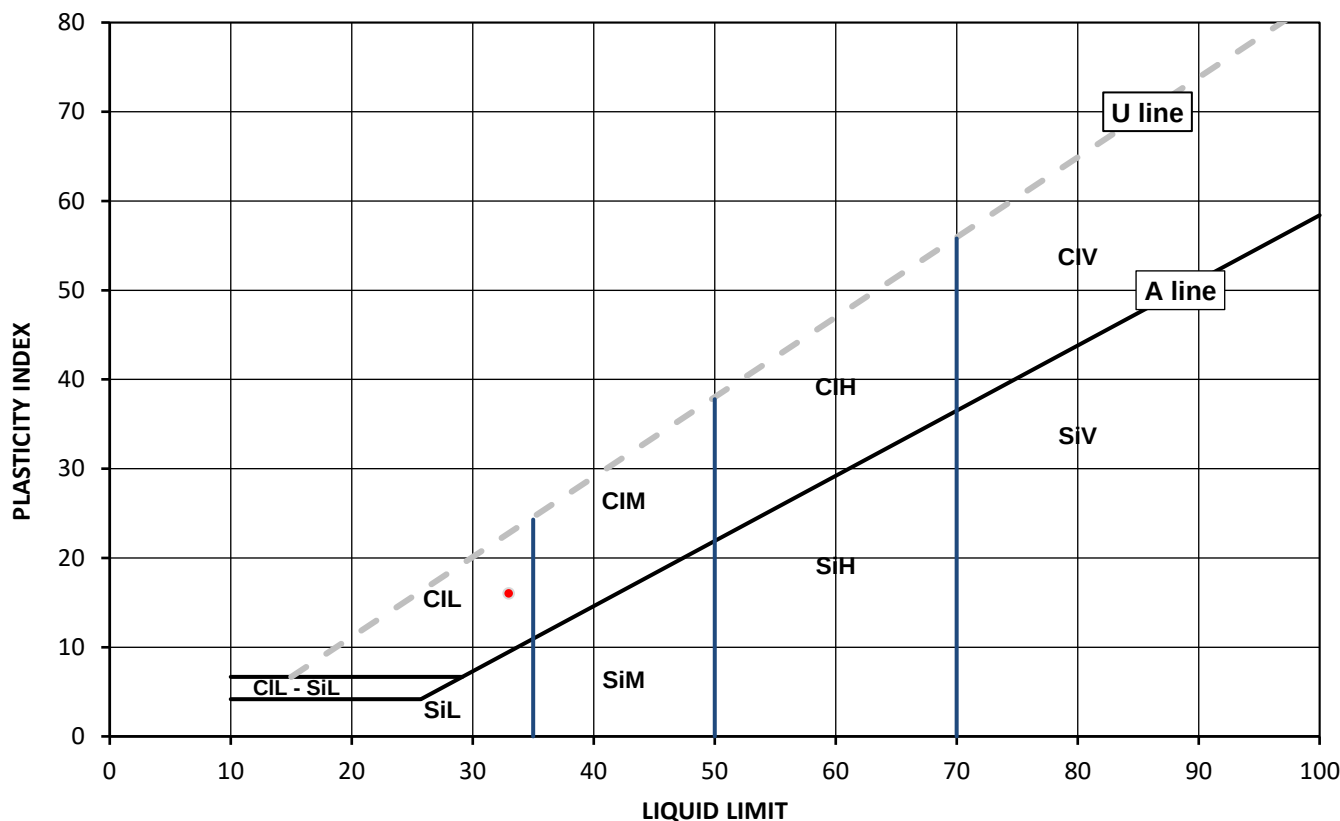
Test Results:

Laboratory Reference: 420715
Hole No.: Remaining Areas MWS118
Sample Reference: Not Given
Sample Description: Brown very sandy 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
22.0	33	17	16	0.31	0.69	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

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Sampled By: Client - Tim Stempt

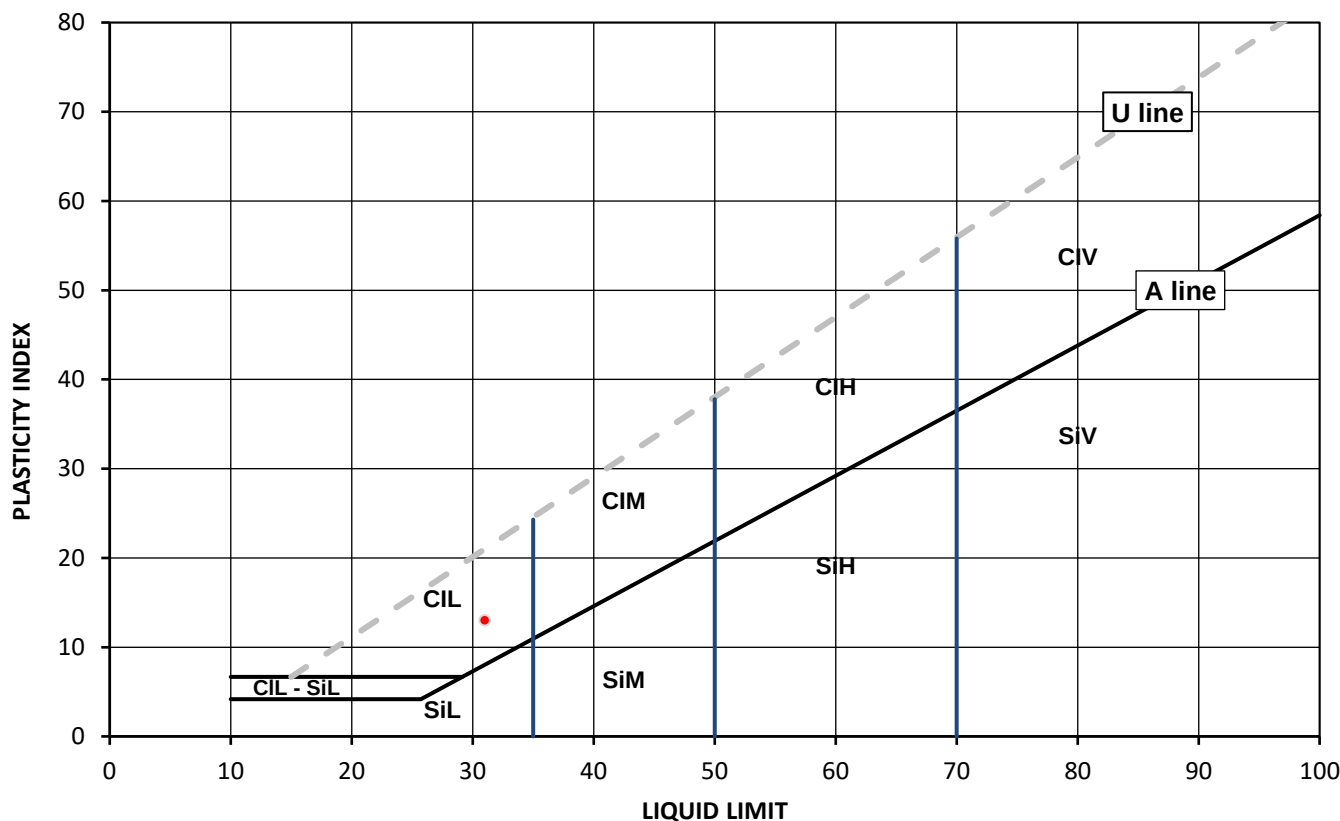
Test Results:

Laboratory Reference: 420716
Hole No.: Parcel A MWS101
Sample Reference: Not Given
Sample Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 0.60
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
21.6	31	18	13	0.31	0.69	96



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:

Katarzyna Koziel
Geotechnical Reporting Team Leader
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

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

4041

Client: Merebrook
 Client Address: First Floor, 1 Leonard Place,
 Westerham Road, Keston,
 BR2 6HQ
 Contact: Tim Stempt
 Site Address: Ingrebourne Remaining Areas

Client Reference: 21949BA
 Job Number: 25-000726-1
 Date Sampled: 16/12/2024
 Date Received: 17/12/2024
 Date Tested: 14/01/2025
 Sampled By: Client - Tim Stempt

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

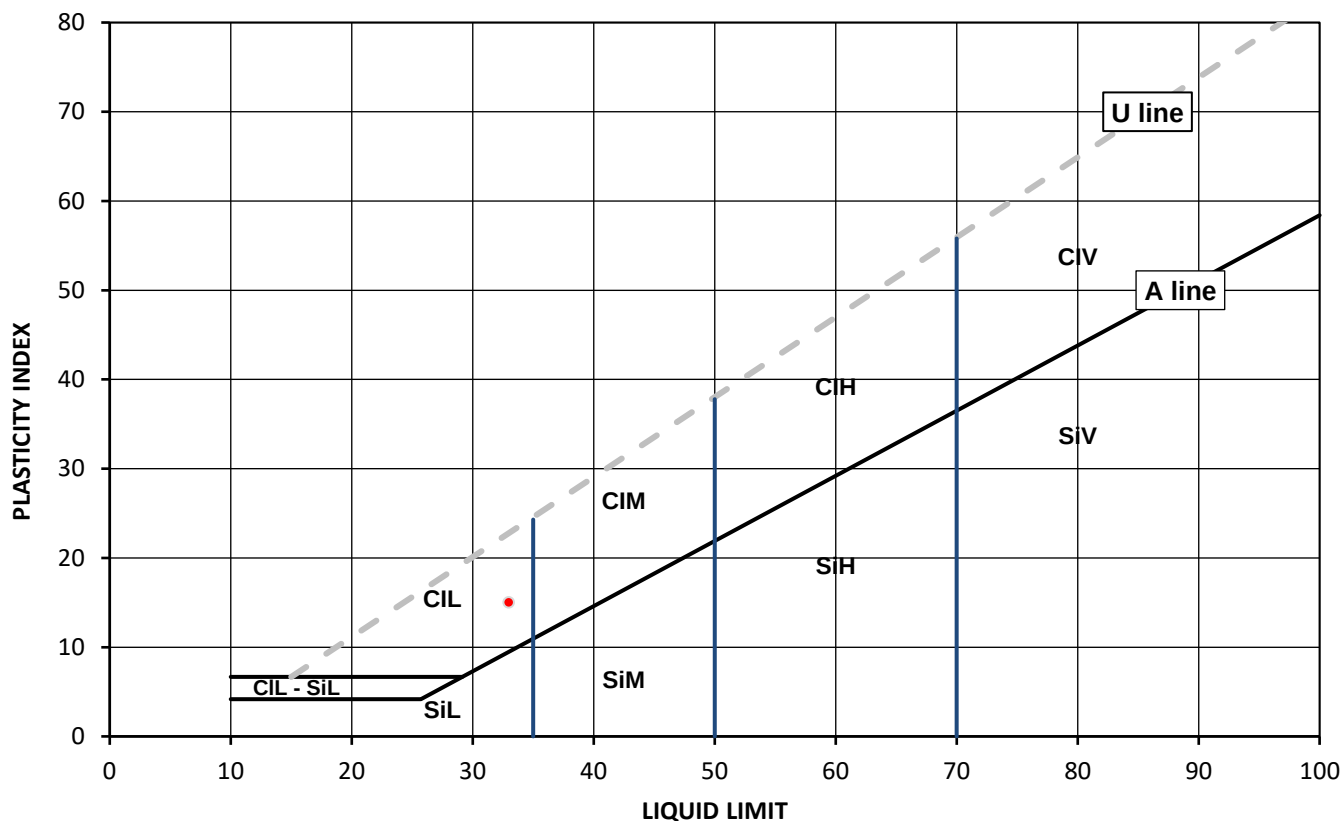
Test Results:

Laboratory Reference: 420717
 Hole No.: Parcel A MWS106
 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
17.5	33	18	15	0.00	1.00	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

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

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
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Environmental Science

4041

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Date Sampled: 16/12/2024
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Date Tested: 14/01/2025
Sampled By: Client - Tim Stempt

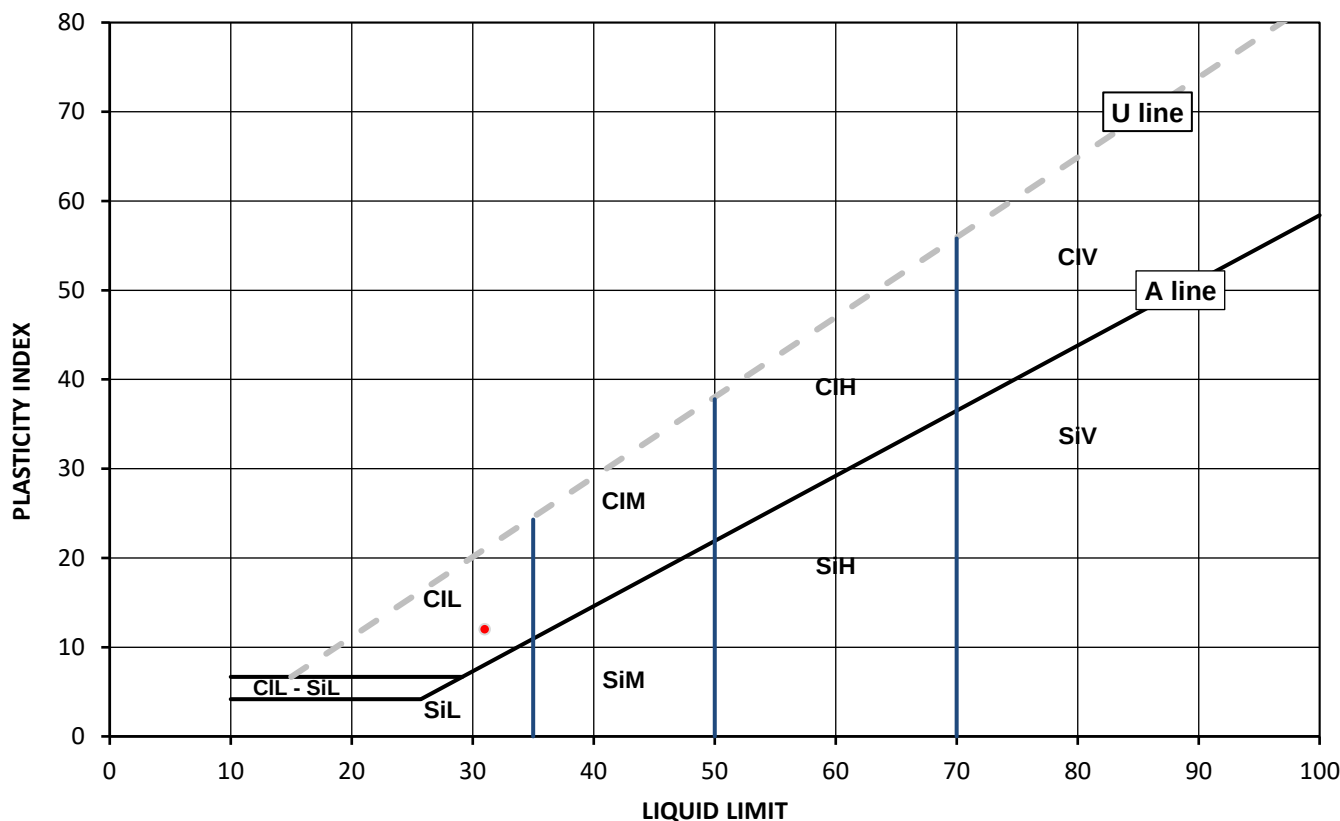
Test Results:

Laboratory Reference: 420718
Hole No.: Parcel A MWS102
Sample Reference: Not Given
Sample Description: Brown very sandy 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
17.0	31	19	12	-0.17	1.17	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

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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Northampton NN4 7EB



Environmental Science

4041

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Date Received: 17/12/2024
Date Tested: 14/01/2025
Sampled By: Client - Tim Stempt

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

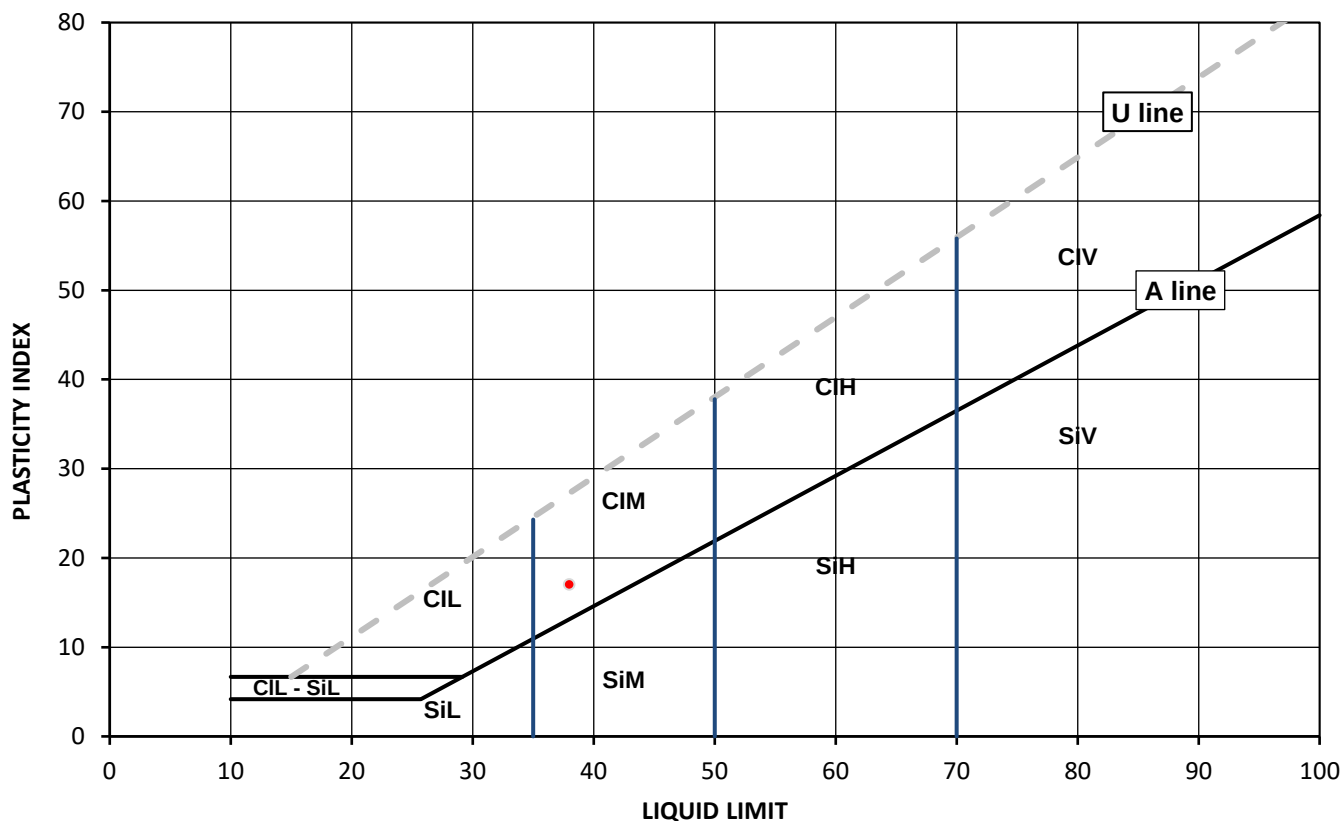
Test Results:

Laboratory Reference: 420719
Hole No.: Remaining Areas MWS113
Sample Reference: Not Given
Sample Description: Brown sandy CLAY

Depth Top [m]: 1.20
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
15.8	38	21	17	-0.29	1.29	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: Tim Stempt
Site Address: Ingrebourne Remaining Areas

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. W by BS EN ISO 17892-1:2014+A1:2022.

Client Reference: 21949BA
Job Number: 25-000726-1
Date Sampled: 16/12/2024
Date Received: 17/12/2024
Date Tested: 13/01 - 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														
420705	Remaining Areas MSP102	Not Given	0.15	Not Given	B	Brownish grey slightly gravelly sandy CLAY	Atterberg 4 Point	21.3	94	36	-	21	15	80g/30 deg	WR / I			
420706	Remaining Areas MSP102	Not Given	0.80	Not Given	B	Yellowish brown slightly sandy slightly gravelly CLAY	Atterberg 4 Point	20.0	94	37	-	21	16	80g/30 deg	R / I			
420707	Remaining Areas MSP103	Not Given	0.80	Not Given	B	Yellowish brown slightly sandy CLAY	Atterberg 4 Point	20.0	100	38	-	21	17	80g/30 deg	N / I			
420708	Remaining Areas MSP104	Not Given	0.50	Not Given	B	Yellowish brown very sandy CLAY	Atterberg 4 Point	19.3	100	32	-	20	12	80g/30 deg	N / I			
420709	Remaining Areas MSP104	Not Given	1.50	Not Given	D	Brown slightly gravelly very sandy silty CLAY	Atterberg 4 Point	14.7	82	30	-	21	9	80g/30 deg	WR / I			
420710	Remaining Areas MSP106	Not Given	0.80	Not Given	D	Brown sandy CLAY	Atterberg 4 Point	25.1	100	37	-	19	18	80g/30 deg	N / I			
420711	Remaining Areas MSP109	Not Given	0.65	Not Given	D	Brown sandy CLAY	Atterberg 4 Point	20.3	100	37	-	19	18	80g/30 deg	N / I			
420712	Remaining Areas MWS109	Not Given	2.70	Not Given	D	Brown slightly gravelly sandy CLAY	Atterberg 4 Point	21.8	99	39	-	22	17	80g/30 deg	R / I			
420713	Remaining Areas MWS110	Not Given	0.60	Not Given	D	Brown sandy CLAY	Atterberg 4 Point	22.5	100	36	-	20	16	80g/30 deg	N / I			
420714	Remaining Areas MWS114	Not Given	0.50	Not Given	D	Brown very sandy CLAY	Atterberg 4 Point	20.8	100	30	-	19	11	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:

Signed:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

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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,
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BR2 6HQ
Contact: Tim Stempt
Site Address: Ingrebourne Remaining Areas

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. W by BS EN ISO 17892-1:2014+A1:2022.

Client Reference: 21949BA
Job Number: 25-000726-1
Date Sampled: 16/12/2024
Date Received: 17/12/2024
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
420715	Remaining Areas MWS118	Not Given	0.50	Not Given	D	Brown very sandy CLAY	Atterberg 4 Point	22.0	100	33	-	17	16	80g/30 deg	N / I			
420716	Parcel A MWS101	Not Given	0.60	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 4 Point	21.6	96	31	-	18	13	80g/30 deg	R / I			
420717	Parcel A MWS106	Not Given	0.80	Not Given	D	Brown very sandy CLAY	Atterberg 4 Point	17.5	100	33	-	18	15	80g/30 deg	N / I			
420718	Parcel A MWS102	Not Given	0.50	Not Given	D	Brown very sandy CLAY	Atterberg 4 Point	17.0	100	31	-	19	12	80g/30 deg	N / I			
420719	Remaining Areas MWS113	Not Given	1.20	Not Given	D	Brown sandy CLAY	Atterberg 4 Point	15.8	100	38	-	21	17	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:



Katarzyna Koziel
Geotechnical Reporting Team Leader
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
Client: Merebrook
Client Address: First Floor, 1 Leonard Place,
Westerham Road, Keston,
BR2 6HQ
Contact: Tim Stempt
Site Address: Ingrebourne Remaining Areas

Client Reference: 21949BA
Job Number: 25-000726-1
Date Sampled: 16/12/2024
Date Received: 17/12/2024
Date Tested: 13/01 - 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														
420705	Remaining Areas MSP102	Not Given	0.15	Not Given	B	Brownish grey slightly gravelly sandy CLAY		21.3											
420706	Remaining Areas MSP102	Not Given	0.80	Not Given	B	Yellowish brown slightly sandy slightly gravelly CLAY		20.0											
420707	Remaining Areas MSP103	Not Given	0.80	Not Given	B	Yellowish brown slightly sandy CLAY		20.0											
420708	Remaining Areas MSP104	Not Given	0.50	Not Given	B	Yellowish brown very sandy CLAY		19.3											
420709	Remaining Areas MSP104	Not Given	1.50	Not Given	D	Brown slightly gravelly very sandy silty CLAY		14.7											
420710	Remaining Areas MSP106	Not Given	0.80	Not Given	D	Brown sandy CLAY		25.1											
420711	Remaining Areas MSP109	Not Given	0.65	Not Given	D	Brown sandy CLAY		20.3											
420712	Remaining Areas MWS109	Not Given	2.70	Not Given	D	Brown slightly gravelly sandy CLAY		21.8											
420713	Remaining Areas MWS110	Not Given	0.60	Not Given	D	Brown sandy CLAY		22.5											
420714	Remaining Areas MWS114	Not Given	0.50	Not Given	D	Brown very sandy CLAY		20.8											

Comments:

Signed:



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Geotechnical Reporting Team Leader
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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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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														
420715	Remaining Areas MWS118	Not Given	0.50	Not Given	D	Brown very sandy CLAY		22.0											
420716	Parcel A MWS101	Not Given	0.60	Not Given	D	Brown slightly gravelly very sandy CLAY		21.6											
420717	Parcel A MWS106	Not Given	0.80	Not Given	D	Brown very sandy CLAY		17.5											
420718	Parcel A MWS102	Not Given	0.50	Not Given	D	Brown very sandy CLAY		17.0											
420719	Remaining Areas MWS113	Not Given	1.20	Not Given	D	Brown sandy CLAY		15.8											

Comments:

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Geotechnical Reporting Team Leader
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,
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Contact: Tim Stempt
Site Address: Ingrebourne Remaining Areas

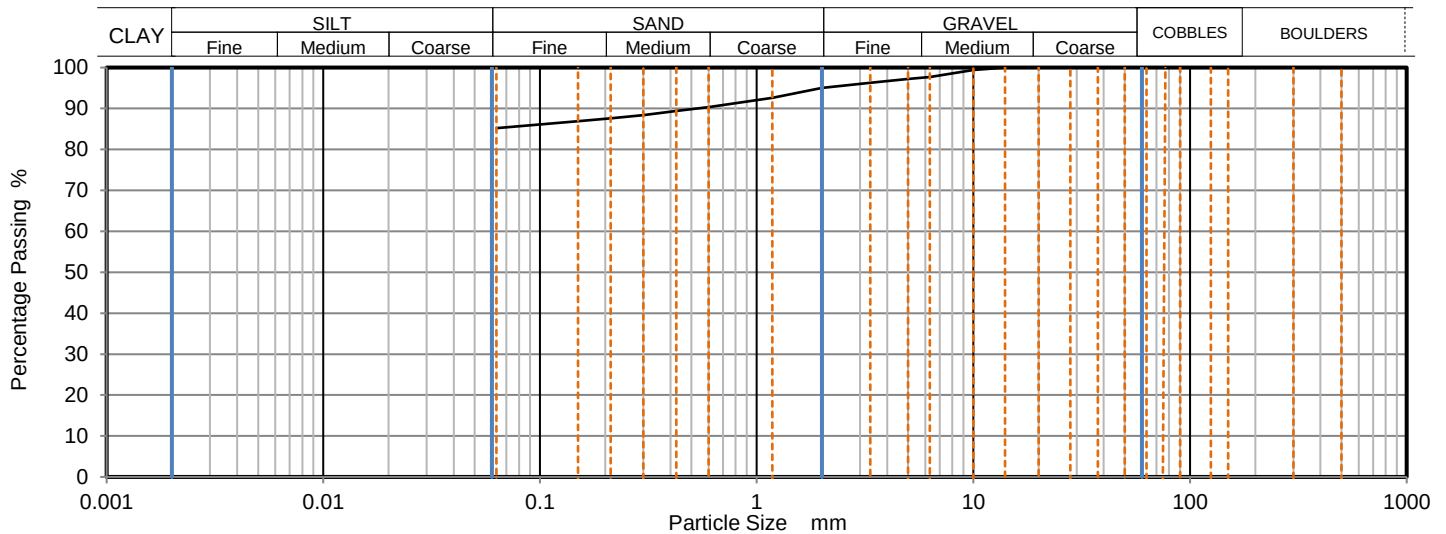
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Job Number: 25-000726-1
Date Sampled: 16/12/2024
Date Received: 17/12/2024
Date Tested: 13/01/2025
Sampled By: Client - Tim Stempt

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

Test Results:

Laboratory Reference: 420706
Hole No.: Remaining Areas MSP102
Sample Reference: Not Given
Sample Description: Yellowish brown slightly sandy slightly gravelly CLAY
Sample Preparation: Sample was quartered, oven dried at 108.1 °C and broken down by hand.

Depth Top [m]: 0.80
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	97		
3.35	96		
2	95		
1.18	93		
0.6	90		
0.425	89		
0.3	88		
0.212	88		
0.15	87		
0.063	85		

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	10
Fines <0.063 mm	85

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:

Katarzyna Koziel
Geotechnical Reporting Team Leader
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
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Contact: Tim Stempt
Site Address: Ingrebourne Remaining Areas

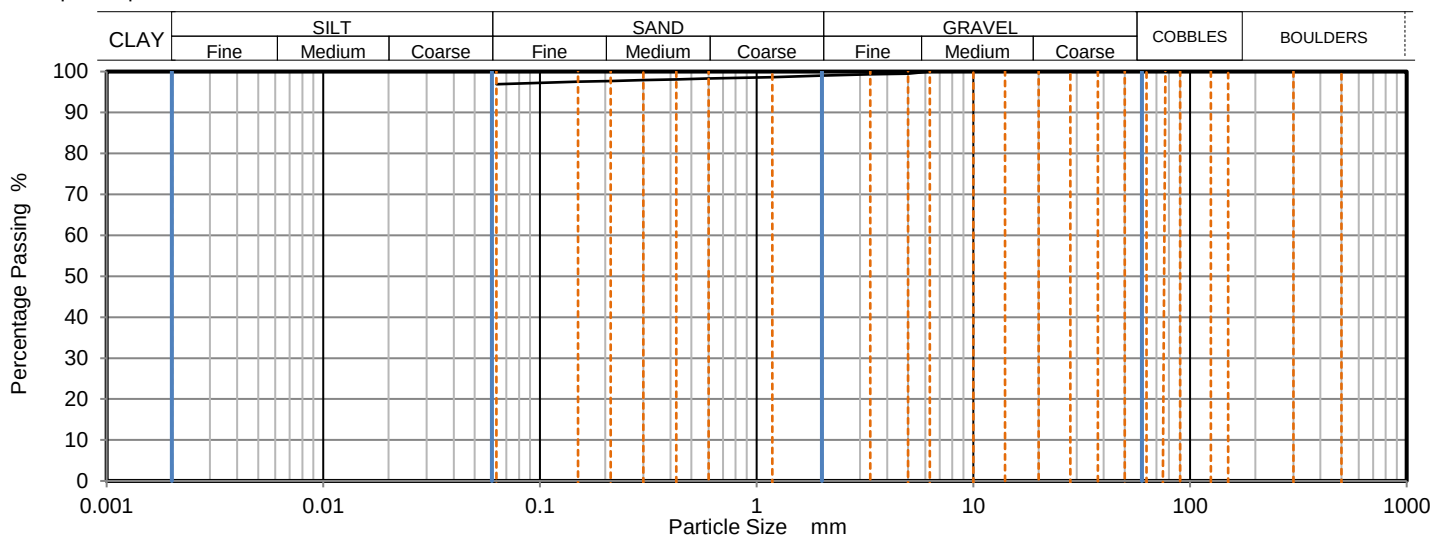
Client Reference: 21949BA
Job Number: 25-000726-1
Date Sampled: 16/12/2024
Date Received: 17/12/2024
Date Tested: 13/01/2025
Sampled By: Client - Tim Stempt

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

Test Results:

Laboratory Reference: 420707
Hole No.: Remaining Areas MSP103
Sample Reference: Not Given
Sample Description: Yellowish brown slightly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 108.1 °C and broken down by hand.

Depth Top [m]: 0.80
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	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	99		
0.6	98		
0.425	98		
0.3	98		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	2
Fines <0.063 mm	97

Grading Analysis	
D100	mm
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:

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Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

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Merebrook
First Floor
1 Leonard Place
Westerham Road
Keston
BR2 6HQ

t: 01689 889980

e: ttempt@idom.com
coliveira@idom.com

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

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

Analytical Report Number : 25-000735

Project / Site name:	Ingrebourne Remaining Areas	Samples received on:	17/12/2024
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:	11 soil samples		



Signed: _____

Anna Goc
PL Head of Reporting Team
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: 25-000735

Project / Site name: Ingrebourne Remaining Areas

Your Order No: 25-2-FDO-LABS

Lab Sample Number				420750	420751	420752	420753	420754
Sample Reference				Remaining Areas MSP105	Remaining Areas MSP107	Remaining Areas MSP107	Remaining Areas MSP108	Remaining Areas MWS109
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	0.60	2.00	2.00	3.50
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	15.4	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	13	14	18	13
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	7.8	7.3	6.5	7.8	6.6
Total Sulphate as SO ₄	%	0.005	MCERTS	0.024	0.021	0.028	0.026	0.026
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	35	31	56	36	68
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	17.3	15.6	28.1	17.8	34
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	0.7	0.7	0.5	1.1	1.9
Total Sulphur	mg/kg	50	MCERTS	94	61	110	110	97
Total Sulphur	%	0.005	MCERTS	0.009	0.006	0.011	0.011	0.01
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	6.3	4.2	3.2	4.2	6.3
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-000735

Project / Site name: Ingrebourne Remaining Areas

Your Order No: 25-2-FDO-LABS

Lab Sample Number				420755	420756	420757	420758	420759
Sample Reference				Remaining Areas MWS111	Remaining Areas MWS112	Remaining Areas MWS115	Remaining Areas MWS117	Parcel A MWS102
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	1.40	0.60	1.40	1.50
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	0.2	< 0.1	< 0.1	< 0.1	1.5
Moisture Content	%	0.01	NONE	14	13	17	14	13
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	8	6.2	7.2	7.8	7.2
Total Sulphate as SO ₄	%	0.005	MCERTS	0.019	0.038	0.023	0.021	0.022
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	28	54	37	22	17
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	13.9	27	18.6	11.1	8.34
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	0.7	1.9	2.2	1.5	1.8
Total Sulphur	mg/kg	50	MCERTS	69	160	93	84	66
Total Sulphur	%	0.005	MCERTS	0.007	0.016	0.009	0.008	0.007
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	< 2.5	5.4	3.6	3.6	3.8
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-000735

Project / Site name: Ingrebourne Remaining Areas

Your Order No: 25-2-FDO-LABS

Lab Sample Number				420760
Sample Reference				Remaining Areas MWS116
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				0.50
Date Sampled				16/12/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	19
Total mass of sample received	kg	0.1	NONE	0.8

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	6.9
Total Sulphate as SO ₄	%	0.005	MCERTS	0.046
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	150
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	74.3
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.8
Total Sulphur	mg/kg	50	MCERTS	190
Total Sulphur	%	0.005	MCERTS	0.019
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	9.3
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-000735
Project / Site name: Ingrebourne Remaining Areas

* 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 *
420750	aining Areas MS	None Supplied	1	Brown sandy clay
420751	aining Areas MS	None Supplied	0.6	Brown sandy clay with stones
420752	aining Areas MS	None Supplied	2	Brown clay and sand
420753	aining Areas MS	None Supplied	2	Brown sandy clay
420754	aining Areas MW	None Supplied	3.5	Brown sandy clay
420755	aining Areas MW	None Supplied	1.5	Brown sandy clay with stones
420756	aining Areas MW	None Supplied	1.4	Brown sandy clay
420757	aining Areas MW	None Supplied	0.6	Brown sandy clay
420758	aining Areas MW	None Supplied	1.4	Brown sandy clay
420759	Parcel A MWS102	None Supplied	1.5	Brown sandy clay with stones
420760	aining Areas MW	None Supplied	0.5	Brown clay and sand

Analytical Report Number : 25-000735

Project / Site name: Ingrebourne Remaining Areas

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
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

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION					
Site Name:	Remaining Areas - MSP101			Job No:	21949ba
Engineer:	Matt Baylis	Date:	17/12/2024	Weather:	Cloudy

TEST PIT DETAILS							
Trial Pit Number:	RA - MSP101		Test 1 of 3				
Length (m):	2.0	Width (m):	0.5		Depth (m):	1.1	
Depth to Groundwater (m):	DRY						
Time Filling Commenced:	09:30		Time Filling Completed:			09:31	
Depth to Water at Start of Test:	0.735						
Effective Depths:	75%:		0.83	50%:	0.92	25%:	1.01

NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved.

35 secs

TEST PIT RESULTS				
TEST DATA				RA - MSP101
Time	t (mins)	t (secs)	Depth to Water (m)	
	0	0	0.730	
	0.5	30	0.735	
	1	60	0.740	
	1.5	90	0.750	
	2	120	0.760	
	3	180	0.770	
	4	240	0.770	
	5	300	0.780	
	6	360	0.790	
	7	420	0.790	
	8	480	0.795	
	9	540	0.800	
	10	600	0.802	
	12	720	0.814	
	14	840	0.820	
	16	960	0.830	
	18	1080	0.840	
	20	1200	0.850	
	25	1500	0.865	
	30	1800	0.885	
	40	2400	0.910	
	50	3000	0.930	
	60	3600	0.950	
	90	5400	1.010	
	120	7200		
	150	9000		
	180	10800		
	210	12600		
	240	14400		
	270	16200		
	300	18000		
				t at 75% Effective Depth: 960 secs t at 25% Effective Depth: 5400 secs Infiltration Rate $f = V_{p75-25} / a_{p50} \times t_{p75-25}$ V_{p75-25} : 0.18 m3 a_{p50} : 1.9125 m2 t_{p75-25} : 4440 secs $f = 2.15E-05 \text{ m/s}$

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION					
Site Name:	Remanining Areas - MSP101			Job No:	21949ba
Engineer:	Matt Baylis	Date:	17/12/2024	Weather:	Cloudy

TEST PIT DETAILS							
Trial Pit Number:	RA - MSP101		Test 2 of 3				
Length (m):	2.0	Width (m):	0.5		Depth (m):	1.1	
Depth to Groundwater (m):	DRY						
Time Filling Commenced:	11:00		Time Filling Completed:			11:01	
Depth to Water at Start of Test:	0.8						
Effective Depths:	75%:		0.88	50%:	0.95	25%:	1.03

NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved.

35 secs

TEST PIT RESULTS				
TEST DATA				RA - MSP101
Time	t (mins)	t (secs)	Depth to Water (m)	
	0	0	0.800	
	0.5	30	0.800	
	1	60	0.800	
	1.5	90	0.800	
	2	120	0.800	
	3	180	0.810	
	4	240	0.810	
	5	300	0.810	
	6	360	0.820	
	7	420	0.820	
	8	480	0.830	
	9	540	0.830	
	10	600	0.830	
	12	720	0.840	
	14	840	0.840	
	16	960	0.840	
	18	1080	0.850	
	20	1200	0.860	
	25	1500	0.875	
	30	1800	0.890	
	40	2400	0.915	
	50	3000	0.935	
	60	3600	0.950	
	90	5400	0.985	
	120	7200	1.015	
	140	8400	1.030	
	180	10800		
	210	12600		
	240	14400		
	270	16200		
	300	18000		
				t at 75% Effective Depth: 1600 secs t at 25% Effective Depth: 7200 secs Infiltration Rate $f = V_{p75-25} / a_{p50} \times t_{p75-25}$ V_{p75-25} : 0.15 m3 a_{p50} : 1.75 m2 t_{p75-25} : 5600 secs $f = 1.53E-05 \text{ m/s}$

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION

Site Name:	Remaining Areas - MSP101			Job No:	21949ba
Engineer:	Matt Baylis	Date:	17/12/2024	Weather:	Cloudy

TEST PIT DETAILS

Trial Pit Number:	MSP101		Test 3 of 3				
Length (m):	2.0	Width (m):	0.5		Depth (m):	1.1	
Depth to Groundwater (m):	DRY						
Time Filling Commenced:	13:20		Time Filling Completed:			13:21	
Depth to Water at Start of Test:	0.85						
Effective Depths:	75%:		0.91	50%:	0.98	25%:	1.04

NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved.

35 secs

TEST PIT RESULTS

TEST DATA			
Time	t (mins)	t (secs)	Depth to Water (m)
	0	0	0.850
	0.5	30	0.850
	1	60	0.850
	1.5	90	0.860
	2	120	0.860
	3	180	0.860
	4	240	0.870
	5	300	0.870
	6	360	0.880
	7	420	0.880
	8	480	0.890
	9	540	0.890
	10	600	0.900
	12	720	0.910
	14	840	0.915
	16	960	0.920
	18	1080	0.920
	20	1200	0.920
	25	1500	0.930
	30	1800	0.940
	40	2400	0.960
	50	3000	0.980
	60	3600	1.000
	85	5100	1.040
	120	7200	
	150	9000	
	180	10800	
	210	12600	
	240	14400	
	270	16200	
	300	18000	

t at 75% Effective Depth: **480** secs
t at 25% Effective Depth: **3900** secs

Infiltration Rate $f = Vp_{75-25} / ap_{50} \times tp_{75-25}$

Vp₇₅₋₂₅: **0.13** m3
ap₅₀: **1.625** m2
tp₇₅₋₂₅: **3420** secs

f = 2.25E-05 m/s

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION

Site Name:	Remaining Areas - Imberhorne Lane			Job No:	21949ba
Engineer:	Matt Baylis	Date:	17/12/2024	Weather:	Cloudy

TEST PIT DETAILS

Trial Pit Number:	MSP102		Test 1 of 1				
Length (m):	2.2	Width (m):	0.5		Depth (m):	1.0	
Depth to Groundwater (m):	DRY						
Time Filling Commenced:	14:00		Time Filling Completed:			14:01	
Depth to Water at Start of Test:		0.85					
Effective Depths:		75%:	0.89	50%:	0.93	25%:	0.96

NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved.

01:33

TEST PIT RESULTS

TEST DATA			
Time	t (mins)	t (secs)	Depth to Water (m)
	0	0	0.790
	0.5	30	0.790
	1	60	0.790
	1.5	90	0.790
	2	120	0.790
	3	180	0.790
	4	240	0.790
	5	300	0.790
	6	360	0.790
	7	420	0.790
	8	480	0.790
	9	540	0.790
	10	600	0.790
	12	720	0.790
	14	840	0.790
	16	960	0.790
	18	1080	0.795
	20	1200	0.795
	25	1500	0.795
	30	1800	0.795
	40	2400	
	50	3000	
	60	3600	
	90	5400	
	120	7200	
	150	9000	
	180	10800	
	210	12600	
	240	14400	
	270	16200	
	300	18000	

t at 75% Effective Depth: secs
 t at 25% Effective Depth: secs

Infiltration Rate $f = V_{p75-25} / a_{p50} \times t_{p75-25}$

Vp75-25: **0.08** m3
 ap50: **1.505** m2
 tp75-25: **0** secs

f = #DIV/0! m/s

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION

Site Name:	Lomer Farm, Meopham			Job No:	21949am
Engineer:	Matt Baylis	Date:	19/06/2024	Weather:	Cloudy

TEST PIT DETAILS

Trial Pit Number:	MSP103		Test 1 of 1				
Length (m):	1.9	Width (m):	0.5		Depth (m):	1.0	
Depth to Groundwater (m):	DRY						
Time Filling Commenced:	14:45		Time Filling Completed:			15:15	
Depth to Water at Start of Test:	0.81						
Effective Depths:	75%:		0.86	50%:	0.91	25%:	0.95

NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved.

.....
35 secs

TEST PIT RESULTS

TEST DATA			
Time	t (mins)	t (secs)	Depth to Water (m)
	0	0	0.810
	0.5	30	0.810
	1	60	0.810
	1.5	90	0.810
	2	120	0.810
	3	180	0.810
	4	240	0.810
	5	300	0.810
	6	360	0.810
	7	420	0.810
	8	480	0.810
	9	540	0.810
	10	600	0.810
	12	720	0.810
	14	840	0.810
	16	960	0.810
	18	1080	0.815
	20	1200	0.815
	25	1500	0.815
	30	1800	0.815
	40	2400	
	50	3000	
	60	3600	
	90	5400	
	120	7200	
	150	9000	
	180	10800	
	210	12600	
	240	14400	
	270	16200	
	300	18000	

t at 75% Effective Depth: secs
 t at 25% Effective Depth: secs

Infiltration Rate $f = V_{p75-25} / a_{p50} \times t_{p75-25}$

Vp75-25: **0.09** m3
 ap50: **1.406** m2
 tp75-25: **0** secs

f = #DIV/0! m/s

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION					
Site Name:	Remaining Areas - Imberhorne Lane			Job No:	21949ba
Engineer:	Matt Baylis	Date:	17/12/2024	Weather:	Cloudy

TEST PIT DETAILS							
Trial Pit Number:	SP104		Test 1 of 1				
Length (m):	2.2	Width (m):	0.5		Depth (m):	1.0	
Depth to Groundwater (m):	DRY						
Time Filling Commenced:	15:20		Time Filling Completed:			15:21	
Depth to Water at Start of Test:	0.64						
Effective Depths:	75%:		0.73	50%:	0.82	25%:	0.91

NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved. 01:39

TEST PIT RESULTS				
TEST DATA				SP104
Time	t (mins)	t (secs)	Depth to Water (m)	
	0	0	0.640	
	0.5	30	0.640	
	1	60	0.640	
	1.5	90	0.640	
	2	120	0.640	
	3	180	0.640	
	4	240	0.640	
	5	300	0.640	
	6	360	0.640	
	7	420	0.640	
	8	480	0.640	
	9	540	0.640	
	10	600	0.640	
	12	720	0.640	
	14	840	0.640	
	16	960	0.640	
	18	1080	0.640	
	20	1200	0.640	
	25	1500	0.640	
	30	1800	0.640	
	40	2400		
	50	3000		
	60	3600		
	90	5400		
	120	7200		
	150	9000		
	180	10800		
	210	12600		
	240	14400		
	270	16200		
	300	18000		
				t at 75% Effective Depth: secs t at 25% Effective Depth: secs Infiltration Rate $f = V_{p75-25} / a_{p50} \times t_{p75-25}$ V _{p75-25} : 0.20 m ³ a _{p50} : 2.072 m ² t _{p75-25} : 0 secs f = #DIV/0! m/s

APPENDIX 6

- Groundwater Chemistry
- Laboratory Analysis Certificates

Merebrook
First Floor
1 Leonard Place
Westerham Road
Keston
BR2 6HQ

t: 01689 889980

e: mbaylis@idom.com
coliveira@idom.com

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

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

Analytical Report Number : 25-000713

Project / Site name:	Remaining Areas - Imberhome 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:	15/01/2025
Report Issue Number:	1	Report issued on:	15/01/2025
Samples Analysed:	3 water samples		



Signed: _____

Anna Goc
PL Head of Reporting Team
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: 25-000713

Project / Site name: Remaining Areas - Imberhome Lane

Your Order No: 25-2-FDO-LABS

Lab Sample Number				420646	420647	420648
Sample Reference				MWS106-EW	MWS108-EW	MWS116-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	7.6	7.2	7.1
Total Cyanide	µg/l	10	NONE	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	NONE	18000	18800	53900
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	1.25	1.33	1.93

Total Phenols

Total Phenols (monohydric)	µg/l	10	NONE	< 10	< 10	< 10
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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
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	NONE	0.2	0.18	0.33
Cadmium (dissolved)	µg/l	0.02	NONE	0.02	0.02	0.06
Chromium (dissolved)	µg/l	0.2	NONE	< 0.2	0.2	< 0.2
Copper (dissolved)	µg/l	0.5	NONE	4	4.6	3.8
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	1.6	4.1	9.1
Selenium (dissolved)	µg/l	0.6	NONE	0.7	< 0.6	< 0.6
Zinc (dissolved)	µg/l	0.5	NONE	2.3	3.8	2.1

Calcium (dissolved)	mg/l	0.012	NONE	62	69	94
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0

Analytical Report Number: 25-000713

Project / Site name: Remaining Areas - Imberhome Lane

Your Order No: 25-2-FDO-LABS

Lab Sample Number				420646	420647	420648
Sample Reference				MWS106-EW	MWS108-EW	MWS116-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 : 25-000713

Project / Site name: Remaining Areas - Imberhome 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

Analytical Report Number : 25-000713

Project / Site name: Remaining Areas - Imberhome 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-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 30oC.

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

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

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																		
MWS104	10:50	0	0	997	0	0	0	0	0.6	0.6	19.7	0	0	60.000	0.000	nr	1.84	1.88	-	
MWS106	10:40	0	0	998	0	0	0	0	0.9	0.9	18.8	0	0	60.000	0.000	1	0.94	1.78	-	
MWS108	11:00	0	0	997	0	0	0	0	0.5	0.5	20.3	0	0	60.000	0.000	nr	0.98	1.98	-	
MWS112	11:10	0	0	998	0	0	0	0	0.8	0.8	19.4	0	0	60.000	0.000	nr	Dry	1.47	-	
MWS116	11:20	0	0	998	0	0	0	0	0.8	0.8	20.3	0	0	60.000	0.000	nr	0.40	1.90	-	
MWS117	11:30	0	0	998	0	0	0	0	0.8	0.8	19.9	0	0	60.000	0.000	nr	0.62	1.33	-	
MWS118	11:40	0	0	998	0	0	0	0	1.4	1.4	19.7	0	0	60.000	0.000	nr	1.02	2.20	-	
MWS102	09:15	0	0	997	0	0	0	0	2.4	2.4	8.1	0	0	60.000	0.000	1	Dry	1.00	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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Weather:		Slightly rainy. Atmospheric Pressure falling during the past 30 hours.				nr = not recorded					Gas Analyser		PID		Site:				Imberhome Lane, Remaining Area	
						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																		
MWS104	11:00	0	0	1002	0	0	0	0	0.8	0.8	19.5	0	0		0.000	1	1.82	1.85	-	
MWS106	11:15	0	0	1002	0	0	0	0	1.1	1.1	19.4	0	0		0.000	0	0.90	1.78	Groundwater Sample Taken	
MWS108	11:50	0	0	1002	0	0	0	0	0.7	0.7	19.7	0	0		0.000	0	0.25	2.00	Groundwater Sample Taken	
MWS112	12:20	0	0	1001	0	0	0	0	0.9	0.9	19.6	0	0		0.000	1	DRY	1.45	-	
MWS116	12:40	0	0	1000	0	0	0	0	0.5	0.5	20.1	0	0		0.000	0	0.50	1.90	Groundwater Sample Taken	
MWS117	13:10	0	0	999	0	0	0	0	1.3	1.3	19.3	0	0		0.000	1	0.45	1.45	-	
MWS118	13:20	0	0	999	0	0	0	0	1.6	1.6	19.2	0	0		0.000	1	0.90	2.20	-	
MWS102	13:50	0	0	998	0	0	0	0	2.8	2.8	16.3	0	0		0.000	0	DRY	1.00	-	
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Weather:		Overcast and Cloud. Atmospehric pressure falling during the past 5 hours				nr = not recorded					Gas Analyser		PID		Site:				Imberhome Lane, Remaining Area	
						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	

GAS MONITORING RECORD ROUND 3

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																	
MWS104	13:15	0	0	992	0	0	0	0	1.1	1.1	17.7	0	0		0.000	0	DRY	1.85	-
MWS106	13:00	0	0	992	0	0	0	0	0.2	0.2	20.3	0	0		0.000	0	1.18	1.78	-
MWS108	13:30	0	0	992	0	0	0	0	0.3	0.3	20.4	0	0		0.000	0	DRY	1.98	-
MWS112	13:45	0	0	992	0	0	0	0	3	3	8.8	0	0		0.000	0	DRY	1.42	-
MWS116	11:45	-	-	-	-	-	-	-	-	-	-	-	nr		-	nr	0.80	1.90	Pipe unscrewed at time of visit.
MWS117	11:30	0	0	992	0	0	0	0	2.3	2.3	15.8	0	0		0.000	0	0.64	1.35	-
MWS118	11:15	0	0	992	0	0	0	0	3.7	3.7	13.1	0	0		0.000	0	1.12	2.16	-
MWS102	10:30	0	0	992	0	0	0	0	1.1	1.1	17.6	0	0		0.000	0	0.80	1.00	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
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Weather:		Overcast. Atmospheric pressure rising during the past 30 hours				nr = not recorded					Gas Analyser		PID		Site:			Imberhorne Lane, Remaining Area	
						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:			29/01/2025	

GAS MONITORING RECORD ROUND 4

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																	
MWS104	12:30	0	0	1007	0	0	0	0	1.3	1.3	18.3	0	0		0	0	DRY	1.85	-
MWS106	12:40	0	0	1008	0	0	0	0	0.4	0.4	20.3	0	0		0	1	1.35	1.78	-
MWS108	12:45	0	0	1007	0	0	0	0	0.6	0.6	20.2	0	0		0	0	DRY	1.98	-
MWS112	12:55	0	0	1006	0	0	0	0	3.1	3.1	13.2	0	0		0	1	DRY	1.42	-
MWS116	13:05	-	-	-	-	-	-	-	-	-	-	-	nr		-	nr	0.30	1.90	Pipe unscrewed
MWS117	13:15	0	0	1007	0	0	0	0	2.7	2.7	15.8	0	0		0	0	0.70	1.35	-
MWS118	13:20	0	0	1009	0	0	0	0	3.3	3.3	15.3	0	0		0	1	1.20	2.16	-
MWS102	13:30	0	0	1006	0	0	0	0	1	1	19.5	0	0		0	1	0.85	1.00	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
Weather:		Rain. Atmosperhic pressure faling during the past 12 hours				nr = not recorded					Gas Analyser		PID		Site:			Imberhome Lane, Remaining Area	
						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:			07/02/2025	

GAS MONITORING RECORD ROUND 5

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																	
MWS104	16:40	0	0	1008	0	0		0	0.8		18.3	0	0		0.011	0	3.0	3.1	-
MWS106	16:25	0	0	1010	0	0		0	0.5		19.1	0	0		0.012	0	Dry	-	Hole fitted with peizometer - unable to measure base depth
MWS108	16:10	0	0	1009	0	0		0	0.5		19.9	0	0		0.012	1	2.0	-	Hole fitted with peizometer - unable to measure base depth
MWS112	16:50	0	0	1010	0	0		0	3.5		7.1	0	0		0.01	nr	Dry	2.1	* Hole became pressurised after gas reading - PID unable to pump gas out of hole
MWS116	11:10	0	0	1017	0	0		0	0.5		19.2	0	0		0.01	0	1.6	0.0	Pipe had been unscrewed and removed upon arrival - measurements may not be accurate. Pipe refitted before measurements taken. Hole fitted with peizometer - unable to
MWS117	11:00	-1.5	-1.6	1017	-8	0		0	1.2		18	0	0		0.018	0	1.2	2.0	-
MWS118	10:50	-0.7	-0.8	1017	-4	0		0	4.2		8.6	0	0		0.018	0	1.6	2.8	-
MWS102	10:15	-1.2	-1.3	1017	-7	0		0	0.5		19.6	0	0		0.022	0	1.1	1.5	-
-	-	-	-	-	-	-		-	-		-	-	-		-	-	-	-	-
-	-	-	-	-	-	-		-	-		-	-	-		-	-	-	-	-
-	-	-	-	-	-	-		-	-		-	-	-		-	-	-	-	-
-	-	-	-	-	-	-		-	-		-	-	-		-	-	-	-	-
-	-	-	-	-	-	-		-	-		-	-	-		-	-	-	-	-
-	-	-	-	-	-	-		-	-		-	-	-		-	-	-	-	-
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-	-	-	-	-	-	-		-	-		-	-	-		-	-	-	-	-
-	-	-	-	-	-	-		-	-		-	-	-		-	-	-	-	-
Weather:		Partly cloudy. Pressure falling over the last 12 hours.				nr = not recorded				Gas Analyser		PID		Site:		Imberhorne Lane, Remaining Area			
						Model:				GFM436		MiniRae Lite		Project Number:		21949ba			
						Serial Number:				13702		590-904749		Monitored By:		Thea James			
						Date of Last Calibration:				26/07/2024		27/11/2024		Date:		27/02/2025			

GAS MONITORING RECORD ROUND 6

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																	
MWS104	08:00	0	0	1008	0	0	0	0	0.4	0.4	19.8	0	0		0	nr	1.9	2.0	-
MWS106	08:20	0	0	1008	0	0	0	0	0.5	0.5	19.1	0	0		0	nr	1.9	-	Hole fitted with peizometer - unable to measure base depth
MWS108	08:40	0	0	1008	0	0	0	0	0.2	0.2	20	0	0		0	nr	DRY	-	Hole fitted with peizometer - unable to measure base depth
MWS112	09:00	0	0	1008	0	0	0	0	3.4	3.4	9.8	0	0		0	nr	DRY	1.5	-
MWS116	09:20	0	0	1008	0	0	0	0	1.1	1.1	20.1	0	0		0	nr	0.6	1.1	Pipe had been unscrewed and removed upon arrival - measurements may not be accurate. Pipe refitted before measurements taken
MWS117	09:40	0	0	1008	0	0	0	0	1.9	1.9	18.8	0	0		0	nr	0.9	1.4	-
MWS118	10:00	0	0	1008	0	0	0	0	1	1	21.1	0	0		0	nr	1.3	2.2	-
MWS102	10:20	0	0	1008	0	0	0	0	0.8	0.8	18.8	0	0		0	nr	DRY	0.8	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
Weather:		1/8 Cloud, sunny, mild. Pressure consistent over last 12 hours.				nr = not recorded				Gas Analyser		PID		Site:				Imberhorne Lane, Remaining Area	
						Model:				GFM436		-		Project Number:				21949ba	
						Serial Number:				11839		-		Monitored By:				Sam James	
						Date of Last Calibration:				01/11/2025		-		Date:				06/03/2025	

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, Remaining Area JOB NUMBER: 21949ba 04/03/2026

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. <i>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.</i> 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

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

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.

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).



MEREBROOK
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Merebrook Consulting Ltd, Cromford Mills, Mill Lane, Matlock, Derbyshire DE4 3RQ
t +44 (0)1773 829 988 e info@merebrook.co.uk www.merebrook.co.uk
Registered in England and Wales. Registration No: 2740216. VAT Registration 598 4830 79.