



GEOTECHNICAL
ENGINEERS
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Phase II Geo-environmental Assessment

Taylor Wimpey East Midlands

Land off Ratby Lane, Markfield

March 2026

Ref: PJS25-0070-DOC-0010-A

Executive Summary

Environmental Risk Assessment Summary	
Human Health Risk Assessment	Based on the contamination testing that has been carried out on soils from the site, the risk assessment has indicated that the site poses a negligible risk to Human Health.
Controlled Waters Risk Assessment	The risk assessment has indicated that the site poses a very low risk to controlled waters.
Ground Gas	Based on the monitoring carried out to date and general lack of credible ground gas sources, gas protection measures are not considered to be necessary in the construction of new properties at the site.
Vapour Risk	No evidence of vapours has been identified on site; no further assessment or mitigation is therefore necessary.
Ecological Risk	Potential impacts from contamination sources are considered to be negligible. However, the impact to ecological receptors from proposed construction activities should always be considered.
Geotechnical Assessment Summary	
Ground Conditions	Ground conditions on site comprised Topsoil overlying firm to very stiff cohesive Oadby Member deposits (proven to 5.45m bgl) and/or granular Oadby Member deposits (proven to 2.5m bgl). The OM deposits were underlain by the SCD formation which was proven to a maximum depth of 4.43m bgl. SCD bedrock was also encountered underlying the Topsoil in the central and northern areas of the site coincident with BGS geology mapping. Desiccated soils are believed to have been encountered sitewide within traditional foundation depths and may be influenced by seasonal variations. The Oadby Member and Weathered South Charnwood Diorites classify as Class 2B/ 2C materials for earthworks purposes. Moisture conditioning (wetting and drying) of the underlying natural materials will likely be required to make existing materials suitable for placement.
Foundations	Traditional strip / trenchfill foundations are generally considered appropriate for most of the development proposals for the site, bearing within the firm to very stiff cohesive Oadby Member deposits underlying the majority of the site or granular Oadby/SCD deposits, subject to consideration of the loads imposed. Desiccated soils are anticipated sitewide and should be considered at the detailed foundation design stage. Alternative foundations are recommended for any residential plots where foundations depths would exceed 2.5m due to tree influence and in areas where ground levels are raised significantly; also, in the north-east corner where soft strata have been encountered at WS05.
Floor Slabs	At this stage it is anticipated that both ground bearing and suspended floor slabs may be suitable for the site, subject to developer preference and further assessment of proposed ground levels / tree influence.
Drainage	Infiltration testing carried out has confirmed that areas towards the south-east are more suitable for soakaway drainage. A drainage basin is proposed in the south-west which

Geotechnical Assessment Summary

	recorded practically impermeable ground conditions therefore, an alternative drainage solution is likely required in this area. The advice of a drainage engineer should however be sought to confirm this preliminary assessment prior to construction.
Concrete	Natural sub-soil deposits- DS-1 and AC-2z should be used for design purposes.
Roads & Hardstanding	A preliminary CBR design value between 2-5% should be achieved for road construction design purposes for the cohesive near surface deposits underlying the site. Increased CBR values (>5%) are considered suitable in areas associated with granular near surface deposits.

Recommendations

Further targeted investigation should be carried out in the area of the infilled pond that could not be accessed during this investigation.

UXO mitigation measures adopted for any future intrusive ground works below 4m depth.

Document Issue Record

Document Number	
PJS Reference	PJS25-0070-DOC-0010-A

Status	Revision	Date of Issue	Author	Checked	Approved
Final	-	28/11/25	Steffan Williams BSc (Hons) FGS	Daniel Heywood BSc (Hons)	Adrian McVey BSc (Hons)
					
Final	A	13/03/26	Steffan Williams BSc (Hons) FGS	Adrian McVey BSc (Hons)	Adrian McVey BSc (Hons)
					

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Drawings

PJS25-0070-DR-0008: Site Location Plan
PJS25-0070-DR-0009: Site Features Plan
PJS25-0070-DR-0011-A: Exploratory Hole Location Plan
CSA/2550/118, rev: O: Illustrative Masterplan

1 Introduction

1.1 Instruction

PJS Geotechnical Engineers Limited (PJSG) was instructed by Taylor Wimpey East Midlands (the client) to undertake a Geo-environmental Assessment at land off Ratby Lane Markfield, LE67 9RD (the site).

A site location plan (PJS25-0070-DR-0008) is included within the drawings section of this report.

1.2 Proposed Development

Development proposals for the site are understood to comprise a residential development, with up to 135 No. dwellings, with associated areas of hard standing used for access and parking, and soft landscaping within gardens and designated areas of Public Open Space (POS) in the south. Sustainable urban drainage basins (SuDS) are proposed in the south.

An Illustrative Masterplan (Ref: CSA/2550/118, rev: O), dated May 2025 is included within the drawings section.

1.3 Objectives

The objectives of this assessment are detailed below:

Table 1-1 Objectives

Objectives
Confirm the suitability of the site for the proposed residential development, taking into account the ground conditions and contaminative status of the site.
Undertake a review and provide a summary of previous investigation reports.
Undertake a Generic Quantitative Risk Assessment (GQRA) to confirm the findings of the Initial Conceptual Site Model (ICSM).
Determine the ground gas regime beneath the site.
Update the ICSM based on the findings of the site investigation.
Assess the drainage characteristics of the site.
Propose suitable foundation options and/or potential founding depths as appropriate to ground conditions and site setting.
Assess suitability of near surface deposits for pavement/hardstanding construction.
Undertake an initial assessment of suitability of insitu materials for earthworks.
Identify any potential geo-environmental constraints that may cause abnormal development costs.
Make recommendations for any further investigation / remediation deemed necessary.

1.4 Previous Reports

Table 1-2 below provides details of the relevant information sources which have been made available to PJSG for review in preparation of this report. This report should be read in conjunction with the below referenced reports and contains content to inform the design of the site investigation reported within.

Table 1-2 Information Sources

Report Reference	Produced By	Report Name	Date	Comments
301538	RSK	Geo-environmental Site Assessment	August 2015	A summary of this report is given in the section below.
PJS25-0070-DOC-0007	PJSG	Phase 1 Desk Study Report	October 2025	An updated Phase 1 Desk Study was commissioned as the previous RSK report and corresponding information was considered outdated. The desk study recommended that an intrusive site investigation should be undertaken to confirm ground conditions underlying the proposed development, to confirm suitable foundation solutions and to confirm the contaminative status of the site.

1.4.1 Summary of RSK – Geo-Environmental Site Assessment (2015)

A review of the previous RSK investigation report was undertaken in the Phase 1 Desk Study referenced above which is summarised in the table below.

Only pertinent information relevant to the current site area has been included.

Table 1-3 Summary of RSK Geo-Environmental Site Assessment.

Specifics	Details
Date of Intrusive Works	22 nd – 23 rd January 2015.
Investigation Works	14 No. trial pits (TP101 – TP114) excavated to depths of between 1.25m – 3.70m bgl. 3 No. soakaway test pits (TP101 – TP103) excavated to a depth between 1.50m – 2.20m bgl.
Ground Conditions	Ground conditions encountered comprised: Topsoil; encountered in all exploratory holes typically between 0.0m – 0.3m bgl (maximum depth up to 0.6m bgl). Oadby Member; encountered in 12 out of 14 No. exploratory holes at varying depths between 0.25m – 3.70m bgl comprising 4 No. distinct facies described as: - Firm light orangish brown slightly sandy CLAY to clayey SAND;

Specifics	Details
	- Stiff dark reddish brown mottled light grey slightly sandy CLAY; - Light yellowish brown gravelly SAND; - Dark reddish brown clayey SAND. • South Charnwood Diorites (SCD) encountered in 5 out of 14 No. exploratory holes between 0.3m – 2.6m bgl comprising a combination of sand, gravel cobbles and boulders of dark pinkish-black crystalline diorite. • Groundwater – encountered in 4 No locations in the Oadby Member and SCD deposits between 0.8m and 2.3m.
Groundwater	Groundwater was encountered in four exploratory hole positions during the investigation between 0.75m and 2.30m bgl. One to the west (TP111) and three positions to the east (TP106, TP107 & 112).
Contamination Assessment	The assessment did not identify any contamination on the site; therefore, it was concluded that the initial conceptual model remains valid.
Ground Gas Risk Assessment	A landfill for a licensed waste management facility was identified ~360m east of the site. However, it was determined not to represent a significant risk of ground gas to impact the site. Given the anticipated ground conditions, the preliminary risk assessment determined the risk associated with ground gas to be very low.
Foundations	Medium' to 'High' VCP soils was identified. Traditional spread foundations were considered suitable within the Oadby Member clay at a minimum founding depth of 1.0m bgl, where allowable bearing pressure is anticipated to be 100kPa (for 600mm wide strip footings). Spread foundations within the SCD were considered suitable at a minimum founding depth of 0.6m bgl with an allowable bearing pressure is anticipated to be 200kPa (for 600mm wide strip footings).
Concrete Classification	DS-1 and AC-2z was considered suitable.
Floor Slabs	Both ground-bearing and suspended floor slabs were considered suitable for the site, subject to developer preference and further assessment of proposed ground levels / tree influence
CBR	For preliminary pavement design purposes, it was recommended that a –sub-grade CBR value of 3% should be assumed for clayey subgrade materials rising to 20% for granular subgrade.

2 The Site

A brief overview of the site in its present condition, including the site's existing layout, general location, and near surrounding land use is presented below. The full details of the site are presented in the Phase 1 Desk Study Report referenced in Table 1-2.

Table 2-1 Summary of Site Information

Specifics	Details
Location	Land off Ratby Lane, Markfield, LE67 9RD.
Site Centre Coordinates	449748E, 309481N.
Approximate Site Area	~5.97 hectares (ha)
Current Site Use	Fallow agricultural fields surrounded by mature hedgerows. The site is split into a northern parcel comprising an entire rectangular shaped agricultural field and a smaller southern parcel comprising an approximate triangular shaped section of a wider surrounding agricultural field.
Topography	The topography across the site is variable as follows: The highest elevation is noted in the north of the northern parcel positioned at an elevation of ~179m Above Ordnance Datum (AOD). This parcel slopes towards the south, reaching the lowest area in the south-western corner positioned at an elevation of ~173m AOD. The southern parcel continues sloping south from the northern parcel with the highest elevation in the north of the southern parcel positioned at ~171m AOD declining to the lowest point in the south-eastern corner positioned at an elevation of ~162m AOD.
Surface Conditions	Agricultural topsoil and rough grassland overlie the ground surface of the northern parcel which has been previously ploughed. The southern parcel is overlain by agricultural topsoil and grass used for grazing.
Surface Water Features	No surface water features were identified on site.
Services / Utilities	No services were observed within the northern parcel. Overhead electricity powerlines run east to west and south within the southern parcel.
Access & Security	Vehicle access on to the northern parcel is possible via two access points; an unlocked gate to the west off Ratby Lane and open access from the adjacent woodland to the east. Currently, no access is available between the northern and southern parcels. The southern parcel can be accessed via a locked gate to the west off Ratby Lane and open access from the adjacent farm to the south.
Asbestos Containing Materials (ACMs)	A site walkover was carried out in January 2015 by RSK. The walkover highlighted suspected ACMs along the northern boundary. However, no evidence of this was observed on site during the walkover.

Specifics	Details
Existing Boundaries	Mature trees and hedgerows make up the majority of the site boundaries. The northern boundary primarily comprises wooden fencing of the adjacent residential gardens.
Surrounding Land Use	• North – Residential dwellings • East – Planted Woodland • South – Upper Park Farm and agricultural fields • West – Residential developments associated with Field Head
Potential Contamination Sources from Reconnaissance	• Potential for herbicides / pesticides to have historically been used on-site. • Potential for leaks / spills of fuels/ oils / chemicals to have occurred from farm vehicles using the site.
Identified Receptors from Reconnaissance	• Flora and fauna within the site boundary. • Woodland located adjacent to the east of the site. • Adjacent residential properties to the north and west of the site.

3 Site Setting

The desk study report (referenced in Table 1-2) has been reviewed to provide a summary of the sites setting as detailed in the following sections.

Table 3-1 Site Setting Summary

Specifics	Details
Historical Summary	
Site	Most of the site comprised undeveloped agricultural land prior to 1890 with no change in land use up to the present day. A pond was historically located in the south-west corner of the site present from prior to 1883 which was infilled in the early-1970s.
Surrounding Area	The wider area surrounding the site has predominantly comprised agricultural land with residential and commercial development having occurred to the north and west.
Geological Summary	
Superficial Geology	Oadby Member, diamicton (OM) is mapped underlying the majority of the site excluding localised areas in the central northern and eastern area of the northern parcel.
Bedrock Geology	SCD is mapped underlying the entire site.
Hydrogeology	
Aquifers	• Superficial Deposits (OM) - Secondary Undifferentiated Aquifer. • Bedrock (SCD) - Secondary B Aquifer
Source Protection Zones (SPZ)	No records within 500m.
Potable Abstractions	No records within 1km.
Groundwater Flow	Based on the local topography, groundwater is likely to flow to the south.
Hydrology	
Surface Water Features	An inland river is located adjacent south of the southern parcel. The potential exists for a seasonal pond to be present at the same location however it is unclear if this was dry during reconnaissance or has been infilled. A pond is also present ~115m south.
Ground Constraints / Geotechnical Hazards / Radon	
Potential for Natural Ground Subsidence	Generally negligible to very low risk identified. Ground conditions expected to be predominantly medium plasticity coinciding with superficial OM deposits.

Specifics	Details
Radon	The site is not in a radon area; radon protection measures are not required.
UXO	Anecdotal evidence of a post-WWII bombing incident on site was acknowledged as such, a detailed UXO Risk Assessment report was commissioned for the site. The UXO risk assessment identified a MODERATE risk of encountering UXO on-site due to recorded WWII bombing activity within the vicinity supported by historical newspaper articles and aerial photography dated in 1948 which indicates potential bomb craters in the north-west of corner of the site and ~40m south-west of the site. Following the recognition of a moderate risk, a UXO Targeted Investigation Report was procured to clarify the risk. The investigation comprised a non-intrusive magnetometry survey to highlight hotspots which required further investigation. 76 targets were identified between 0.02m – 1.22m bgl comprising non-UXO scrap metal. The report produced a revised risk assessment which clears any intrusive works from 0m - 4m bgl as LOW risk. Any ground intrusions deeper than 4m have been deemed MODERATE / LOW risk and require further site-based mitigation as follows: • A safety briefing delivered to all appropriate site personnel. • Intrusive magnetometer probe survey of all pile positions. Upon completion of the above mitigation measures the site-specific risk can be deemed as LOW for all intrusive works. The UXO Targeted Investigation Report is enclosed in Appendix A.
Environmental Records	
Regulatory Records	There are no environmental records of considerable concern to the site located either on-site or in proximity when considered in the context of the ICSM.
Landfills / waste sites	There is a record for an active landfill (Bradgate Landfill) and licensed waste sites associated with Bradgate Quarry located ~360m east for commercial, household and industrial waste. However, the distance recorded relates to the access track leading to the landfill which is located >1km east. Given the distance from site, and the expected underlying low permeability geology, the landfill is considered to pose a negligible risk to the site and will not be considered further.

4 Preliminary Contamination Risk Assessment

The legislative framework for Land Contamination Risk Management (LCRM) guidance was published by the EA on 8th October 2020 (updated June 2025). In accordance with the guidance, a Preliminary Risk Assessment (PRA) was completed for the site as detailed in the Phase 1 Desk Study report referenced in Table 1-2. The PRA is the first tier of risk assessment that develops the initial conceptual site model (ICSM) to establish potential contaminant linkages and whether there are any potential unacceptable risks associated with the site.

The ICSM was developed based on the commonly adopted source-pathway-receptor (S-P-R) model as detailed within LCRM 2020. This was carried out in the context of the proposed development and potential contaminant linkages which may represent a risk to identified receptors.

4.1 Potential Sources of Contamination

Sources (S); These are potential or identified sources of contamination that may relate to a former land use or present site feature or process (e.g., fuel storage tanks).

The Phase 1 Desk Study report identified the following potential on-site and off-site sources (S) of contamination as detailed in Table 4-1 below.

Table 4-1 Potential Sources of Contamination

Location	Potential Sources (S)	Inorganic Contaminants	Organic Contaminants
On-Site	Possible areas of unrecorded Made Ground, including in-filled pond in the SW corner.	Common contaminants may include: Cadmium, chromium, copper, lead, mercury, nickel, zinc, sulphate, sulphide, sulphur, pH, free cyanide, asbestos.	Depends on source of material; common contaminants may include: Poly-Aromatic Hydrocarbons (PAH), Petroleum Hydrocarbons (TPH) and Volatile Organic Compounds (VOCs).
On-Site	Agricultural Land - Potential for localised spills of fuels / oils from farm machinery and contamination present in existing agricultural Topsoil.	Naturally occurring metals and asbestos.	As above and pesticides.
Off-Site	Potential for localised spills of fuels / oils from vehicles using the adjacent Ratby Lane to the west.	Common contaminants may include cadmium, chromium, copper, lead, mercury, nickel, zinc, sulphate, sulphide, sulphur, pH, free cyanide.	Depends on source of material; common contaminants may include: Poly-Aromatic Hydrocarbons (PAH), Petroleum Hydrocarbons (TPH) and Volatile Organic Compounds (VOCs).
Off-Site	Limited historical / current industrial land uses located within ~250m of the site.	Dissolved metals in groundwater.	TPH, PAHs and VOCs in groundwater.

4.2 Potential Sources of Ground Gas and Vapours

The following potential sources of ground gas / vapours were identified on site and in the surrounding area as detailed in the table below.

Table 4-2 Potential Sources of Ground Gas/Vapours

Location	Potential Sources (S)	Details	Gas Generation & Migration Potential (CIRIA C665)
On-site	Ground Gas: Areas of unrecorded Made Ground (infilled pond).	Made Ground has the potential to generate elevated ground gas at the site, particularly if any putrescible material is present.	Generally, very low and localised to the source but would be dependent on nature of any materials identified.
On-site & Off-site	Organic Vapours: Spills / leaks of fuels / oils from the various sources identified in Table 4-1.	The potential exists for localised VOCs to be present within any soils / groundwater below the site associated with leaks or spills from farm vehicles historically using the site and vehicles using adjacent roads migrating towards the site.	Generally low and localised to the source.

4.3 ICSM & Potential Contaminant Linkages

For the purpose of this assessment, the ICSM has been reproduced based on the information contained within the Phase 1 Desk Study and has been amended / updated accordingly, where deemed necessary. The potential contaminant linkages considered applicable to the site are detailed in Table 4-3 overleaf.

The risk classification has been qualitatively derived in accordance with the legislative framework for LCRM and in accordance with CIRIA C552 (2001). The methodology is presented in Appendix B.

The PRA has determined that there is potential for localised contamination at the site resulting from past / present on-site & off-site land uses which may have potentially impacted the site. Plausible contaminant linkages have been identified and therefore further assessment is required. A site investigation was recommended to establish current levels of contamination and to confirm the risk.

Table 4-3 ICSM and Potential Contaminant Linkages

Contaminant Linkage			Risk Assessment		
Source (S)	Pathway (P)	Receptor (R)	Probability	Consequence	Current Risk
Human Health					
Potential contaminants as detailed in Table 4-1.	Ingestion of contaminated particulates. Dermal contact. Inhalation of contaminated dust / particles.	Site end users.	Unlikely	Medium	Low
		Construction workers / maintenance workers.	Unlikely	Medium	Low
Potential contaminants as detailed in Table 4-1.	Inhalation of contaminated dust / particles.	Members of the public / properties adjacent to the site during construction	Low	Mild	Low
Potential sources of hazardous ground gas as detailed in Table 4-2.	Migration of asphyxiant and explosive/ harmful gasses into confined spaces.	Site end users.	Unlikely	Severe	Moderate/Low
		Construction workers / maintenance workers.	Unlikely	Severe	Moderate/Low
Potential sources of vapours as detailed in Table 4-2.	Inhalation of vapours in indoor and outdoor air.	Site end users.	Unlikely	Severe	Moderate/Low
		Construction workers / maintenance workers in trenches.	Unlikely	Severe	Moderate/Low

Contaminant Linkage			Risk Assessment		
Source (S)	Pathway (P)	Receptor (R)	Probability	Consequence	Current Risk
Controlled Waters					
Potential contaminants as detailed in Table 4-1.	Leaching of contamination into groundwater.	Secondary B & Undifferentiated Aquifers.	Unlikely	Medium	Low
	Surface water run-off and / or migration of contaminated groundwater.	Inland river located adjacent S.	Low	Medium	Moderate/Low
Property and Infrastructure					
Potential contaminants as detailed in Table 4-1 & natural subsoils.	Leaching of contaminants & direct contact	Buried concrete & structures	Unlikely	Mild	Very Low
Potential contaminants as detailed in Table 4-1.	Leaching of contaminants & direct contact	Buried services / water pipes.	Unlikely	Mild	Very Low
Ecology					
Potential contaminants as detailed in Table 4-1.	Uptake of available phytotoxic contaminants via direct contact with contaminants.	Ecological receptors Flora & Fauna on and off-site. Woodland adjacent east.	Low	Mild	Low

5 Site Investigation

5.1 Summary of Site Works

An intrusive ground investigation was undertaken between the 7th and 8th of October 2025 by PJSG to establish the ground conditions beneath the site.

The locations of the exploratory holes were positioned taking into consideration the proposed development, previous intrusive locations (undertaken by RSK) and the various potential contamination sources identified on site.

The ground investigation works were designed in general accordance with BS10175:2011+A2:2017 'Investigation of Potentially Contaminated Sites' and BS 8576: 2013 'Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds'. The exploratory holes were logged in accordance with BS 5930:2015 + A1:2020 'Code of Practice for Site Investigations'.

Further details of the ground investigation work undertaken, including the rationale for the location of the exploratory holes are detailed below. An Exploratory Hole Location Plan (PJS25-0070-DR-0011-A) is provided within the Drawings Section of this report.

Table 5-1 Summary of Site Investigation Works

Method / Activity	No.	Hole Reference	Depth Range (m bgl)	In-situ Testing	Rationale
Window Sample Borehole (WS)	13	WS01-WS13 (including WS07A)	0.82 – 5.45	*SPT's	To determine general ground conditions across the site. To install ground gas and groundwater monitoring ancillaries across the site at WS01, WS04, WS06, WS08, WS10, and WS12.
Machine Excavated Trial Pits (TP)	18	TP01 – TP18	0.75-3.00	Hand Shear Vanes (HSVs)	To determine general ground conditions across the site. Targeted in the vicinity of a potential source of contamination Previously identified asbestos along northern boundary (TP01, TP03 & TP04) & historically infilled pond / potential Made Ground (TP16 & TP17).
Infiltration Pits (SA)	5	SA01 – SA05	0.85-1.50	Infiltration testing (BRE365)	To determine an infiltration rate for drainage design. (SA01 – SA05)

**Standard Penetration Tests (SPTs) undertaken in accordance with the guidance set out within BS EN 22476-3 2005 +A1:2011;*

The exploratory logs are presented within Appendix C with the SPT and HSV test results shown on the individual exploratory hole logs. The SPT hammer calibration certificate for the WS drilling rig is included in Appendix D. Photographs of the boreholes and trial pits are presented in Appendix E.

5.2 Laboratory Testing and Sampling

Representative soil samples of the various strata types encountered during the site investigation works were recovered by a suitably qualified engineer using a stainless-steel trowel and disposable gloves.

Samples were stored in cooler boxes prior to being transported to an MCERTS accredited laboratory. A selection of these samples were subjected to contaminant and classification testing. Chemical testing was undertaken by i2 Analytical Ltd and geotechnical testing was undertaken by The Testing Laboratory Ltd. (TTL).

A summary of the laboratory testing carried out is presented in Table 5-2 below.

Table 5-2 Summary of Laboratory Testing

Quantity	Analysis
Chemical Testing - Soils	
14	PJS Contamination Suite comprising: Moisture content, pH, Organic matter, Speciated USEPA 16 PAHs, Metals: As, Cd, Cr III & VI, Cu, Pb, Hg, Ni, Se, Zn, Water soluble sulphate (SO ₄)
12	Asbestos Identification (ID)
10	BRE Suite D
2	GCMS Pesticide Screen
Chemical Testing – Soil Leachate	
3	Leachable metals
Geotechnical Testing	
17	Moisture Content
17	Liquid and Plastic Limits
3	Particle Size Distribution
2	Remoulded CBR – 2.5kg Rammer
6	Compaction Tests – 2.5kg Rammer

Geotechnical laboratory testing was generally carried out in accordance with BS1377-2: 2022, Methods of Test for Soils for Civil Engineering Purposes, or, where superseded, by the relevant part of BS EN ISO 17892:2014+ Geotechnical investigation and testing – Laboratory Testing of Soil.

The chemical laboratory testing results are included within Appendix F and the geotechnical testing results are presented within Appendix G.

5.3 Gas & Groundwater Monitoring

At the request of the client, confirmatory gas and groundwater monitoring has been carried out on 2 No. post site works monitoring visits undertaken over the period 17th to 23rd October 2025 to monitor change in the gas regime at the site. The monitoring visits were conducted at approximately weekly intervals designed to allow re-establishment of groundwater equilibration and to assess any variations within the meteorological cycle.

Gas and groundwater monitoring ancillaries were installed within selected boreholes during the site works to facilitate monitoring as detailed in the table below. Monitoring wells were screened within natural subsoil deposits identified across the site.

A gas data meter, flow meter and groundwater dip meter were used at each location to determine the potential ground gas risk in accordance with BS 8485:2015+A1:2019 and to monitor groundwater levels below the site.

Table 5-3 Summary of Monitoring Ancillaries

Hole Reference	Well Screen Top (m bgl)	Well Screen Bottom (m bgl)	Strata Screened	Rationale
WS01	1.0	5.0	Oadby Member	To confirm if a potential ground gas risk is present.
WS04	1.0	1.9		
WS06	0.5	1.0		
WS08	1.0	5.0		
WS10	0.5	1.0		
WS12	1.0	3.0		

The monitoring data obtained to date is summarised in Section 6 and is presented within Appendix H.

6 Ground Conditions

6.1 Summary of Ground Conditions

The geology encountered during the intrusive investigation was generally consistent with that anticipated from the desk study and previous RSK investigation. A summary of the strata encountered across the site is provided in the table below, with more detailed descriptions given in the following sections and on the exploratory hole logs presented within Appendix C.

Table 6-1 Summary of Ground Condition

Stratum Description	Typical Description	Depth to base (Range, m bgl)	Strata Thickness (Range, m)	Comments
TOPSOIL	Grass over brown sandy gravelly CLAY with a localised low cobble content and rootlets.	0.15 - 0.40	0.15 - 0.40	Encountered in all of the exploratory hole locations across the site.
OADBY MEMBER (Granular)	Yellowish / greyish brown gravelly fine to coarse SAND with variable cobble content.	0.30 - 2.50	0.10 - 0.80	Encountered in 10 No. exploratory hole locations at SA03, SA04, SA05, TP08, TP10, TP12, TP13, TP15, WS01 & WS05.
OADBY MEMBER (Cohesive)	Firm to stiff orange / yellowish brown and grey mottled slightly sandy gravelly (occasionally friable) CLAY with variable cobble content. Or; Stiff to very stiff reddish brown (occasionally mottled grey) gravelly CLAY with localised carbonaceous fragments.	1.00 - 5.45	0.65 - 5.15	Encountered in 28 No. exploratory hole locations at SA01, SA02, TP04 - TP06, TP08 - TP17, WS01, WS02, WS04 - WS13. The full depth of OADBY MEMBER (Cohesive) was not proven at SA01, TP04, TP06, TP08, TP10, TP12, TP16, TP17, WS01, WS02, WS08 & WS12.
WEATHERED SOUTH CHARNWOOD DIORITES	Weak dark pinkish grey DIORITE. Typically recovered as orange / yellowish very sandy fine to coarse GRAVEL with high cobble content.	0.75 - 4.43	0.05 - 0.85	Encountered in 25 No. exploratory hole locations at SA02 - SA05, TP01 - TP03, TP05, TP07, TP09, TP11, TP13, TP14, TP15, TP18, WS03 - WS07, WS07A, WS09 - WS11 & WS13

6.2 Summary of Field Observations

No evidence of groundwater, instability, contamination or running sands was encountered in any exploratory hole location. However damp and soft cohesive OM was encountered at a similar depth in WS01 (northwest)

and WS05 (northeast) which may indicate fluctuating groundwater levels. Difficult digging or shallow refusals resulted in intrusive holes terminating before achieving target depths in SA02 - SA05, TP01 - TP03, TP07, TP09, TP11, TP13 - TP15, TP18, WS03, WS04, WS06, WS07, WS07A & WS09 - WS11.

6.3 Infiltration Testing

Infiltration testing was carried out on the 7th and 8th of October 2025 by PJSG to give an indication of infiltration rates of the underlying soils. The testing was carried out under the general guidance of BRE Digest 365 'Soakaway Design' to enable surface water soakaway design

A total of 5 No. soakage trial pits (SA01 to SA05) were excavated on site to perform an infiltration test within the natural granular / cohesive Oadby Member deposits and the underlying granular Weathered South Charnwood Diorites.

Excavations were advanced using a backhoe excavator ensuring vertical sides which were trimmed square as much as reasonably possible. Using a water bowser, all soakage trial pit locations were rapidly filled with water, ensuring the flow did not cause the collapse of the side walls. The water level and the time taken for the pits to drain were recorded.

The locations and depths of the infiltration tests were predetermined following consultation with the client. The locations of the infiltration test pits are shown on the PJS Exploratory Hole Location Plan located in the drawings section.

Due to time constraints and slow infiltration, it was not possible to achieve 3 No. infiltration tests (T1 to T3) at each location in accordance with the relevant guidance. The results are summarised in the table below.

Table 6-2 Infiltration Test Results Summary

Test Location	Strata at Base	Soil Infiltration rate (m/s)	Average rate (m/s)	Water discharged from Full to Half Volume within 24 Hours
SA01	OM	Not determined	N/A	N/A
SA02	SCD	Not determined	N/A	Yes
SA03	SCD	Not determined	N/A	No
SA04 (T1)	SCD	1.95x10 ⁻⁴	1.76x10 ⁻⁴	Yes
SA04 (T2)	SCD	1.67x10 ⁻⁴		Yes
SA04 (T3)	SCD	1.67x10 ⁻⁴		Yes
SA05 (T1)	SCD	2.66x10 ⁻⁵	2.17 x10 ⁻⁵	Yes
SA05 (T2)	SCD	2.09x10 ⁻⁵		Yes
SA05 (T3)	SCD	1.77x10 ⁻⁵		Yes

As noted above, at 3 No. test locations (SA01 – SA03), it was not possible to calculate an infiltration rate as the water did not discharge at any discernible rate having never reached 25% effective depth in any of the tests within the timeframe given.

Infiltration testing carried out in the remainder of the test locations determined infiltration test rates of between 1.67×10^{-04} (SA04) and 2.66×10^{-05} (SA05). Using the available data, infiltration test rates calculated for SA04 and SA05 are generally considered to indicate favourable drainage characteristics. The data also suggest that the soakage pits discharged from full to half-volume within 24 hours, in readiness for subsequent storm inflow, in accordance with BRE365 guidance.

Ground conditions across most of the developable site area comprised variable cohesive and granular superficial OM deposits over SCD granular bedrock which would generally indicate why infiltration was variable. It is considered likely that the favourable infiltration rates calculated at SA04 and SA05 is likely due to both granular strata and fractures in the bedrock which were not indicated to be present at SA01 – SA03.

Based on the infiltration testing carried out, surface water drainage may be considered feasible for some areas of the site in the south and south-east but was noted to be unsuitable elsewhere. However, the advice of a drainage engineer should be sought regarding this initial assessment in respect of surface water drainage.

A copy of the infiltration test results is included within Appendix I.

6.4 Gas & Groundwater Monitoring

Gas and groundwater monitoring has been carried out on 2 No. monitoring visits to date on the 17th and 23rd October 2025. The details of the monitoring carried out is summarised in the sections below and the monitoring data obtained to date is presented in Appendix H.

6.4.1 Gas Monitoring Data Summary

A summary of the ground gas monitoring data obtained to date is displayed in the table below. The values in the table represent minimum and maximum gas concentrations and flow rates obtained from all of the boreholes across the site.

Table 6-3 Ground Gas Monitoring Data Summary

Ground Gas Monitoring Summary	Minimum	Maximum	Unit
Methane (CH ₄)	<0.1	<0.1	% v/v
Carbon dioxide (CO ₂)	0.3	2.0	% v/v
Oxygen (O)	18.5	20.3	% v/v
Carbon monoxide (CO)	<10	<10	ppm
Hydrogen sulphide (H ₂ S)	<10	<10	ppm
Atmospheric Pressure (mb)	965	1004	mb
Flow Rates (m/s)	<0.1	<0.1	l/hr

6.4.2 Groundwater Monitoring Data Summary

A summary of the groundwater monitoring data obtained to date is displayed in Table 6-4. The values in the table represent minimum and maximum groundwater levels obtained from all the boreholes across the site.

Table 6-4 Groundwater Monitoring Summary

Borehole Ref.	Minimum Depth (m bgl)	Maximum Depth (m bgl)	Average Depth (m bgl)	Response Zone Flooded (Y/N)
WS01	3.48	3.87	3.68	N
WS04	DRY	DRY	DRY	N
WS06	DRY	DRY	DRY	N
WS08	DRY	DRY	DRY	N
WS10	DRY	DRY	DRY	N
WS12	DRY	DRY	DRY	N

It is noted above that groundwater levels recorded during the monitoring period indicate 5 out of 6 boreholes recorded no groundwater. Standing water was recorded only at WS01 in the northwest within the cohesive OM approximately coincident with damp and soft cohesive OM recorded during the ground investigation.

In comparison, the RSK investigation also reported groundwater in the eastern aspect of the site, which is considered likely due to seasonal variations (RSK investigation being undertaken in January as opposed to the recent PJS investigation being undertaken in October) which confirms that groundwater levels fluctuate with precipitation and seasonally, and the recorded groundwater levels may, therefore, not represent the full variation of groundwater levels beneath the site.

7 Geotechnical Assessment

7.1 Introduction

Development proposals for the site are understood to comprise a residential development, with up to 135 No. dwellings.

An Illustrative Masterplan (Ref: CSA/2550/118, rev: O), dated May 2025 is included within the drawings section.

7.2 Material Properties

To assist with foundation design, geotechnical classification testing has been undertaken on a selection of the soil samples recovered from site. The geotechnical properties of the soil types encountered across the site are summarised in the sections below.

Geotechnical analysis of the samples was carried out by The Testing Lab plc. The laboratory results are contained within the Appendix G.

7.3 Plasticity Index & Volume Change Potential

Atterberg Limit tests were conducted on recovered samples in accordance with BS1377-2: 2022 Clause 3.2, to determine the modified PI and associated Volume Change Potential (VCP) as per NHBC Standards (Chapter 4.2). A summary of the plasticity test results presented in the table below.

A summary of the modified I_p tests and the related VCP of the materials types is presented in the table below.

Table 7-1 Plasticity Testing and VCP

Strata	No. of Tests	Depth Range (m bgl)	Modified Plasticity Index Range (%)	VCP	Comments & Recommendations
OM (Cohesive)	17	0.5 – 2.0	6.8 – 53.0	Non-shrinkable to High	High VCP should be assumed for design purposes.

In accordance with NHBC standards for high VCP clays, areas underlain by the cohesive OM deposits, foundation depths should be a minimum of 1.0m below existing or reduced levels (where foundations are located outside the zone of influence of trees). Where foundations are proposed within tree influence zones, deepening and/or stepping may be required at the detailed foundation design stage as stipulated by the NHBC.

Testing of the OM across the site indicate the presence of desiccated soils within typical founding depths and will likely be influenced by seasonal changes in weather. The risk of heave resulting from desiccation can be mitigated, and this should be given further consideration at the detailed foundation stage.

Confirmatory testing may be undertaken in the affected areas to ascertain the extent of the desiccation identified. However, this will not necessarily yield a favourable outcome

7.4 Particle Size Distribution (PSD) Analyses

A total of 3 No. PSD tests were undertaken on samples of weathered SCD and OM recovered from site to aid in the classification of soils. Classification was undertaken in accordance with BS1377-2: 2022 Part 2: Clause 9.2 and the results of the tests are summarised in the table below:

Table 7-2 Summary of PSD Analyses

Sample Location	Depth (m bgl)	Field Description	Laboratory Description	Very Coarse Soils (>63mm)	Gravel (63mm – 2mm)	Sand (2mm – 0.063mm)	Fines (<0.063mm)
TP01	0.50	Clayey very gravelly cobbly SAND. (OM).	Slightly sandy slightly gravelly CLAY with cobbles	12%	32%	20%	36%
TP11	1.50	Slightly sandy gravelly CLAY (OM).	Sandy slightly gravelly CLAY	0%	1%	31%	68%
TP15	0.50	Very clayey gravelly slightly cobbly SAND (OM).	Slightly sandy slightly gravelly CLAY	28%	15%	20%	37%

The laboratory descriptions of the OM defer to BS 5930:2015+A1:2020 which advises soil be classified as a clay where the fines fraction exceeds approximately 35% by weight and where the fines content is considered sufficient to govern the soil's engineering behaviour, thereby justifying its classification as clay rather than a coarse soil.

7.5 Earthworks Testing – Suitability of Materials

7.5.1 Material Classification

Based on the PSD analyses, the Oadby Member are classed according to Series 600 Specification for Highway Works as indicated in Table 7-3 for earthworks purposes.

Table 7-3 Earthworks Classification Summary

Strata	Depth (m bgl)	Geology	Earthworks Material Class	Earthworks Material Description	Earthworks Material End Use
TP01	0.50	Oadby Member	Class 2C	Stoney Cohesive Material	General earthworks fill
TP15					
TP11	1.50		Class 2B	Dry Cohesive Material	

7.5.2 Compaction testing

Six (6No.) 2.5kg rammer standard compaction tests were carried out to determine the dry density / moisture content relationship of samples of OM at depths of between 0.5m and 2.5m bgl. A summary of the results is presented in Table 7-4.

Table 7-4 Maximum Dry Density and Moisture Content Relationship

Sample Reference	Sample Depth (m)	Stratum	Maximum Dry Density (Mg/m ³)	Optimum Moisture Content (%)	*Moisture Content Range at 95% MDD & 5% air voids (%)
TP01	0.5	OM	1.73	18	17.2 – 20.2
TP11	1.5	OM	1.70	16	18.5 – 23.0
TP11	2.0	OM	1.78	18	16.5 – 19.9
TP11	2.5	OM	1.77	17	15.9 – 20.6
TP15	0.5	OM	1.66	19	19.5 – 22.5
TP15	1.0	OM	1.63	21	21.0 – 25.0

**Moisture content range corresponding to ≥95% MDD and ≤ 5% air voids is determined from the compaction tests results and may include interpolated data.*

Compaction testing on soils of the OM deposits using a 2.5kg rammer resulted in Maximum Dry Densities of between 1.63 and 1.78 mg/m³ and Optimum Moisture Contents ranging between of 16% and 21%.

Natural moisture contents of the OM deposits were between 7.1% and 21.9%, with a median of 16.6% (based on 17 samples). Earthworks specifications typically demand compaction at moisture contents within ±2% of the laboratory-determined OMC, with tighter tolerances for cohesive soils. The natural moisture contents of the recovered soils would therefore indicate that moisture conditioning (wetting and drying) will likely be required

to make existing materials suitable for placement. It is recommended that compaction trials are undertaken on-site to confirm that any earthworks specification can be complied with. Suitability for compaction is also subject to appropriate earthworks controls and engineering design requirements.

Due to limited testing hitherto, further compaction testing of weathered SCD material would be required prior to any earthworks to confirm classification of materials and appropriate methods of compaction. However, the requirement for specialist digging equipment is anticipated for the recovery of sufficient/representative samples for testing. As diorite is naturally resistant to weathering, crushing and grading is likely to be needed to make it suitable for reuse as a fill. Any compaction testing of the material should therefore reflect the fill material to be reused.

7.5.3 Laboratory CBR

A total of 2 No. laboratory (2.5kg Rammer) CBR tests were conducted on samples recovered from locations coincident with proposed areas of cut at moisture contents close to or at their respective optimums. The tests results summarised in Table 7-5 indicate that CBRs of cohesive soils values underlying the site could vary in the range of 1.7% - 5.5%. The results highlight the potential variability in the OM and would further suggest that some soil modification would be required for acceptance subject to the specific requirements for the material as detailed within an earthworks specification for the site.

Table 7-5 Laboratory CBR Test Summary

Exploratory Hole Reference	Test Depth (m bgl)	Strata	Anticipated CBR Value (%)
TP01	0.50	OM	1.7
TP11	2.00	OM	5.5

The suitability of earthworks materials has been assessed based on the testing carried out as part of this investigation. The materials encountered on-site may vary from those analysed. Furthermore, inclement weather or winter working may result in materials being unsuitable for incorporation within the works without modification by lime, cement or other methods. In particular, cohesive soils are very susceptible to 'wet weather working' and we recommend that consideration should be given to lime and/or cement stabilisation of these materials if any earthworks are undertaken during inclement weather or the winter period.

Stockpiled materials often deteriorate due to water infiltration and they may become unsuitable for incorporation in the works; adequate sealing of stockpiles should be undertaken where materials are not

7.6 Standard Penetration Testing

To assist with foundation design, Standard Penetration Tests (SPTs) have been undertaken at regular intervals during drilling of the window sample boreholes in accordance with the methodology outlined in British Standard BS EN 22476-3 2005.

7.6.1 SPT 'N' Value Summary

A summary of the uncorrected SPT 'N' Values recorded in the boreholes advanced across the site is presented in the table below. The recorded SPT 'N' values are detailed on the exploratory hole logs presented within Appendix C.

Table 7-6 Summary of SPT 'N' Values

Borehole Ref:	SPT 'N' Value with Depth (m bgl).					Comments
	1m	2m	3m	4m	5m	
WS01	16	29	21	19	33	-
WS02	22	25	50	-	-	Refusal occurred at 2.70m bgl within deposits of very stiff slightly sandy gravelly clay.
WS03	50	-	-	-	-	Refusal achieved at 0.60m bgl within the bedrock.
WS04	17	50	-	-	-	Refusal achieved at 1.90m bgl within the bedrock.
WS05	26	17	9	50	-	Locally soft/firm at 3.00 – 3.40m and soft at 3.60 and 3.80m bgl Refusal achieved at 4.00m bgl within the bedrock.
WS06, WS07, WS07A, WS09, WS10, WS13	50	-	-	-	-	Refusal achieved at 1.00m bgl within the bedrock.
WS08	18	15	15	16	44	-
WS11	13	50	-	-	-	Refusal achieved at 1.90m bgl within the bedrock.
WS12	13	21	50	-	-	Refusal achieved at 3.00m bgl within the bedrock.

The SPT test results summarised above are discussed further in Section 7.0.

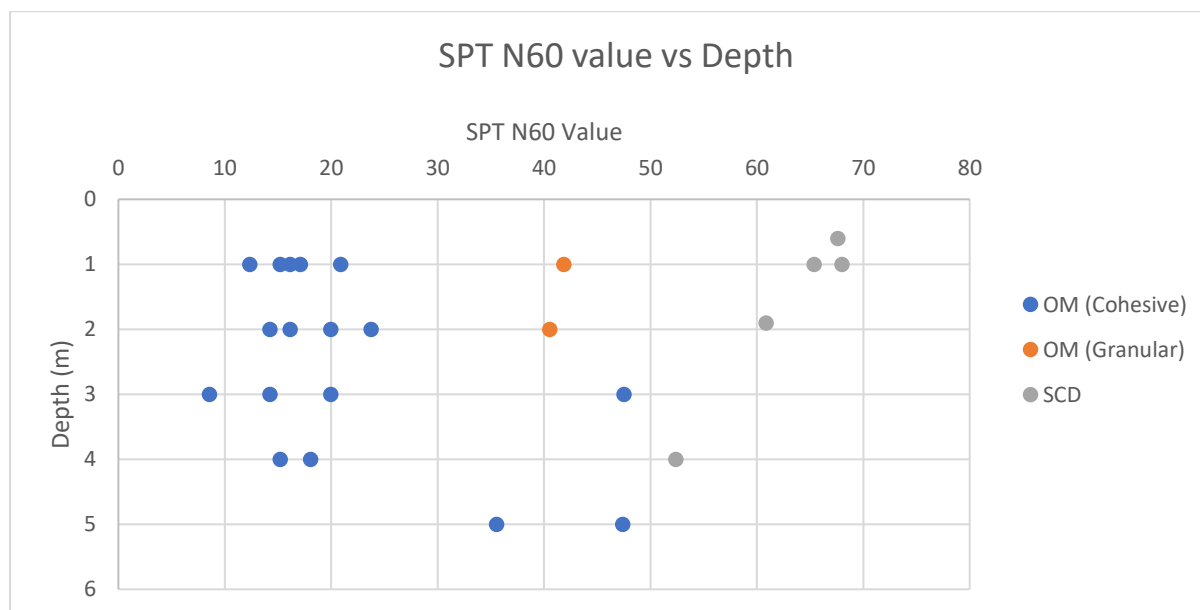
7.6.2 Plot of SPT N60 Values vs Depth

The recorded SPT 'N' values have been used to provide a plot of the SPT N60 value vs depth in relation to the various types of material encountered below the site as presented as Figure 1. A copy of the SPT calibration certificates for the window sample drilling rig is presented within Appendix D.

The SPT testing within the cohesive OM deposits is generally indicative of medium to high strength strata noted to increase in strength with depth, except at 3.00m bgl for WS05 where the SPT blow count is indicative of low to medium strength strata; as shown in Figure 1 below. As shown below, the granular OM deposits (encountered at WS01 and WS05) were noted to be medium dense (SPT N values of 26 and 29).

The SCD bedrock is indicated to be very stiff/very dense achieving refusal at all locations encountered.

Figure 1 – Variation of SPT N60 Value with depth



7.7 Undrained Shear Strength

The undrained shear strength of the materials has been estimated from the SPT 'N' Values by empirical correlation as described in CIRIA Report C143 (after Stroud and Butler, 1975).

$$c_u \approx N f_1 \text{ (kN/m}^2\text{)} \quad [1]$$

Where c_u is the undrained shear strength, 'N' is the SPT 'N' value and f_1 is an empirical correlation factor based on the modified soil plasticity index (I'_p). The soil plasticity data obtained from soil samples recovered below the site during the investigation has been used for calculation purpose.

Based on the plasticity testing carried out, the f_1 values in the table below have been assumed for the purpose of the calculation.

Table 7-7 Calculated f_1 Values

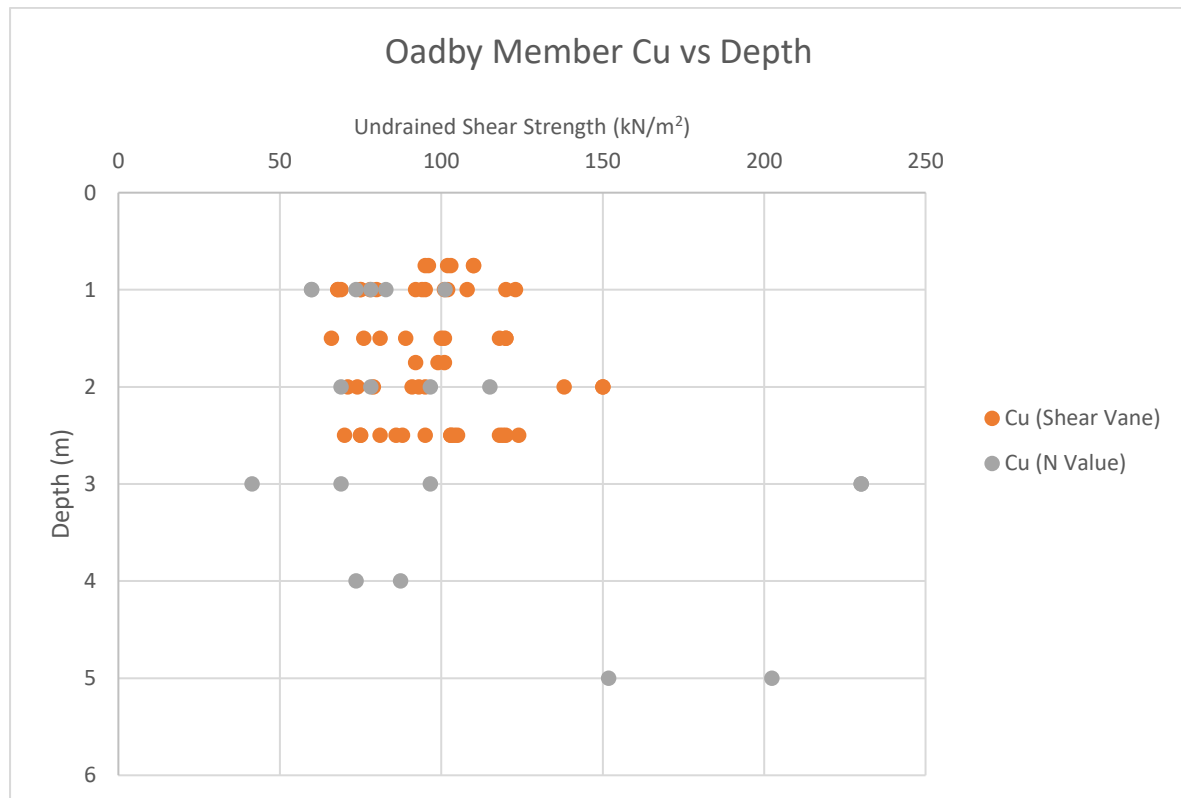
Strata	Average I_p	f_1 Value
Oadby Member	34	4.55

7.7.1 Shear Strength vs Depth

Figure 2 presents a plot of the estimated undrained shear strength vs depth for the cohesive OM deposits. The c_u values are based on the Stroud and Butler correlation, using corrected SPT N60 values.

The results show a trend of increasing shear strength with depth except for WS05 at 3.0m bgl as mentioned earlier.

Figure 2 - Estimated Shear Strength with depth



7.8 Summary of Geotechnical Parameters

A summary of the material properties / strength characteristics is presented below in the table below based on the ground investigation and geotechnical testing carried out.

Table 7-8 Material Properties Summary

Strata	Depth to base (range m bgl)	SPT 'N' Value Range	*Derived Shear Strength	Proposed design Shear Strength	Strength / Density Classification	VCP for Foundation Design	Recommended Allowable Bearing Pressure (kN/m ²)
Cohesive OM	0.7 to 5.45 - not proven	9 – 50	Cu: 41 – 150 kN/m ²	Cu: 60kN/m ² at 1.0m	**Typically, medium to very high strength	High	115 at 1m bgl
Granular OM	1.0 -1.9	26 - 29	$\phi = 34^{\circ}$	$\phi = 42^{\circ}$	Very dense	N/A	
SCD	Not Proven	50	$\phi = 42^{\circ}$	$\phi = 42^{\circ}$	Very dense	N/A	> 200 (bedrock)

*Derived shear strength parameter values obtained from SPT N values and in-situ Hand Shear Vane (HSV) tests

**BS EN ISO 14688-2:2018, Table 6

7.9 Foundation Assessment

The following section presents recommendations for foundations for the proposed residential development taking into consideration the ground conditions encountered and the material properties.

7.9.1 Strip/Trenchfill Foundations

Strip / trenchfill foundations are generally considered appropriate for the proposed development where plots are not significantly influenced by trees. It has however been noted there are several mature trees surround the site, particularly at the southern and eastern boundaries so this assessment would be subject to detailed foundation design taking account of tree influence in line with NHBC Chapter 4.2.

For traditional foundations, an allowable design bearing pressure of 115kN/m^2 is recommended for trenchfill foundations (up to 1m wide), bearing uniformly in the OM granular and cohesive deposits placed at a minimum depth of 1.0m bgl, based on high VCP clays.

For traditional foundations bearing onto the SCD, an allowable design bearing pressure of $>200\text{kN/m}^2$ is recommended for trenchfill foundations (up to 1m wide) bearing uniformly in the strata at a minimum depth of 0.60m bgl, based on anticipated non-shrinkable soils.

These values include a factor of safety of 3.0 against general shear failure and should result in total settlements not exceeding 25mm for foundations up to 1m wide, keeping differential settlements within acceptable limits.

Foundations depths should take into consideration the ground constraints identified in Section 7.8 and an allowance for localised deepening of foundations / alternative foundations coinciding with this area of the site should be included.

7.10 General Foundation Considerations

Care should be taken to avoid softening of the base of the foundation excavation during construction. Where necessary, a 100mm blinding of concrete should be constructed to protect the foundation level during bad weather. The excavation should not be left open for any extended period.

Where any contrasting ground / localised soft spots are encountered at founding level, steel mesh reinforcement (B785 or similar) may be required in the base of foundations to span the different strata types / low strength material to mitigate any potential differential settlement. Should steel be required, RC35 concrete should be used.

Foundation widths should be designed as part of detailed design by a structural Engineer, appropriate to the loads being imposed, however 0.6m wide foundations are likely to be appropriate for external walls and 0.75m wide for party walls and gable ends.

It is recommended that foundation trenches should be inspected by an Engineer prior to pouring concrete to confirm that foundations are placed uniformly within firm to stiff cohesive OM, granular OM or SCD deposits.

7.11 Building Near Trees

Where plots are underlain by cohesive strata and within the influence of existing trees / hedges typically identified near site boundaries, foundations will require deepening in accordance with the NHBC Chapter 4.2: Building near trees guidance.

All foundations should be extended 0.3m beneath the deepest roots observed when excavating foundation trenches. Where foundations are deepened due to tree influence, they should be stepped accordingly in line with NHBC standards.

Where strip / trenchfill foundations are adopted and plots are affected by tree influence and within cohesive deposits, heave precautions to include for the provision of a 300mm void beneath beam and block floor slabs will be required. Further heave precautions include a requirement for a 35mm void on the inside face of all external foundations should foundation depths exceed 1.5m due to tree influence.

Where plots to be piled are within the influence of existing or removed trees heave precautions shall be required comprising compressible material on the inside face (35mm) and underside of ground-beams (150mm). The piling contractor should consider the risk of heave on the actual pile shaft or column.

7.12 Floor Slab Construction

Based on ground conditions, it is anticipated that both ground bearing and suspended floor slabs (of the beam and block variant) may be suitable for the site, subject to developer preference and further assessment of proposed ground levels / tree influence.

For plots with fill depths exceeding 600mm below floor slab level, founded within cohesive deposits and within the influence of trees, ground bearing slabs will not be suitable and a suspended floor slabs should be adopted.

The final specification of ground floor slabs will be subject to detailed design, taking into account existing and proposed levels and the impact of trees/vegetation.

7.13 Excavations

Excavations using backhoe excavators are expected to be suitable in the natural strata across the site. Specialist mechanical breaking equipment may be required given the type of material encountered below the site and observations made during the investigation works.

The requirement for shoring is considered unlikely for the majority of excavations in the short term based on no instability being noted. However, excavations that remain open for long periods, particularly during inclement weather are expected to be prone to instability. Where personnel entry is required for inspection, excavations should be sufficiently enlarged and an assessment of safe temporary angles should be assessed; alternatively, temporary shoring should be provided.

No excavations should be entered until a full risk assessment is completed to assess the stability requirements and safety issues.

7.14 Obstructions

No significant obstructions are anticipated based observations undertaken during the ground investigation works. However, shallow bedrock was noted within numerous exploratory holes approximately coinciding with the areas centrally, north and south / south-east where no superficial deposits are mapped as shown on BGS geology mapping. Some cobbles and boulders were also encountered within trial pits that may require consideration.

Spalling of exposed bedrock surfaces is considered likely during excavation and associated instability issues should be accounted for during future development.

7.15 Drainage

Based on the infiltration testing carried out, surface water drainage may be considered feasible for some areas of the site in the south and south-east. However, the advice of a drainage engineer should be sought regarding this initial assessment in respect of surface water drainage.

7.16 Concrete Classification

The laboratory results have been assessed against the BRE Special Digest 1 2005: 3rd Edition Aggressive Chemical Environment for Concrete (ACEC) Site classification. The site has been designated as greenfield with mobile groundwater.

The results are summarised in the table below and the full laboratory results are available within Appendix F.

Table 7-9 Summary of Concrete Classification

Strata	Number of samples	Depth Range (m)	Characteristic Water-Soluble Sulphate Concentration (mg/l)	Maximum Total Potential Sulphate (%)	Maximum Oxidisable Sulphides (%)	pH Range	DS Class	ACEC Class
OM	10	0.5 – 2.0	41	0.06	0.05	4.88 – 6.41	DS-1	AC-2z
SCD	1	1.0	10	0.03	0.02	6.32	DS-1	AC-2z

The laboratory results have been assessed against the BRE Special Digest 1 2005: 3rd Edition Aggressive Chemical Environment for Concrete (ACEC) Site classification. The Site has been designated as greenfield ground with mobile groundwater.

The results of the laboratory testing indicate that Design Sulphate Class DS-1 (AC-2z) conditions are present within the natural soil deposits at the site.

7.17 Roads and Hardstanding

7.17.1 Dynamic Cone Penetrometer (DCP) Testing

In-situ DCP testing was undertaken at 12 No. locations across the site, as shown on Exploratory Hole Location Plan (PJS25-0070-DR-0011-A). The DCP uses an 8kg hammer dropping through a height of 575mm and a 60° cone having a maximum diameter of 20mm. The penetration and number of blows are recorded up to a maximum depth of 1.00mbgl. The penetration rate is recorded as the cone is driven into the subgrade and is used to calculate the strength of the material (CBR value) through which the cone is passing. A change in penetration rate indicates a change in strength between materials, thus allowing layers to be identified and the thickness and strength of each to be determined.

Exceptionally high or low CBR results are regarded most likely due to the driving of coarse gravel or cobble sized particles or encountering localised very loose or soft unconsolidated strata. It should be noted that TRL DCP testing is not a test defined by British Standards. It is however, widely used and accepted in the industry for determination of equivalent CBR values. Table 7-10 illustrates CBR results obtained at a depth range considered typical of sub-formation levels (~0.40 to 60m bgl).

A full copy of the DCP test results is presented within Appendix J.

Table 7-10 Testing Results Summary

Location	Lowest CBR (%)	Highest CBR (%)	CBR (%) Mean
DCP01	9.4	>100 (Refused)	19.1*
DCP02	3.9	22.6	8.4
DCP03	5.6	>100 (Refused)	16.7*
DCP04	4.6	6.2	5.4
DCP05	3.3	5.6	4.4
DCP06	5.1	11.1	7.6
DCP07	2.6	2.9	2.8
DCP08	5.6	22.6	8.6
DCP09	3.6	7.1	6.0
DCP10	5.6	9.4	6.9
DCP11	2.3	3.9	3.1
DCP12	5.6	>100 (Refused)	12.0*

*Refusal achieved. Mean has been calculated based off values recorded prior to refusal.

It should be noted that refusals occurred within DCP01, DCP03 and DCP12 between ~0.5m and ~0.6m bgl. Based on ground conditions within the site and tests locations it is considered likely that the test refusal coincided with the shallow SCD bedrock.

The results in Table 7-10 indicate a preliminary CBR design value between 2 - 5% should be achieved for road construction design purposes for the cohesive near surface deposits underlying the site. Increased design CBR values >5% may be achievable in areas where granular near surface deposits are encountered.

This assumes any soft or otherwise unsuitable material encountered would be removed and replaced by engineered stone to an appropriate specification prior to construction. Formation levels should be thoroughly proof rolled.

Further in-situ CBR testing is recommended at the formation level once development proposals have been established.

7.17.2 CBR Recommendations

Considering the above in-situ and laboratory testing results, it is considered appropriate that a minimum preliminary CBR design value between 1 - 5% should be achieved for road construction design purposes for the cohesive near surface deposits underlying the site. Increased design CBR values >5% may be achievable in areas where granular near surface deposits are encountered.

8 Generic Quantitative Risk Assessment

A Generic Quantitative Risk Assessment (GQRA) has been undertaken in accordance with LCRM, 2020, to determine the significance of the measured concentrations of contaminants identified during the ground investigation.

This involves undertaking an assessment of each potential contaminant linkage identified within the ICSM by comparing the contaminant concentrations against appropriate Generic Assessment Criteria (GAC).

GACs are screening criteria which are derived using a standard set of generic assumptions. They are designed to be broadly applicable to a wide range of site conditions and exposure scenarios. They must be appropriate and suitable for your site. The GACs used in this assessment represent “trigger values” that, if exceeded, could indicate a possibility of significant harm. However, these criteria do not represent the threshold at which there is a significant possibility of significant harm; this determination will normally require further investigation and / or Detailed Quantitative Risk Assessment (DQRA) to evaluate the risk to human health and controlled waters.

8.1 Human Health Risk Assessment

8.1.1 Assessment Criteria

Contaminant data has been compared to the Land Quality Management (LQM) / Chartered Institute of Environmental Health (CIEH) values published within ‘The LQM / CIEH Suitable for Use Levels (S4ULs) for Human Health Risk Assessment’ 2015. In brief, the document provides assessment criteria which have been derived in accordance with UK legislation, national as well as EA policy and using a modified version of the CLEA software and available guidance.

The S4ULs are considered appropriate for use in this assessment for organic contaminants and the Soil Organic Matter (SOM) content has been taken into consideration where appropriate.

Criteria for a limited number of contaminants have been derived by the Department for Environment, Food and Rural Affairs (DEFRA; UK government) in their document entitled SP1010: Development of Category 4 Screening Levels (C4SL) for Assessment of Land Affected by Contamination, April 2014. The National Planning Policy Framework states that ‘after development, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990’. Therefore, by inference, the C4SLs are appropriate for use in the planning context. It is generally accepted that assessment criteria for metals are not sensitive to changes in soil organic content (SOM). The C4SLs have therefore been adopted as assessment criteria in this report for arsenic and lead.

For the purposes of the contamination risk assessment, the proposed development is classified as ‘Residential with plant uptake’.

8.1.2 Soil Chemical Data in Comparison to GACs

The soil samples recovered from the site have been compared to appropriate GACs for a residential end use with plant uptake. None of the samples of natural topsoil / subsoils tested on site contained chemical concentrations in excess of Cc’s with respect to a residential end use.

8.1.3 Asbestos

Due to the nature of risk associated with asbestos, a GAC cannot be derived. Therefore, for the purposes of this GQRA, the presence of asbestos in soil has been identified from field observations and laboratory analysis considered to be an appropriate initial screening criterion.

A total of 11 No. samples recovered from the topsoil on site were screened for the presence of asbestos.

Laboratory testing has indicated that no trace of asbestos was identified in any samples tested.

8.2 Evaluation of Risk to Human Health

None of the samples of natural topsoil / subsoils tested on site contained chemical concentrations in excess of the respective GACs with respect to a residential end use. Asbestos fibres were also not detected in any sample of topsoil tested.

Therefore, the risk to Human Health from the site soils is considered negligible and as such no remedial action is considered necessary. The topsoil and subsoils across the site are considered suitable for re-use where required.

8.3 Controlled Waters Risk Assessment

The controlled waters risk assessment considers the potential impact of on-site contamination to the relevant controlled water receptors identified within the ICSM summarised as follows:

- Secondary Undifferentiated Aquifer - Superficial Deposits (OM)
- Secondary B Aquifer - Bedrock (SCD)
- No potable groundwater abstractions recorded within 1km.

8.3.1 Assessment Criteria

The approach adopted to assess risks to Controlled Waters is based principally on considering the concentrations of contaminants identified within the groundwater / soil leachate in comparison to relevant GAC.

Several Water Quality Standards (WQS) have been applied as Generic Assessment Criteria (GAC), these include Water Framework Directive standards and thresholds (WFD). Freshwater Environmental Quality Standards (EQS), the UK Drinking Water Quality Standards (DWQS) and WHO Guidelines for Drinking Water Quality values which have been used as initial conservative GAC to assess whether further assessment or discussion in terms of the risks to controlled waters is required.

Contaminant concentrations that exceed the applied GAC are then considered in the context of the site's environmental setting as to whether further qualitative or quantitative assessment is required.

In the absence of a sensitive potable groundwater supply, it was considered appropriate to adopt EQS for freshwater when assessing the risk to groundwater and surface water. Where EQS are not available, WHO and UK DWS have been adopted as the relevant screening criteria.

8.3.2 Soil Leachability Analysis

To assess the potential risk to Controlled Waters from the recorded concentrations in soils, the use of leachability is generally used to determine contaminant mobility within the ground with the results of these tests compared to the determinants respective of the environmental quality standards (EQS).

Following a direct comparison of leachate laboratory results to the respective EQS, the following exceedances were identified in samples of natural strata recovered from the site (taking into consideration the maximum allowable concentration).

Table 8-1 Summary of Laboratory Leachate Exceedances

Contaminant	Number of Exceedances	GAC (µg/l)	Concentrations of exceedances (µg/l)		Location (Depth) & Strata
			(min)	(max)	
Cadmium	1 from 3	0.08	0.21	0.21	TP07 (0.2m) - TS
Copper	3 from 3	1.0 (bioavailable)	7.8	28	TP07 (0.2m) - TS WS01 (0.3m) - TS WS12 (0.2m) - TS
Lead	3 from 3	1.2	2.2	3.7	As above.
Zinc	3 from 3	10.9	19	29	As above.

TS – Topsoil

As noted above, elevated levels of leachable copper, lead and zinc were recorded in excess of the EQS value in 3 No. samples of natural Topsoil located on site. Slightly elevated levels of leachable cadmium were also recorded in 1 No. sample of natural Topsoil at TP07.

However, the concentrations of cadmium and lead did not exceed the Maximum Allowable Concentration (MAC) when in comparison and will therefore not be considered further.

8.3.3 Groundwater Analysis

The site is considered to be located in an area of low sensitivity in regard to the risk to groundwater due to the absence of a sensitive potable groundwater supply.

The ground investigation has identified cohesive deposits across the majority of the site. A general lack of groundwater was also noted in the underlying OM and SCD deposits during the investigation and was generally absent during groundwater monitoring. Aside from this, no significant evidence of contamination has been identified in the soils and no evidence of hydrocarbon contamination was identified.

Based on the above, no specific groundwater analysis has been included as part of this assessment.

8.3.4 Evaluation of Risk to Controlled Waters

Based on the investigation works and laboratory testing undertaken to date, the contamination testing undertaken has identified slightly elevated levels of leachable dissolved copper, and zinc in three samples of Topsoil and slightly elevated levels of leachable cadmium in the natural Topsoil in one location at TP07 in excess of the EQS value.

The elevated levels of leachable copper and zinc have been identified within topsoil and subsoil samples and are therefore considered to be attributable to naturally occurring background concentrations present in the material.

In addition, leachability testing is a conservative approach to assessing risks to controlled waters typically over estimating real world leaching by an order of magnitude. Therefore, it is considered unlikely that leachable naturally occurring metals will pose an unacceptable risk to the identified Controlled Waters receptors in the context of the CSM.

As a matter of good practice, measures should be implemented during construction to prevent any potential risk from leachate run-off originating from excavated material stockpiles. Excavated materials stored on site should be positioned to minimise the likelihood of surface water or leachate run-off impacting surface water

receptors. Recommended control measures include maintaining low-gradient sides on stockpiles to reduce surface water run-off and applying appropriate measures to prevent suspended solids from entering surface waters.

8.4 Risk to Property and Infrastructure

8.4.1 Building Materials / Buried Concretes

Risks to building materials associated with aggressive ground conditions is addressed in Section 7.16 and should be designed accordingly.

8.4.2 Potable Water Supply Pipes

The investigation requirements for the selection of potable water pipe material are set out in UKWIR Report 10/WM/03/21 "Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (UKWIR, 2010)".

This report has specific investigation requirements and as such detailed investigation of proposed utility routes was not within the scope of this investigation. However, based on current information conventional plastic water supply pipes are likely to be suitable for the majority of the site.

It is recommended that the contamination test results are made available to the relevant water company to allow design of any required potable water supply pipe work to be undertaken and to confirm requirements for any further assessment.

8.5 Risk to Ecological Receptors

Soil results were compared to phytotoxic guideline values as outlined in Table 1 within BS3882:2007. No elevated contaminants were identified in the natural soils and therefore the probability of phytotoxic contaminants affecting vegetation is considered unlikely.

The risk to ecological receptors is anticipated to be negligible given the concentrations encountered in the soils. However, the impact to ecological receptors from proposed construction activities should always be considered.

9 Hazardous Ground Gas & Vapour Risk Assessment

9.1 Ground Gas Monitoring

Gas and groundwater monitoring has been carried out on 2 No. monitoring visits to date on 17th and 23rd October 2025 at atmospheric pressures of between 965mb and 1004mb, the results of which are summarised in Section 6-4.

The assessment of potential ground gas generation is based on the observation of trends and changes in gas evolution by the direct measurement of ground gas from the monitoring wells installed across the site. The monitoring programme included measurement of methane, carbon dioxide, oxygen, hydrogen sulphide, carbon monoxide, gas flows and barometric pressure.

The ground gas risk assessment and recommendations are presented below.

9.2 Ground Gas Risk Assessment Methodology

The risk to end users from potential hazardous ground gas has been assessed in accordance with the methodology presented in the following referenced documents:

- British Standards BS8485:2015+A1:2019 – Code of practise for the design of protective measures for methane and carbon dioxide ground gases for new buildings.
- British Standard BS8576:2013 ‘Guidance on investigations for ground gas – permanent gases and Volatile Organic Compounds (VOCs)’.
- CIRIA C665: Assessing risks posed by hazardous ground gas to buildings, 2007.

9.3 Gas Screening Values (GSV)

In accordance with BS 8485 (Clause 6.3.7.4), the plausible worst-case condition for the site has been calculated for each hazardous gas by multiplying the maximum recorded flow in any standpipe with the maximum gas concentration in any other standpipe discounting any peak instantaneous flows and negative flows that have been judged to be unrepresentative of a possible worst case.

BS8485 (Clause 7.7.3.4) advises that such a worst-case assessment is appropriate where there is limited data and it should be calculated using reasonable worst-case measurements in the same stratum.

The calculated GSV represents the gas hazard for the whole site and is based on similar ground conditions having been identified across the site. The data set used is therefore considered comprehensive and representative and consistent with the conceptual site model.

The site characteristic GSV and maximum hazardous gas concentrations obtained during the monitoring undertaken to date is presented in the table below. Derivation of the GSVs is presented in Appendix K.

Table 9-1 Characteristic GSV

Chg Methane (% v/v)	Chg Carbon Dioxide (% v/v)	Gas Flow Rate (l/hr)	Hazardous Gas Flow Rate, Qhg CH4 (l/hr)	Hazardous Gas Flow Rate, Qhg CO2 (l/hr)	Characteristic Situation
<0.1	2.00	0.10	0.0001	0.0020	CS1

9.4 Ground Gas Protection Recommendations

Based on the gas monitoring undertaken to date, the calculated for the site would indicate CS-1 in accordance with BS8485:2015+A1:2019. Therefore, at this stage, it is considered that gas protection measures will not be required for the site.

Due to the absence of elevated ground gasses and low flow rates, and no requirement for further gas monitoring is deemed necessary. However, this should be confirmed with the warranty provider and LPA prior to construction

9.5 Radon Protection Measures

Radon protection measures are not required.

9.6 Vapour Risk and Membranes

No evidence of vapours has been noted during the intrusive investigation, as such the risk associated with vapours arising from the site is considered negligible.

10 Revised Environmental Risk Assessment

The potential contaminant linkages identified by the intrusive investigation are discussed below.

10.1 Identified Sources

Based on the GQRA that has been carried out within Section 8.0, the identified sources of contamination, ground gas and vapours that could impact on the identified receptors are summarised below.

Table 10-1 Identified Sources

Soil Contamination	Controlled Waters	Ground Gas / Vapours
No elevated contamination identified in soils; however low pH has been identified in the natural subsoils.	Slightly elevated leachable cadmium, copper and zinc identified in the natural strata.	No elevated concentrations of ground gas or evidence of vapours identified.

10.2 Revised CSM and Potential Contaminant Linkages

Based on the above, the identified pathways and receptors at potential risk are detailed in the revised CSM presented in Table 10-2 below designed in general accordance with BS EN ISO 21365:2020.

Appropriate remedial / mitigation measures to break the potential contaminant linkages are discussed where required.

Table 10-2 Revised CSM

Contaminant Linkage			Plausible Linkage of Concern?	Comments / Proposed Mitigation
Source (S)	Pathway (P)	Receptor (R)		
Controlled Waters				
Slightly elevated levels of leachable copper, and zinc within natural strata.	Surface water run-off and / or migration of contaminated groundwater.	Inland rivers located off-site & newly created surface water drains on-site.	Yes (but limited very low risk)	To prevent any risk from run-off of leachate from excavated stockpiles of natural sub-soils, during construction as a measure of good practice, any materials excavated and stockpiled on site should be positioned to take into consideration the potential for surface water / leachate run-off to impact surface water receptors.
Property and Infrastructure				
Low pH identified in underlying soils.	Direct contact with aggressive ground.	Buried concrete & structures on and off-site.	Yes	Design Sulphate Class DS-1 AC-2z should be used for design purpose

11 Conclusions & Recommendations

This Geo-Environmental Assessment is based upon the findings of an intrusive site investigation undertaken in October 2025

It is understood that the site is proposed to be developed for a residential land use.

11.1 Conclusions

The Geo-environmental assessment has produced the following key conclusions which should be implemented as part of the future redevelopment of the site to ensure suitability for the proposed end-use and to meet the requirements of planning.

Table 11-1 Environmental Risk Assessment Summary

Environmental Risk Assessment Summary	
Human Health Risk Assessment	Based on the contamination testing that has been carried out on soils from the site, the risk assessment has indicated that the site poses a negligible risk to Human Health.
Controlled Waters Risk Assessment	The risk assessment has indicated that the site poses a very low risk to controlled waters.
Ground Gas	Based on the monitoring carried out to date and general lack of credible ground gas sources, gas protection measures are not considered to be necessary in the construction of new properties at the site.
Vapour Risk	No evidence of vapours has been identified on site; no further assessment or mitigation is therefore necessary.
Ecological Risk	Potential impacts from contamination sources are considered to be negligible. However, the impact to ecological receptors from proposed construction activities should always be considered.

Table 11-2 Geotechnical Assessment Summary

Geotechnical Assessment Summary	
Ground Conditions	Ground conditions on site comprised Topsoil overlying firm to very stiff cohesive Oadby Member deposits (proven to 5.45m bgl) and/or granular Oadby Member deposits (proven to 2.5m bgl). The OM deposits were underlain by the SCD formation which was proven to a maximum depth of 4.43m bgl. SCD bedrock was also encountered underlying the Topsoil in the central and northern areas of the site coincident with BGS geology mapping. Desiccated soils are believed to have been encountered sitewide within traditional foundation depths and may be influenced by seasonal variations.

Geotechnical Assessment Summary	
	The Oadby Member and Weathered South Charnwood Diorites classify as Class 2B/ 2C materials for earthworks purposes. Moisture conditioning (wetting and drying) of the underlying natural materials will likely be required to make existing materials suitable for placement.
Foundations	Traditional strip / trenchfill foundations are generally considered appropriate for most of the development proposals for the site, bearing within the firm to very stiff cohesive Oadby Member deposits underlying the majority of the site or granular Oadby/SCD deposits, subject to consideration of the loads imposed. Desiccated soils are anticipated sitewide and should be considered at the detailed foundation design stage. Alternative foundations are recommended for any residential plots where foundations depths would exceed 2.5m due to tree influence and in areas where ground levels are raised significantly; also, in the north-east corner where soft strata have been encountered at WS05.
Floor Slabs	At this stage it is anticipated that both ground bearing and suspended floor slabs may be suitable for the site, subject to developer preference and further assessment of proposed ground levels / tree influence.
Drainage	Infiltration testing carried out has confirmed that areas towards the south-east are more suitable for soakaway drainage. A drainage basin is proposed in the south-west which recorded practically impermeable ground conditions therefore, an alternative drainage solution is likely required in this area. The advice of a drainage engineer should however be sought to confirm this preliminary assessment prior to construction.
Concrete	Natural sub-soil deposits- DS-1 and AC-2z should be used for design purposes.
Roads & Hardstanding	A preliminary CBR design value between 2-5% should be achieved for road construction design purposes for the cohesive near surface deposits underlying the site. Increased CBR values (>5%) are considered suitable in areas associated with granular near surface deposits.

11.2 Recommendations

The following recommendations should be implemented/undertook to ensure suitability of the site for the proposed end-use and to meet the requirements of planning.

Table 11-3 Recommendations

Recommendations
Further targeted investigation should be carried out in the area of the infilled pond that could not be accessed during this investigation.
UXO mitigation measures adopted for any future intrusive ground works below 4m depth.

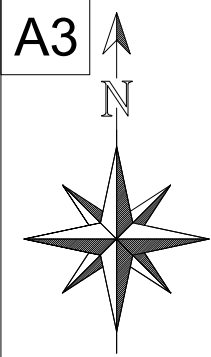
12 References

The following documents are referenced in the report;

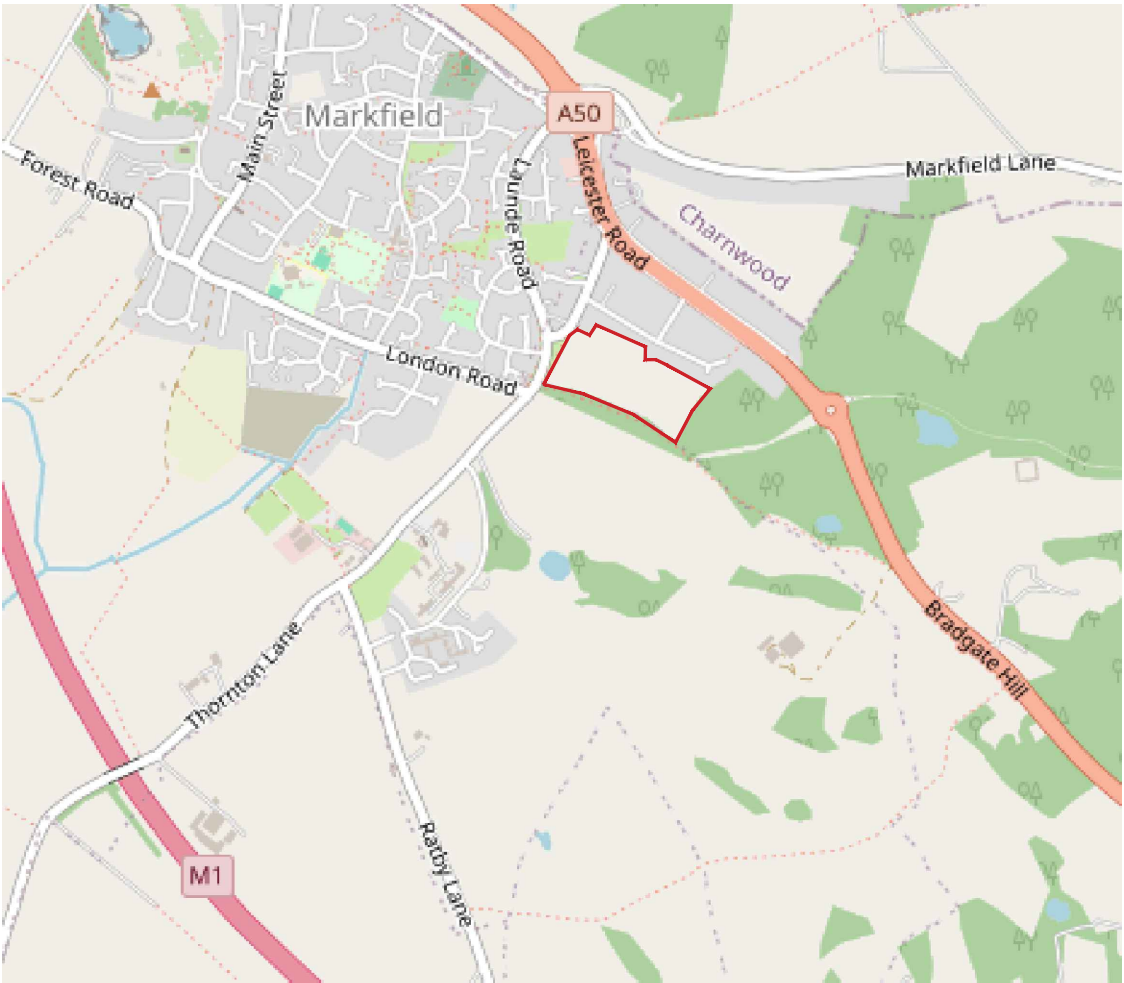
1. Desk Study Report, (PJS) dated October 2025.
2. RSK Geo-Environmental Assessment dated August 2015.
3. Land Contamination Risk Management (LCRM) 2020 (Updated 20/07/23)
<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>
4. CIRIA C552, Contaminated land risk assessment - A guide to good practice, dated 2001.
5. British Standards Institution (BSI) BS10175:2011+A2:2017 'Investigation of Potentially Contaminated Sites'
6. BS 5930 2015+A1:2020 'Code of Practice for Site Investigations'
7. BS EN ISO 22476-3:2005+A1:2011; Geotechnical investigation and testing. Field testing. Standard penetration test.
8. BS1377-2: 2022, Methods of Test for Soils for Civil Engineering Purposes.
9. BS EN ISO 17892:2014+ Geotechnical investigation and testing – Laboratory Testing of Soil.
10. BS EN ISO 14688-2 Geotechnical investigation and testing "Identification and classification of soil. Principles for a classification" Published 16/03/2018
11. BS 8582:2013: Code of practice for surface water management for development sites.
12. CIRIA-R143-the-Standard-Penetration-Test-SPT-Methods-and-Use-1995.
13. BRE DG365 Soakaway Design, 2016.
14. BRE Special Digest 1 'Concrete in Aggressive Ground 2005'
15. BS3882:2015 Specification for Topsoil.
16. CL:AIRE SP1010 Development of Category 4 Screening Levels for Land Affected by Contamination (Rev 2) dated 24th September 2014.
17. LQM/CIEH Suitable 4 Use Levels published 2015.
18. UKWIR Report 10/WM/03/21 "Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (UKWIR, 2010)".
19. BS8576:2013 – Guidance on investigations for ground gas – permanent gases and Volatile Organic Compounds (VOCs).
20. BS8485:2015+A1:2019 – Code of practise for the design of protective measures for methane and carbon dioxide ground gases for new buildings.
21. Construction Industry Research and Information Association (CIRIA). 2008. Assessing the risk posed by hazardous gases to buildings. C665.
22. BS EN ISO 21365:2020 – Soil Quality. Conceptual Site Models for Potentially Contaminated Sites.

Drawings

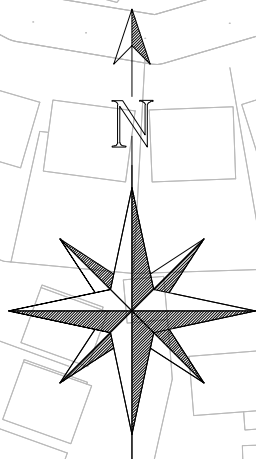
PJS25-0070-DR-0008 –Site Location Plan
PJS25-0070-DR-0009 – Site Features Plan
PJS25-0070-DR-0011-A – Exploratory Hole Location Plan
CSA/2550/118, rev: O – Illustrative Masterplan



- General Notes
1. Do not scale this drawing. If in doubt, ask.
 2. This drawing is to be read in conjunction with all other relevant Engineers, Architects and specialist design drawings and details.
 3. All dimensions are in metres unless noted otherwise. All levels are in metres unless noted otherwise.
 4. Any discrepancies noted on site are to be reported to the Engineer immediately.



 GEOTECHNICAL ENGINEERS Delivering Innovative Solutions PJS Geotechnical Engineers Limited, Geneva II, Lakeview, Sherwood Business Park, Nottingham, NG15 0ED. Registered Number: 11882468 Tel: 0115 704 3950 Email: Enquiries@pjs-geo.co.uk	Client		Drawing Title									
	Taylor Wimpey East Midlands		Site Location Plan									
			Drawn	Checked	Status	Scale						
	Project		Initial	MC	DH	Information	NTS					
			Date	24/09/25	24/09/25							
Land off Ratby Lane, Markfield		Project		Drawing Number		Revision						
		PJS25-0070		DR-0008				Rev	Date	Amendments	By	Chk



Residential
Estate

Access from Ratby Lane

Public Footpath

Agricultural
Field

Planted
Woodland

Disused water tank
along site boundary

Open access from
adjacent woodland

Agricultural
Fields

General Notes

1. Do not scale this drawing. If in doubt, ask.
2. This drawing is to be read in conjunction with all other relevant Engineers, Architects and specialist design drawings and details.
3. All dimensions are in metres unless noted otherwise. All levels are in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the Engineer immediately.

Key:

- Site boundary
- Overhead electric cables.
- Public footpath

Rev	Date	Amendments	By	CHK



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Client

TW East Midlands

Project

Land off Ratby Lane, Markfield

Drawing Title

Site Features Plan

Drawn / Checked / Status			Information		Scale
Initial	MC	NB	Information		1:1000
Date	28/10/25	28/10/25	Project Number		Revision
PJS25-0070			Drawing Number		-
			DR-0009		



Site Boundary: **Aprx. 6.39ha**

Residential developable area: **3.63ha**
(Up to 135 dwellings @ 37dph)

Proposed location for foul pump station and substation

Access & Movement

Proposed vehicular access point

Proposed spine road through the development

Proposed secondary streets leading off the spine road

Proposed private drives and lanes

Proposed shared spaces

Existing public footpath

Proposed recreational routes

Green Infrastructure

Existing vegetation

Proposed amenity and informal open space (to include new landscaping, tree planting and SuDS features)

Proposed new woodland planting

Proposed location for children's play area
LEAP - Local Equipped Area for Play

Proposed locations for sustainable drainage features (attenuation basins)

Surrounding Context

Existing bus routes

Rev	Date	By	Description

CSA

environmental

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w csaenvironmental.co.uk

Project	Land at Ratby Lane, Markfield, Leicestershire		
Title	Illustrative Masterplan		
Client	Taylor Wimpey UK Ltd		
Scale	1:1250 @ A2	Drawn	SM
Date	May 2025	Checked	RR
Drawing No.	CSA/2550/118	Rev	O

Appendix A: UXO Targeted Investigation Report



BRIMSTONE

**UXO TARGET
INVESTIGATION REPORT**



UXO TARGET INVESTIGATION REPORT FOLLOWING A NON-INTRUSIVE SURVEY

Client:	Taylor Wimpey Strategic Land		
Project Ref:	TWSL45		
Project Location:	Ratby Lane, Markfield, LE67 9RJ		
Report Ref:	20260306-TIREP-TWSL45		
Revision:	0		
Status:	Final		
Date:	6 th March 2026		
Data Processing By:	Sumana Basu	Senior Geophysicist	sumana.basu@brimstoneuxo.com
Written By:	Gem Harvey	Technical Engineer	gem.harvey@brimstoneuxo.com
Reviewed By:	Harry Smith	Technical Coordinator	harry.smith@brimstoneuxo.com



QUALITY POLICY

Brimstone Site Investigation Ltd, known as Brimstone, is committed to the delivery of unexploded ordnance (UXO) risk mitigation services, including safe removal and disposal of explosive ordnance, in the UK and overseas. Since our incorporation in 2016 it has been our goal to provide unsurpassed and unbiased UXO risk mitigation services. Brimstone is a client-centric organisation, with the aim to provide the client the services they need, to the agreed requirement, in accordance with national and international standards or standard operating procedures.

We are committed to providing a safe, cost-effective, and quality service, underpinned by our core values:

- **Integrity:** We are unwavering in our commitment to providing pristine, unbiased counsel and superior services. Our ethical compass guides every interaction, ensuring we maintain the highest standards of conduct in all our endeavours.
- **Professionalism:** We embody professionalism at every level, conducting our business with unparalleled excellence. Our commitment to quality guarantees top-tier service and a seamless experience for every client.
- **Knowledge:** We are devoted to perpetual growth, consistently expanding our expertise to stay at the forefront of industry innovation and strategy. Our thirst for knowledge ensures we are equipped to lead and succeed in an evolving marketplace.
- **Innovation:** We champion innovation, continuously advancing our services and processes. Our pursuit of inventive strategies and pioneering solutions ensures we not only meet but exceed the evolving needs of our clients and the industry.

We are committed to the applicable requirements of the ISO 9001:2015 standards. We set and review quality monitoring objectives using the plan, do, check, act cycle to measure the performance of our quality management system. Brimstone wholly endorses the ethos of 'continual improvement efforts' and allocates resources to meet this requirement.

This policy applies to the whole of the Brimstone services and involves all personnel including the managing director. All personnel are responsible for helping manage quality, seeking improvement through constant review, and by encouraging supplier and subcontractor involvement. We are committed to achieving customer satisfaction using quality procedures, which will be operated to meet or exceed the applicable requirements of ISO 9001.



Aaron Florence
Founder and Managing Director
Brimstone Site Investigation Ltd.

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EXECUTIVE SUMMARY

- Brimstone Site Investigation (BSI) had completed a non-intrusive UXO Survey for Taylor Wimpey Strategic Land on 4th February 2026 using a UAV (Annex A).
- The aim of the survey was to identify any possible buried UXO ahead of ground-intrusive works proposed by the client.
- The output of the non-intrusive survey was a list of targets (Annex C) with estimated mass and depth.
- The follow-up activity to the non-intrusive report was a 'target investigation' of suspect buried objects.
- In total, 76 targets were modelled because of the survey.
- Following the target investigation taken place from 25th to 27th February 2026, no items of UXO were found. Therefore, clearance can be given to the surveyed areas to a depth of 4m below ground level. Any depth greater than this depth is not cleared and may require additional mitigation strategies being put in place. This includes pilling and drilling.

Area Surveyed (ha)	Total No. of Targets Modelled	Discounted Targets	Targets to Investigate	Est. Duration of Investigation (two-man team)
5.61	76	0	76	3 days

1 WHAT IS UXO

UXO is an abbreviation for unexploded ordnance. It is a term that refers to explosive ordnance which has been primed, armed, fused, or otherwise prepared for use, and has been dropped, fired, launched, projected, thrown, or placed and remains unexploded either by malfunction or by design.

UXO is a catch-all term used in the UK to refer to explosive hazard contamination. Although, not all explosive hazards are correctly described as UXO. Abandoned explosive ordnance, or AXO, is ordnance, which is in a safe state, has not been prepared for use or has not been fire, projected, thrown, or otherwise used. Instead, AXO has been buried or hidden, either as a means of disposal or as a cache in anticipation of invasion.

An example of UXO would be an anti-aircraft projectile having been fired at an aircraft, failing to function and the falling back to land, unexploded. An example of AXO would be a 'bomb dump' of expired ordnance, whereby an excavation is filled with unwanted ordnance and backfilled. This was frequently used by the MoD up until the 1980s as a recognised means of disposal.

2 WHY IS LAND CONTAMINATED BY UXO?

There are four sources of UXO contamination in the UK. These are: enemy action, allied action, military activity or munitions manufacturing and storage locations. Enemy action refers primarily to artillery bombardment and strategic bombing campaign of the Second World War. Allied action refers to defensive activities, again primarily in relation to the Second World War, which includes land and sea mining, anti-aircraft batteries and rocket batteries.

Military training is a significant source of UXO contamination. In former and current military training areas, the risk of encountering UXO is significant, ranging from projectiles, mortars, and grenades. The MoD is the second-largest landowner in the UK, and as such large parts of the UK have historically been used or requisitioned by the military for training our armed forces and allied armed forces.

Finally, munitions manufacturing and storage sites also present a UXO risk, although the risk is generally localised and in small specific parts of the UK.

3 THE REGULATORY ENVIRONMENT

There are no specific regulations that manage how UXO is dealt with on UK construction sites, and similar operations. However, there are pieces of legislation that must be considered when companies choose how to approach UXO risk, these include those listed below. The CIRIA guidelines are a set of guiding principles that offer a framework to the UK UXO risk mitigation sector, these are explained in the subsequent section.

- Construction (Design Management) Regulation (2015)
- Health and Safety at Work Act (1974)
- Management of Health and Safety at Work (1999)

3.1 Construction (Design Management) Regulations (2015)

CDM 2015 replaces CDM 2007. These regulations define the responsibilities of roles within construction projects. The Principal Designer is responsible for managing health and safety, in that role they must exercise identification, elimination and control of foreseeable risks. UXO is a significant potential hazard and must be considered at the design phase.

3.2 Health and Safety at Work Act (1974)

Employers must ensure as far as is reasonably practicable the health and safety of their employees. They must also ensure the health and safety of others affected by their work activity. When working on a site which is

thought to have a UXO contamination risk, employers have a responsibility to provide a safe system of work that addresses the assessed UXO risk.

3.3 Management of Health and Safety at Work (1999)

This adds on to the Health and Safety at Work Act (1974). The act sets out the general duties which employers have towards employees and members of the public, and those which employees have to themselves and each other. In relation to UXO, the act applied that duty holders are to ensure that proper assessments of foreseeable risks are completed and that necessary measures are taken to control risks to an acceptable level.

4 CIRIA C681 GUIDELINES

CIRIA is the Construction Industry Research and Information Association. Two sets of guidelines provide a framework to the UXO risk mitigation sector in the UK. They are not legally binding, and are optional to follow, but they form the accepted best-practice standards to which the industry operates.

CIRIA C681: Unexploded Ordnance: A Guide for the Construction Industry (2009)

This is the overarching document which provides the four stage UXO risk mitigation framework. Stages are:

1. Preliminary UXO risk assessment – a qualitative screening exercise to assess the likelihood of finding UXO on a site. This can be completed by a non-UXO specialist or a UXO specialist.
2. Detailed UXO risk assessment – A wider and deeper assessment of the site, using bomb damage maps, penetration assessments and other historical information.
3. Recommendations – A proposal of risk mitigation strategies determined in coordination with the client.
4. Implementations – the on-site UXO risk mitigation measures being put in place.

CIRIA C785: Unexploded Ordnance Risk Management Guide for Land-Based Projects (2019)

This guidance document adds on to C681. It provides additional details and structure to the risk assessment process. Both documents are available to purchase on the CIRIA website.

5 ALARP

The ALARP (as low as reasonably practicable) principle is about the actions that should be taken to reduce risks. The term 'ALARP' is in the Health and Safety at Work Act 1974, which says that risks must be controlled in a reasonable way.

Infinite time, effort and money could be spent trying to eliminate risk entirely. HSE uses the example that spending £1m to prevent five employees bruising their knees is disproportionate, whereas spending the same amount to prevent an explosion which could kill 150 people is proportionate.

Using this principle, BSI aims to reduce client costs by recommending strategies that are proportionate to the assessed risks.

6 MAXIMUM BOMB PENETRATION DEPTHS

Using data gathered during WWII by the Ministry of Home Security, estimates can be made about how deep a bomb is likely to penetrate the ground. Over one thousand incidents were reported by the bomb disposal units to support this research. Further tests were carried out, dropping bombs of different sizes into chalk and measuring the depths they reached. This research is held at the National Archives. The estimates are:

Bomb weight (kg)	Ground Type (m)							
	Sand		Gravel		Chalk		Clay	
	Average	Max.	Average	Max.	Average	Max.	Average	Max.
50	2.8	7.8	2.8	7.8	3.5	7.7	4.0	9.1
250	4.8	13.7	4.8	13.7	6.0	13.1	6.8	15.8
500	6.0	17.3	6.0	17.3	7.6	16.4	8.7	19.8
1,000	7.6	21.9	7.6	21.9	9.6	20.7	10.9	24.9

Different layers of geology affect penetration depths, for example 1m of made ground, then 1m of gravel before reaching clay – as is many areas of London – is not easily calculated from the data above.

When calculating how deep a bomb could have reached, we must make three assumptions:

- Impact velocity.** German bombing raids were carried out at altitudes more than 5,000m. The velocity of impact is roughly 313ms⁻¹ (not accounting for resistance). It is the same velocity regardless of mass.
- Impact angle.** Strike angles of 10 to 15 degrees to the vertical. It must be assumed that the bomb was stable at the moment of ground penetration.
- Bomb design.** Some larger German bombs were occasionally fitted with ‘kopfrings’ - a metal ring, triangular in cross section, fitted around the nose of the bomb to help prevent penetration. It must be assumed that no ‘kopfrings’ were fitted.

7 LAND SERVICE AMMUNITION

Land service ammunition (LSA) includes mortars, grenades, rockets, and projectiles. These types of ordnance can contaminate land in the UK due to prior and current training of the UK’s armed forces, as well as the activities of other allied nations on British soil. Training areas, airfields, barracks, and camps are areas which may have a heightened risk of encountering LSA. During WWII anti-aircraft weaponry was deployed across much of the UK, and as a result contamination from anti-aircraft projectiles can occur in cities as well as in the open countryside.

LSA is typically found within the first 0.5m of WWII level ground. Non-intrusive UXO surveying is an effective method of targeting LSA due to these shallow depths and high iron content. Objects, even large objects, which lay deeper than 4m below the surveyed ground level are difficult for this equipment to detect.

8 HOW DOES THIS SURVEY WORK?

In coordination with the client Brimstone recommended the completion of a non-intrusive magnetometry survey. The output of this survey is false colour maps of ‘hotspots’ overlain satellite imagery of the site. A non-intrusive survey is a survey style which does not require any manipulation or ‘intrusions’ into the ground. This means that specialist technical equipment is methodically moved across the surface of a given area without disturbing any possible buried objects. The benefit of this type of survey is wide area coverage, as consistent with the requirements for this project.

The data collected is GPS information joined with magnetometry information. Magnetometry is a type of technical sensing technology. Essentially, a magnetometer is an instrument which detects the Earth’s natural magnetic field by sending signals between two sensors - contained within an aluminium tube called a probe. These sensors are known as fluxgate gradiometers. Deviations within the Earth’s magnetic field indicates the

presence of a buried object containing iron. The more iron, the stronger the magnetic signal. The diagrams below illustrate this effect.

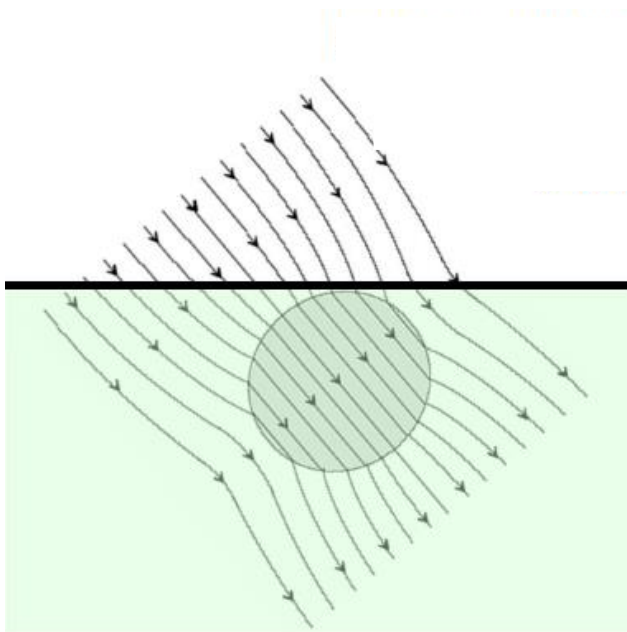


Figure 1: Earth's magnetic field interrupted by a buried iron (ferrous) object.

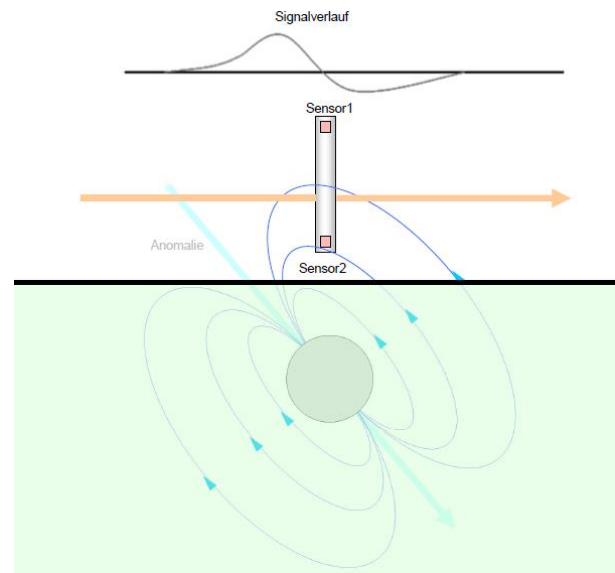


Figure 2: A description of how the sensor locate targets and the sinusoidal information received.

By analysing the wavelength and amplitude of the signal measured by the magnetometers, we can estimate the likely depth and size of a buried object. Whilst the depth of the object is quite accurate, the estimated mass is harder to determine and is known for a greater degree of inaccuracy.

Magnetometry technology is a so-called passive system. A simple way to think about passive systems is that the object looks at the sensor, rather than the sensor looking at the object – as is the case with active systems. Therefore, with the type of system used in this survey, the maximum depth the equipment can sense to is dependent on the mass of the item and its surrounding geology.

9 SURVEY DETAILS

9.1 Location

The project address is: Ratby Lane, Markfield, LE67 9RJ. The site boundaries are indicated in red below, and in further detail contained in Annex B.



FIGURE 3: Ratby Lane, Markfield, LE67 9RJ

9.2 Survey Dates

The survey was completed in from 25th to 27th February 2026.

9.3 Survey Limitations

At times, not all the proposed area can be surveyed. This can be for one or several reasons, including:

- a) Vegetation too tall or impassable for the equipment,
- b) Too soft ground for the operator,
- c) Man-made or natural obstacles, and
- d) Deep furrows or ditches on farmers' fields.

During analysis, the survey data quality can be limited by environmental factors including:

- a) Made ground,

- b) Heras or chain-link type fencing,
- c) Overhead high-voltage power cables, and
- d) Heavily mineralised geology.

Additionally, the survey is subject to the following limitations:

- a) Detection of UXO is dependent contrast between UXO and its host materials. There is an extremely remote likelihood that ferrous items can be missed by the equipment if its magnetic field is in the same orientation as local magnetic declination.
- b) The survey task specifically targets the anticipated risk of ordnance (mortars, grenades, bombs, and alike) within the limits of the equipment capability.
- c) As with all UXO survey tasks, 100% clearance certificates cannot be issued. This document certifies that work has been undertaken to mitigate against the risk of UXO, using the ALARP principle. However unlikely, encountering UXO cannot wholly be discounted.

10 SURVEY EQUIPMENT

Our survey equipment comprises of a GPS system and a magnetometry system. The GPS uses GNSS accurate to 1cm or less, with mobile data correction. The magnetometry equipment is designed, made, and manufactured at a single site in Germany to ISO 9001 quality standards. Specification sheets for the equipment used on this survey can be found annexed in this report.

11 DATA INTERPRETATION

Following field collection, the data is processed in house by our geophysics team. The data undergoes several steps to reduce noise and improve the survey quality. In the later stages of data processing, we use a specialist computer model to look at the signals measured by the equipment. These signals are then compared against a bank of known UXO signals. This is a semi-automated process.

The data processing software then presents a list of possible UXO targets. Estimation in depth and mass are made, and their locations are offered in coordinates accurate to 1cm. Additional survey data services are available including CAD drawings banded by depth to offer a more granular application to the project scope, possibly reducing time and costs further down the pipeline.

12 TARGET SELECTION

Based on our experience as an organisation and through guidance from the manufacturer of our equipment, we can reduce the overall number of targets required for investigation. We reduce the targets to the following criteria:

- All targets with a mass greater than 1kg.
- 25% selection of targets with a mass less than 1kg.

We reduce these targets due to the level of sensitivity the equipment offers, and the perceived risk of encountering certain types of UXO. The equipment we use is used within archaeological investigations and as such it can measure the smallest iron objects, down to the head of a rusty nail. We need to filter out these smaller targets, inconsistent with UXO, so we do not add unnecessary time and costs to the project. We aim to achieve



Figure 4: No. 36 Mills Grenade, source: IWM

ALARP, whereby any further reduction in risk is disproportionate to the additional cost, time, and effort to achieve the reduction.

A No.36 grenade, which is one of the smallest mass items we could find, has an overall mass of around 750g, and approximately 500-600g of iron. If UXO is found however, a 100% investigation of all targets would be recommended, to satisfy CIRIA C681 guidelines and the ALARP principle.

Total Targets:

The table below describes all targets that have been measured in the field and have been modelled through our data processing.

Total Targets	Total Targets < 1kg	Total Targets > 1kg	Could Not be Modelled	Depth Range
76	0	61	15	0.02 – 1.22m

Selected Targets:

The table below describes all targets, less those which have been filtered out according to the criteria as above.

Total Targets	Selected Targets < 1kg	Selected Targets > 1kg	Could Not be Modelled	Depth Range
76	0	61	15	0.02 – 1.22m

13 TARGET INVESTIGATION

Targets were set out using our RTK quality GPS and survey flags. Our engineers excavated, uncovered and identified buried ferrous targets. No targets were found to be UXO or items related to UXO.

A target investigation log was recorded and is annexed in this report, for your records.

Total Targets	Total Targets Found	No Observed Target*	UXO (and related) Targets
76	76	0	0

*No observed targets relate to a position in the survey area which modelled a buried ferrous object. Upon investigation, no target was observed. This is typically due to geology – certain types of ground are heavily magnetised, and pockets of such ground can model as a ferrous object.

14 OVERALL RISK RATING AND RISK MITIGATION RECOMMENDATIONS

Brimstone and the client have satisfied the criteria of CIRIA C681 and other standards in the completion of the survey and has successfully mitigated the risks posed by UXO to ALARP.

Clearance is given for the site as indicated in the annex to a depth of 4m below ground level. Any groundworks undertaken within in the top 4m of soils may proceed without any further proactive UXO risk mitigation. Brimstone would consider a safety briefing, which is delivered to the site management team of the

principal contractor, to be prudent. This would further appease the ALARP risk mitigation principle, whilst raising awareness to the leadership team for the site.

Any ground intrusions deeper than 4m will still require further proactive site-based mitigation. These activities are likely to comprise blind ground intrusions, such as piling or foul pump station wet well installation(s). The recommended service is an intrusive magnetometer probe survey, which is designed to scan deep buried columns of soil that relate specifically to the proposed pile and wet well locations.

UXO TYPE (ASSOCIATED HAZARD)	UXO RISK LEVEL FOLLOWING THE PRESENTATION OF THE DETAILED UXO RISK ASSESSMENT (DRA-25-1944)	UXO RISK LEVEL FOLLOWING THE NON-INTRUSIVE SURVEY AND TARGET INVESTIGATION (0-4M BELOW GROUND LEVEL)	UXO RISK LEVEL FROM A DEPTH OF 4M TO 12M BELOW GROUND LEVEL
WWII German 'Iron' Bombs	Moderate	Low	Moderate
WWII British Heavy Anti-Aircraft Shells	Moderate	Low	Low
WWII British Land Service Ammunition	Low	Low	Low
WWII German 2kg Incendiary / HE Bombs	Low	Low	Low
WWII German 1kg Incendiary Bombs	Low	Low	Low
WWII British Light Anti-Aircraft Shells	Low	Low	Low

Once a safety briefing has been delivered to the appropriate site personnel and the intrusive survey has been completed, the site-specific risk will reduce to low for all depths and activities.

Brimstone would recommend the Local Planning Authority set the following planning condition:

Prior to development commencing, the following shall be submitted to and approved, in writing, by the Local Planning Authority:

A Detailed Risk Assessment and Intrusive UXO Survey where required, based on (1) to characterise the site and; provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site. Following the results and outcomes of the Detailed Risk Assessments, a Risk Mitigation Plan giving full details of the mitigation measures required and how they are to be undertaken. This requires the provision of both a Mitigation Implementation and Verification Plan.

Details attaining to Operational UXO Emergency Response Plan; and UXO Safety & Awareness Briefings – must also be provided. The identified mitigation must be carried out in accordance with the approved details. 3. On completion of the above (2) a final Verification Report is required to demonstrate that the works set out in (2) have been completed, along with any requirements for longer-term monitoring of risks, maintenance and arrangements for contingency action

15 ANNEXES

Annex A – Equipment Specification Sheets

Sheets specifying the equipment used and their technical capabilities.



Annex B - Non-Intrusive Survey Maps

False colour maps showing geospatial hotspots, areas too noisy to interpret and location of targets.

Annex C – Target Investigation Log

A log of targets investigated during this project.



ANNEX A

Nazar



UAV CAPABILITY

NAZAR is a modified off-the-shelf UAV. Resistant to rain, wind and hot climates, NAZAR is equipped to deliver surveying and detection solutions in tough to access environments.

Carrying payloads of up to 8kg, NAZAR is a modular platform for sensors, detectors and effectors. Applications include UXO magnetometry, radiation detection, photogrammetry and LIDAR.

Using programmable waypoints, RTK GPS quality, a laser altimeter and autonomous operation, NAZAR moves with undulations via determined flight paths to provide a faster, more cost-effective surveying methodology. We think it looks pretty cool too.

Note: NAZAR's mounted magnetometer can detect a 50kg ferrous mass at 4m.



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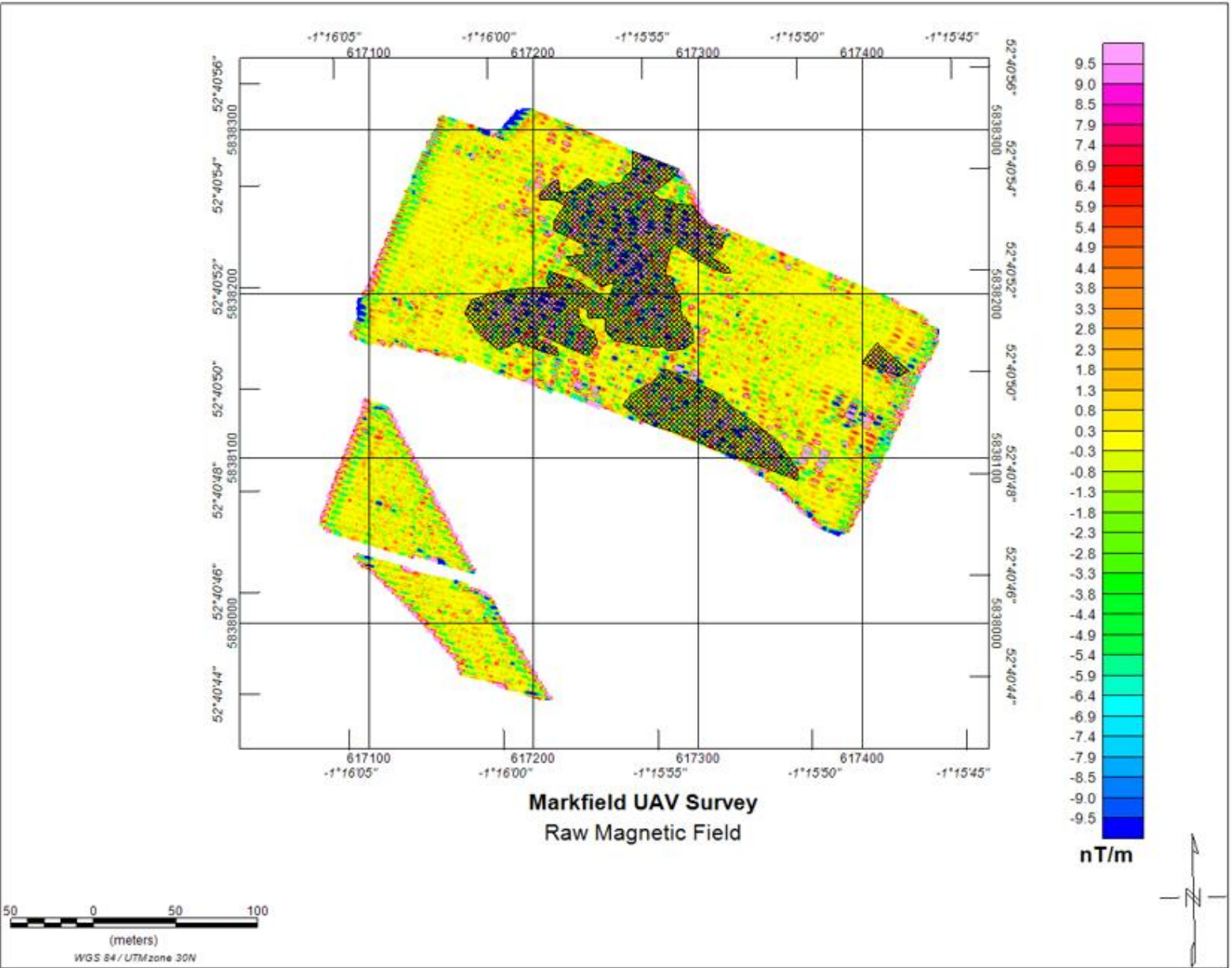
THE STATS

Max Speed	23 m/s
Climb Rate	6 m/s
Max Altitude	7000m

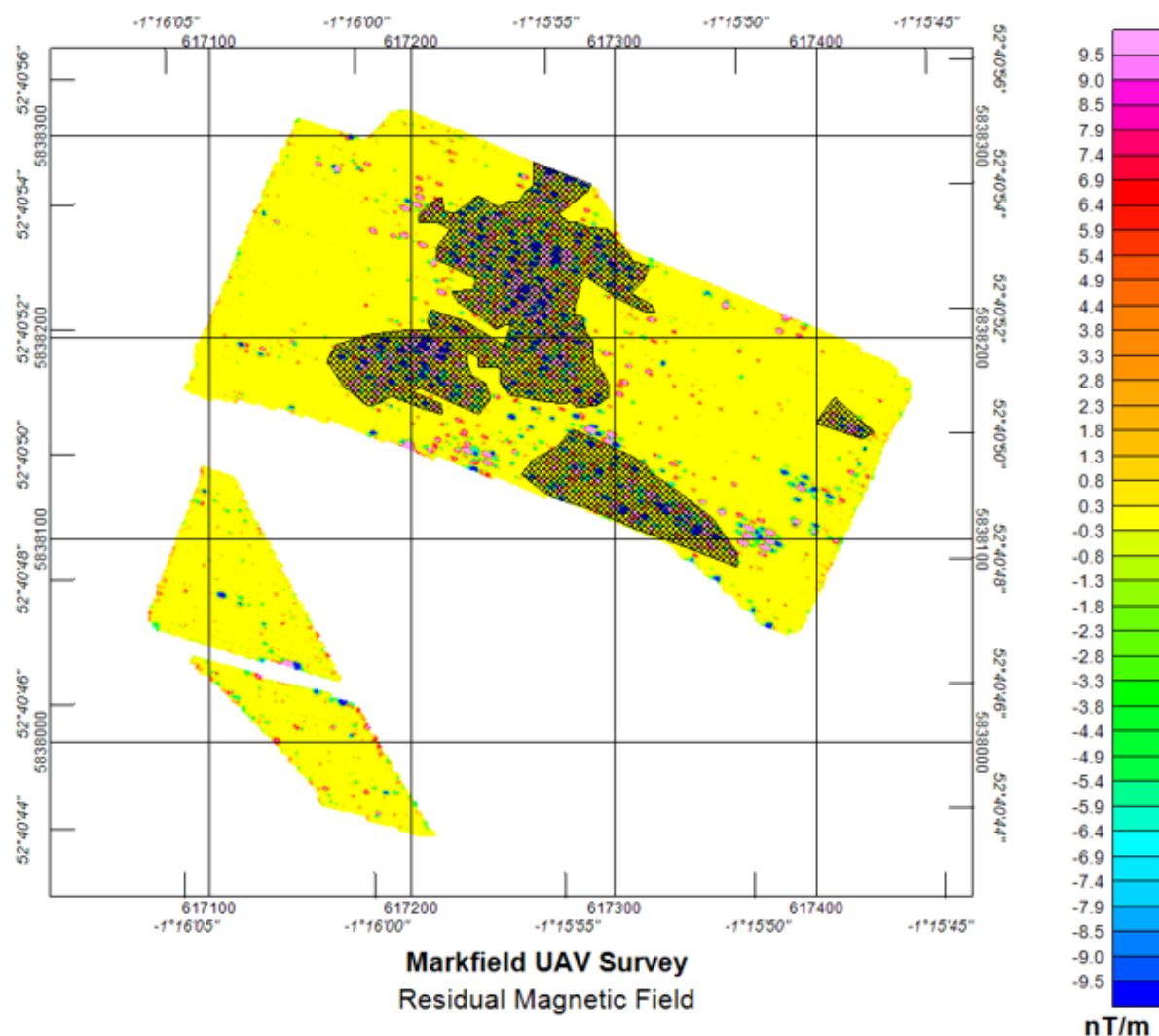
Operating Temperature	-20°C to 50°C
Weather	Dry or Wet
Flight Time	~ 55 minutes



ANNEX B



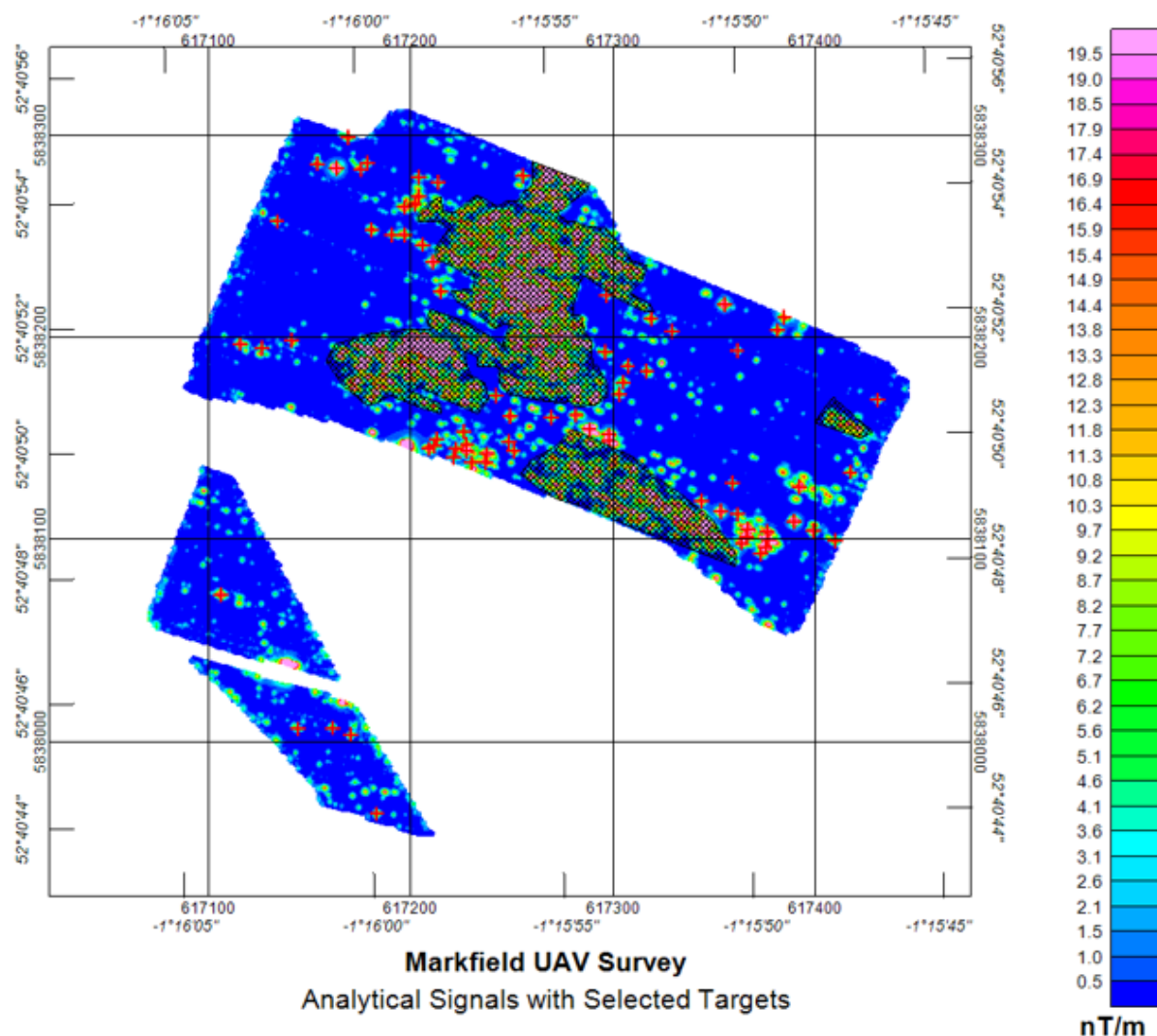
Project:	TWSL32	BRIMSTONE Innovation Centre Medway Maidstone Road Charlton ME5 9FD +44 (0) 207 117 2492 www.brimstoneuxa.com enquire@brimstoneuxa.com
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Report Ref:	TWSL32 - Markfield	
General Site Location:	Info Source: Processed Data	



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ANNEX C

TARGET LIST

Target ID	Estimated Mass (Kg)	Estimated Depth (m)	Item Found
1	1.54	0.02	Non-UXO scrap metal
2	4.04	0.35	Non-UXO scrap metal
3	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
4	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
5	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
6	27.59	1.1	Non-UXO scrap metal
7	21.65	1.21	Non-UXO scrap metal
8	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
9	28.49	0.9	Non-UXO scrap metal
10	19.63	0.86	Non-UXO scrap metal
11	22.73	1.22	Non-UXO scrap metal
12	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
13	11.26	0.62	Non-UXO scrap metal
14	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
15	8.73	0.19	Non-UXO scrap metal
16	5.34	0.15	Non-UXO scrap metal
17	12.22	0.83	Non-UXO scrap metal
18	2.89	0.21	Non-UXO scrap metal
19	2.67	0.2	Non-UXO scrap metal
20	3.55	0.35	Non-UXO scrap metal
21	6.59	0.56	Non-UXO scrap metal
22	21.83	1.16	Non-UXO scrap metal
23	26.68	1.05	Non-UXO scrap metal
24	3.19	0.1	Non-UXO scrap metal
25	9.42	0.52	Non-UXO scrap metal
26	2.94	0.21	Non-UXO scrap metal
27	5.6	0.58	Non-UXO scrap metal
28	9.32	0.24	Non-UXO scrap metal
29	3.25	0.25	Non-UXO scrap metal



30	15.96	0.48	Non-UXO scrap metal
31	51.4	0.81	Non-UXO scrap metal
32	3.13	0.1	Non-UXO scrap metal
33	8.41	0.5	Non-UXO scrap metal
34	15.2	0.99	Non-UXO scrap metal
35	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
36	4.44	0.34	Non-UXO scrap metal
37	3.77	0.28	Non-UXO scrap metal
38	4.45	0.44	Non-UXO scrap metal
39	3.7	0.28	Non-UXO scrap metal
40	5.62	0.15	Non-UXO scrap metal
41	10.24	0.81	Non-UXO scrap metal
42	12.46	1	Non-UXO scrap metal
43	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
44	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
45	9.34	0.74	Non-UXO scrap metal
46	10.66	0.08	Non-UXO scrap metal
47	5.8	0.52	Non-UXO scrap metal
48	3.39	0.19	Non-UXO scrap metal
49	8.32	0.62	Non-UXO scrap metal
50	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
51	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
52	12.73	0.91	Non-UXO scrap metal
53	6.82	0.58	Non-UXO scrap metal
54	12.24	0.95	Non-UXO scrap metal
55	7.78	0.59	Non-UXO scrap metal
56	24.43	0.05	Non-UXO scrap metal
57	4.28	0.24	Non-UXO scrap metal
58	4.93	0.39	Non-UXO scrap metal
59	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
60	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
61	3.94	0.47	Non-UXO scrap metal
62	2.43	0.33	Non-UXO scrap metal



63	1.45	0.21	Non-UXO scrap metal
64	2.91	0.3	Non-UXO scrap metal
65	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
66	2.31	0.36	Non-UXO scrap metal
67	Couldn't be modelled	Couldn't be modelled	Non-UXO scrap metal
68	1.64	0.11	Non-UXO scrap metal
69	2.64	0.31	Non-UXO scrap metal
70	8.76	1.03	Non-UXO scrap metal
71	6.15	0.89	Non-UXO scrap metal
72	1.93	0.16	Non-UXO scrap metal
73	1.52	0.13	Non-UXO scrap metal
74	1.01	0.04	Non-UXO scrap metal
75	2.02	0.29	Non-UXO scrap metal
76	1.5	0.18	Non-UXO scrap metal



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Appendix B: Contamination Risk Assessment Methodology

By considering the sources, pathways and receptors (contaminant linkages), an assessment of the human health/ environmental risks is made regarding the significance and degree of the risk. This assessment is based on consideration of whether the source of contamination can reach a receptor and hence whether it is of major or minor significance.

The risks associated with construction materials are considered outside of this procedure. The risk from ground gas has not been assessed in this report.

The risk assessment has been undertaken in general accordance with the guidance contained within BS10175:2011 + A2:2017 and CIRIA Document C552: Contaminated Land Risk assessment 'A Guide to Good Practice'.

The risk assessment has been carried out by assessing the severity of the potential consequence, considering both the potential severity of the hazard and the sensitivity of the target, based on the categories given in Table 1 below.

Table 1 – Potential Hazard Severity Definitions

Category	Definition
Severe	Acute risks to human health, catastrophic damage to buildings/property, major pollution of controlled waters;
Medium	Chronic risk to human health, pollution of sensitive controlled waters, significant effects on sensitive ecosystems or species, significant damage to buildings or structures;
Mild	Pollution of non-sensitive waters, minor damage to buildings or structures;
Minor	Requirement for protective equipment during site works to mitigate health effects, damage to non-sensitive ecosystems or species.

The likelihood of an event (probability) considers both the presence of the hazard and target and the integrity of the pathway and has been assessed based on the categories given in Table 2 below.

Table 2 – Potential of Risk Definition

Category	Definition
High Likelihood	Contaminant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor;
Likely	Contaminant linkage may be present, and it is probable that the risk will occur over the long term;
Low Likelihood	Contaminant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so;
Unlikely	Contaminant linkage may be present, but the circumstances under which harm would occur are considered improbable.

The potential severity of the risk and the probability of the risk occurring have been combined in accordance with the following matrix to give a level of risk for each potential hazard as listed in Table 3 below.

Table 3 – Level of Risk

Probability of Risk	Potential severity			
	Severe	Medium	Mild	Minor
High Likelihood	Very High	High	Moderate	Low/Moderate
Likely	High	Moderate	Low/Moderate	Low
Low Likelihood	Moderate	Low/Moderate	Low	Very Low
Unlikely	Low/Moderate	Low	Very Low	Very Low

The assessment is discussed in terms of plausible contaminant linkages.

A description of the risk classifications and likely action required are given in CIRIA 552. These risk classifications are listed in Table 4 below.

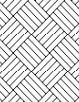
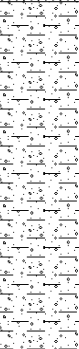
Table 4 – Risk Classification

Risk Classification	
Very High Risk	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 substantial liability. Urgent investigation and remediation are likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. This risk, if realised, is likely to result in substantial liability. Urgent investigation 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 either 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 is normally required to clarify risks and to determine potential liability. Some remedial works may be required in the long 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	It is a low possibility that harm could arise to a designated receptor. In the event of such harm being realised it is not likely to be severe.

Appendix C: Exploratory Hole Logs

Trial Pit Log

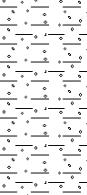
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Project No. : PJS25-0070	Co-ords: E449612 N309498		Equipment: Kubota KX080	
SA01	Ground Level	Logged By	Scale	Page Number
	173.59m AoD		1:25	
		HM		Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.75		HVP=96	0.35	173.24		Grass over brown very sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
							Stiff orange-brown mottled grey slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse of siltstone and diorite. Sand is fine to coarse. [OADB MEMBER] <u>0.55 to 1.50m - Becoming friable.</u>	
							<u>1.10 to 1.50m - Becoming slightly gravelly.</u>	
2				1.50	172.09		Trial pit terminated at 1.500m bgl	
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By	Approved By
Pit Length	Pit Width				
1.95	0.60	Excavation Stability	Pit stable.		
General Remarks and Observations:				07/10/2025	07/10/2025
1. Trial pit terminated for infiltration testing. 2. No visual or olfactory evidence of contamination. 3. Excavation backfilled with arisings upon completion.				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey	07/10/2025		
Project No. : PJS25-0070	Co-ords: E449652 N309487		Equipment: Kubota KX080	
SA02	Ground Level	Logged By HM	Scale	Page Number
	173.95m AoD		1:25	Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1				0.30	173.65		Grass over brown very sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
							Stiff greyish-brown slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of diorite and occasional siltstone. [OADBY MEMBER]	
				1.00 1.10	172.95 172.85		Weak dark pinkish grey DIORITE recovered as orange-brown very sandy cobbly angular to subangular fine to coarse gravel with occasional angular boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
Trial pit terminated at 1.100m bgl								
2								
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By	Approved By
Pit Length	Pit Width				
1.80	0.60	Excavation Stability	Pit stable.		
General Remarks and Observations:				07/10/2025	07/10/2025
1. Trial pit terminated due to encountering shallow bedrock, infiltration testing carried out at shallow depth. 2. No visual or olfactory evidence of contamination. 3. Excavation installed with monitoring ancillaries and backfilled with gravel and arisings for infiltration testing.				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		07/10/2025	
Project No. : PJS25-0070	Co-ords: E449724 N309453		Equipment: Kubota KX080	
SA03	Ground Level 174.77m AoD	Logged By HM	Scale 1:25	Page Number Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1				0.20	174.57		Grass over brown very sandy gravelly slightly cobbly CLAY. Cobbles are subangular to subrounded of quartzite and siltstone. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
							Light brown gravelly cobbly fine to coarse SAND with occasional angular boulders of diorite. Gravel and cobbles are angular to subangular of diorite, siltstone and sandstone. [OADBY MEMBER]	
				0.80 0.95	173.97 173.82		Weak dark pinkish grey DIORITE recovered as greyish-brown and orange sandy very cobbly angular to subangular fine to coarse gravel with occasional angular boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
Trial pit terminated at 0.950m bgl								
2								
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By	Approved By
Pit Length	Pit Width				
2.00	0.60	Excavation Stability	Pit stable.	AM	AM
General Remarks and Observations:				07/10/2025	07/10/2025
1. Trial pit terminated due to encountering shallow bedrock, infiltration testing carried out at shallow depth. 2. No visual or olfactory evidence of contamination. 3. Excavation installed with monitoring ancillaries and backfilled with gravel and arisings for infiltration testing.				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to encountering shallow bedrock, infiltration testing carried out at shallow depth.
2. No visual or olfactory evidence of contamination.
3. Excavation installed with monitoring ancillaries and backfilled with gravel and arisings for infiltration testing.

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey	07/10/2025		
Project No. : PJS25-0070	Co-ords: E449767 N309438		Equipment: Kubota KX080	
SA04	Ground Level	Logged By	Scale	Page Number
	174.37m AoD		HM	1:25
				Sheet 1 of 1

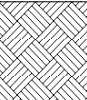
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1				0.15	174.22		Grass over brown very sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
							Light brown gravelly cobbly fine to coarse SAND. Gravel and cobbles are angular to subangular of diorite, siltstone and sandstone. [OADBY MEMBER]	
				0.75	173.62		Weak dark pinkish grey DIORITE recovered as reddish-brown and grey sandy very cobbly angular to subangular fine to coarse gravel. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
				1.45	172.92		<u>1.00 to 1.45m - Occasional angular to subangular boulders.</u> <u>1.15 to 1.45m - Becoming more cobbly.</u> <u>1.30 to 1.45m - Becoming weak.</u>	
Trial pit terminated at 1.450m bgl								
2								
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By	Approved By
Pit Length 2.05	Pit Width 0.60			AM	AM
		Excavation Stability	Pit stable.	07/10/2025	07/10/2025
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to encountering shallow bedrock, infiltration testing carried out at shallow depth.
2. No visual or olfactory evidence of contamination.
3. Excavation installed with monitoring ancillaries and backfilled with gravel and arisings for infiltration testing.

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey	07/10/2025		
Project No. : PJS25-0070	Co-ords: E449804 N309424		Equipment: Kubota KX080	
SA05	Ground Level	Logged By	Scale	Page Number
	174.16m AoD		HM	1:25
				Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1				0.35	173.81		Grass over brown very sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
				0.70	173.46		Light brown gravelly cobbly fine to coarse SAND. Gravel and cobbles are angular to subangular fine to coarse of diorite, siltstone and sandstone. [OADBY MEMBER]	
				0.85	173.31		Weak dark pinkish grey DIORITE recovered as reddish-brown and grey sandy very cobbly angular to subangular fine to coarse gravel. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
Trial pit terminated at 0.850m bgl								
2								
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By	Approved By
Pit Length	Pit Width				
1.85	0.60	Excavation Stability	Pit stable.	AM	AM
General Remarks and Observations:				07/10/2025	07/10/2025
1. Trial pit terminated due to encountering shallow bedrock, infiltration testing carried out at shallow depth. 2. No visual or olfactory evidence of contamination. 3. Excavation installed with monitoring ancillaries and backfilled with gravel and arisings for infiltration testing.				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey	08/10/2025		
Project No. : PJS25-0070	Co-ords: E449753 N309590		Equipment: Kubota KX080	
TP01	Ground Level	Logged By HM	Scale	Page Number
	179.68m AoD		1:25	Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.20	ES1		0.25	179.43		Grass over brown very sandy gravelly CLAY with frequent rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
	0.50	B1		0.50	179.18		Yellowish brown clayey very gravelly cobbly fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone, siltstone and diorite. Cobbles are angular to subangular of diorite. [OADBY MEMBER]	
				1.05	178.63		Weak dark pinkish grey DIORITE recovered as orange-brown sandy angular to subangular fine to coarse gravel with frequent angular cobbles and boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
2							Trial pit terminated at 1.050m bgl	
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to encountering shallow bedrock.
2. No visual or olfactory evidence of contamination.
3. Excavation backfilled with arisings upon completion.

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey	08/10/2025
Project No. : PJS25-0070	Co-ords: E449734 N309568	Equipment: Kubota KX080
TP02	Ground Level 179.22m AoD	Logged By HM
	Scale 1:25	Page Number Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	1.00	B1		0.30	178.92		Grass over brown very sandy gravelly CLAY with occasional rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
				0.55	178.67		Yellowish brown gravelly cobbly fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone, siltstone and diorite. Cobbles are angular to subangular of diorite. [WEATHERED SOUTH CHARNWOOD DIORITES]	
				1.00	178.22		Weak dark pinkish grey DIORITE recovered as orange-brown sandy angular to subangular fine to coarse gravel with frequent angular cobbles and occasional boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
				Trial pit terminated at 1.000m bgl				
2								
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By <i>AM</i> 08/10/2025	Approved By <i>AM</i> 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to encountering shallow bedrock.
2. No visual or olfactory evidence of contamination.
3. Excavation backfilled with arisings upon completion.

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		08/10/2025	
Project No. : PJS25-0070	Co-ords: E449800 N309543		Equipment: Kubota KX080	
TP03	Ground Level	Logged By	Scale	Page Number
	178.37m AoD		HM	
				Sheet 1 of 1

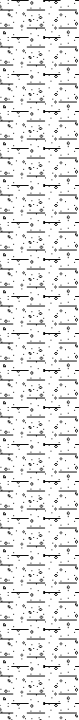
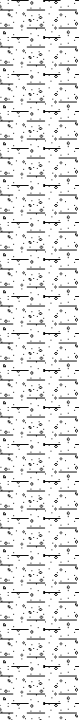
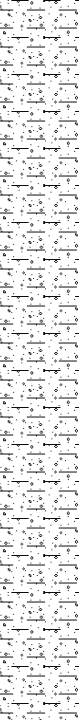
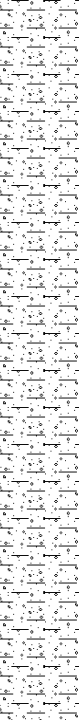
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.10	ES1		0.20	178.17		Grass over brown very sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
				0.50	177.87		Yellowish brown very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone, siltstone and diorite. [WEATHERED SOUTH CHARNWOOD DIORITES]	
				0.75	177.62		Weak dark pinkish grey DIORITE recovered as orange-brown sandy angular to subangular fine to coarse gravel with occasional angular cobbles and boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
							Trial pit terminated at 0.750m bgl	
2								
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to encountering shallow bedrock.
2. No visual or olfactory evidence of contamination.
3. Excavation backfilled with arisings upon completion.

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		08/10/2025	
Project No. : PJS25-0070	Co-ords: E449890 N309504		Equipment: Kubota KX080	
TP04	Ground Level 174.81m AoD	Logged By HM	Scale 1:25	Page Number Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.15	ES1		0.30	174.51		Grass over brown very sandy gravelly CLAY with occasional rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
							Stiff light orange-brown slightly sandy gravelly friable CLAY. Gravel is subangular fine to coarse of siltstone and diorite. Sand is fine to coarse. [OADBY MEMBER]	
	1.00		HVP=123	2.70	172.11			
2	1.50	D1						
	1.50		HVP=101					
	2.00		HVP=150					
3				2.70	172.11		1.80 to 2.70m - Becoming mottled grey.	
							2.30 to 2.70m - Becoming very gravelly.	
							2.50 to 2.70m - Becoming very stiff.	
4				2.70	172.11		Trial pit terminated at 2.700m bgl	
5				2.70	172.11			

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Trial pit terminated due to reaching target depth. 2. No visual or olfactory evidence of contamination. 3. Excavation backfilled with arisings upon completion.					

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		07/10/2025	
Project No. : PJS25-0070	Co-ords: E449643 N309573		Equipment: Kubota KX080	
TP05	Ground Level 176.37m AoD	Logged By HM	Scale 1:25	Page Number Sheet 1 of 1

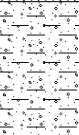
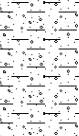
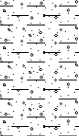
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.10	ES1		0.30	176.07		Grass over brown very sandy gravelly CLAY with frequent rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
							Firm light orange-brown mottled grey sandy gravelly CLAY. Gravel is subangular fine to coarse of siltstone and diorite. Sand is fine to coarse. [OADBY MEMBER] <u>0.40 to 0.50m - Orange-brown fine to coarse sand.</u> <u>0.50 to 1.20m - Becoming friable.</u>	
2	1.00	D1		2.60 2.70	173.77 173.67		1.90 to 2.65m - Occasional angular cobbles of diorite.	
	1.50		HVP=89				Weak dark pinkish grey DIORITE recovered as greyish-brown and orange sandy angular to subangular fine to coarse gravel with occasional angular cobbles and boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES] Trial pit terminated at 2.700m bgl	
3	2.50		HVP=103					
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM	Approved By AM
Pit Length	Pit Width				
		Excavation Stability	Pit stable.	07/10/2025	07/10/2025
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to reaching target depth.
2. No visual or olfactory evidence of contamination.
3. Excavation backfilled with arisings upon completion.

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		07/10/2025	
Project No. : PJS25-0070	Co-ords: E449655 N309519		Equipment: Kubota KX080	
TP06	Ground Level 175.38m AoD	Logged By HM	Scale 1:25	Page Number Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	1.50	D1		0.35	175.03		Grass over brown sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
							Stiff dark orange-brown mottled grey sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse of siltstone and diorite. Sand is fine to coarse. [OADBY MEMBER]	
							<u>0.80 to 1.80m - Becoming friable.</u>	
							<u>1.30 to 1.60m - Becoming very sandy.</u>	
2	2.00 2.00	D2	HVP=91				<u>1.80 to 3.00m - Becoming slightly gravelly.</u>	
	2.50		HVP=75				<u>2.60 to 3.00m - Becoming sandy.</u>	
3				3.00	172.38		Trial pit terminated at 3.000m bgl	
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 07/10/2025	Approved By AM 07/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Trial pit terminated due to reaching target depth. 2. No visual or olfactory evidence of contamination. 3. Excavation backfilled with arisings upon completion.					

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		08/10/2025	
Project No. : PJS25-0070	Co-ords: E449734 N309526		Equipment: Kubota KX080	
TP07	Ground Level	Logged By	Scale	Page Number
	177.67m AoD		HM	1:25
				Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.35	ES1		0.20	177.47		Grass over brown very sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
				0.45	177.22		Yellowish brown gravelly cobbly fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone, siltstone and diorite. Cobbles are angular to subangular of diorite. [WEATHERED SOUTH CHARNWOOD DIORITES]	
	1.00	D1		1.05	176.62		Weak dark pinkish grey DIORITE recovered as orange-brown sandy angular to subangular fine to coarse gravel with occasional angular cobbles and boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
Trial pit terminated at 1.050m bgl								
2								
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit unstable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to encountering shallow bedrock.
2. No visual or olfactory evidence of contamination.
3. Excavation backfilled with arisings upon completion.

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey	08/10/2025
Project No. : PJS25-0070	Co-ords: E449794 N309515	Equipment: Kubota KX080
TP08	Ground Level 177.12m AoD	Logged By HM
	Scale 1:25	Page Number Sheet 1 of 1

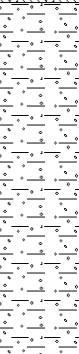
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.20	ES1		0.25	176.87		Grass over brown very sandy gravelly CLAY with occasional rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
				0.50	176.62		Yellowish brown gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone, siltstone and diorite. Cobbles are angular to subangular of diorite. [OADBY MEMBER]	
	0.75		HVP=110				Firm to stiff orange-brown gravelly friable CLAY. Gravel is subangular to subrounded fine to coarse of diorite. [OADBY MEMBER]	
2	1.50	D1					1.60 to 1.75m - Frequent angular cobbles of diorite.	
	1.75		HVP=99				1.80 to 2.65m - Becoming mottled grey.	
							2.00 to 2.65m - Frequent angular to subangular cobbles of diorite.	
3				2.65	174.47		Trial pit terminated at 2.650m bgl	
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to reaching target depth.
2. No visual or olfactory evidence of contamination.
3. Excavation backfilled with arisings upon completion.

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		08/10/2025	
Project No. : PJS25-0070	Co-ords: E449853 N309486		Equipment: Kubota KX080	
TP09	Ground Level 175.27m AoD	Logged By HM	Scale 1:25	Page Number Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.20	ES1		0.30	174.97		Grass over brown very sandy gravelly CLAY with frequent rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
	1.00	D1					Firm to stiff orange-brown gravelly friable CLAY. Gravel is angular to subangular fine to coarse of diorite. [OADBY MEMBER]	
2				1.55	173.72		Dark orange brown very clayey gravelly slightly cobbly fine to coarse SAND. Gravel is angular to subangular fine to coarse diorite. Cobbles are angular to subangular of diorite. [POSSIBLE WEATHERED SOUTH CHARNWOOD DIORITES]	
				1.65	173.62		Weak dark pinkish grey DIORITE recovered as orange-brown and grey sandy angular to subangular fine to coarse gravel with occasional angular cobbles and boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
				1.80	173.47		Trial pit terminated at 1.800m bgl	
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to encountering shallow bedrock.
2. No visual or olfactory evidence of contamination.
3. Excavation backfilled with arisings upon completion.

Trial Pit Log

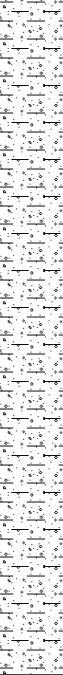
Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		08/10/2025	
Project No. : PJS25-0070	Co-ords: E449915 N309456		Equipment: Kubota KX080	
TP10	Ground Level 175.40m AoD	Logged By HM	Scale 1:25	Page Number Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.10	ES1		0.20	175.20		Grass over brown very sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
	0.50	D1		0.40	175.00		Light orange-brown gravelly slightly cobbly fine to coarse SAND with occasional angular boulders of diorite. Gravel and cobbles are angular to subangular fine to coarse of diorite, siltstone and sandstone. [OADBY MEMBER]	
	1.00	D2					Firm to stiff orange-brown mottled grey slightly sandy gravelly friable CLAY. Gravel is subangular to subrounded fine to coarse of diorite. Sand is fine to coarse. [OADBY MEMBER]	
	1.50	D3						
2	2.50		HVP=124				2.20 to 2.80m - Becoming sandy. 2.30 to 2.80m - Becoming dark reddish-brown mottled grey.	
							2.60 to 2.80m - Becoming very stiff.	
3				2.80	172.60		Trial pit terminated at 2.800m bgl	
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM	Approved By AM
Pit Length	Pit Width				
		Excavation Stability	Pit stable.	08/10/2025	08/10/2025
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Trial pit terminated due to reaching target depth. 2. No visual or olfactory evidence of contamination. 3. Excavation backfilled with arisings upon completion.					

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		07/10/2025	
Project No. : PJS25-0070	Co-ords: E449638 N309494		Equipment: Kubota KX080	
TP11	Ground Level 173.69m AoD	Logged By HM	Scale 1:25	Page Number Sheet 1 of 1

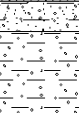
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.30	ES1	HVP=80	0.25	173.44		Grass over brown very sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
	0.50	B1					Firm to stiff orange-brown mottled grey slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse of siltstone and diorite. Sand is fine to coarse. [OADBY MEMBER]	
	1.00							
	1.50	B2						
2	2.00	B3	HVP=95	2.50	171.19			
	2.00							
	2.50	B4						
3				2.55	171.14		Weak dark pinkish grey DIORITE recovered as greyish-brown and orange sandy angular to subangular fine to coarse gravel with occasional angular cobbles and boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
							Trial pit terminated at 2.550m bgl	
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 07/10/2025	Approved By AM 07/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to encountering shallow bedrock.
2. No visual or olfactory evidence of contamination.
3. Excavation backfilled with arisings upon completion.

Trial Pit Log

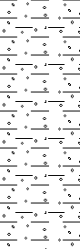
Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey	08/10/2025
Project No. : PJS25-0070	Co-ords: E449805 N309479	Equipment: Kubota KX080
TP12	Ground Level 175.39m AoD	Logged By HM
	Scale 1:25	Page Number Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.35	ES1		0.20 0.30	175.19 175.09		Grass over brown very sandy gravelly CLAY with occasional rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
							Dark orange brown slightly clayey very gravelly slightly cobbly fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone, siltstone and diorite. Cobbles are angular to subangular of diorite. [OADBY MEMBER]	
							Stiff orange-brown gravelly friable CLAY. Gravel is subangular to subrounded fine to coarse of diorite. [OADBY MEMBER]	
							0.85 to 3.00m - Becoming mottled grey.	
							1.45 to 3.00m - Becoming sandy.	
2	2.00	D1						
	2.50		HVP=118					
3				3.00	172.39		Trial pit terminated at 3.000m bgl	
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Trial pit terminated due to reaching target depth. 2. No visual or olfactory evidence of contamination. 3. Excavation backfilled with arisings upon completion.					

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		08/10/2025	
Project No. : PJS25-0070	Co-ords: E449877 N309448		Equipment: Kubota KX080	
TP13	Ground Level 175.13m AoD	Logged By HM	Scale 1:25	Page Number Sheet 1 of 1

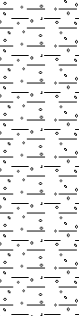
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.40	ES1		0.20	174.93		Grass over brown very sandy gravelly CLAY with occasional rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
				0.50	174.63		Yellowish brown gravelly cobbly fine to coarse SAND. Gravel and cobbles are angular to subangular fine to coarse of diorite, siltstone and sandstone. [OADBY MEMBER]	
							Firm to stiff orange-brown very gravelly friable CLAY. Gravel is subangular to subrounded fine to coarse of siltstone and diorite. [OADBY MEMBER]	
							0.80 to 1.55m - Becoming very gravelly.	
2				1.55 1.60	173.58 173.53		Weak dark pinkish grey DIORITE recovered as greyish-brown sandy angular to subangular fine to coarse gravel with occasional angular cobbles and boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
Trial pit terminated at 1.600m bgl								
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to encountering shallow bedrock.
2. No visual or olfactory evidence of contamination.
3. Excavation backfilled with arisings upon completion.

Trial Pit Log

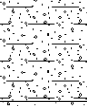
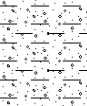
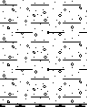
Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		08/10/2025	
Project No. : PJS25-0070	Co-ords: E449828 N309434		Equipment: Kubota KX080	
TP14	Ground Level 174.48m AoD	Logged By HM	Scale 1:25	Page Number Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.10	ES1		0.30	174.18		Grass over brown very sandy gravelly CLAY with frequent rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
	0.50	D1					Stiff light orange-brown mottled grey gravelly friable CLAY. Gravel is subangular fine to coarse of diorite. [OADBY MEMBER]	
	1.00		HVP=92				1.20 to 1.70m - Becoming sandy.	
2				1.60	172.88		Weak dark pinkish grey DIORITE recovered as orange-brown and grey sandy angular to subangular fine to coarse gravel with occasional angular cobbles and boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
				1.70	172.78		Trial pit terminated at 1.700m bgl	
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Trial pit terminated due to encountering shallow bedrock. 2. No visual or olfactory evidence of contamination. 3. Excavation backfilled with arisings upon completion.					

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		08/10/2025	
Project No. : PJS25-0070	Co-ords: E449749 N309446		Equipment: Kubota KX080	
TP15	Ground Level	Logged By HM	Scale	Page Number
	174.21m AoD		1:25	Sheet 1 of 1

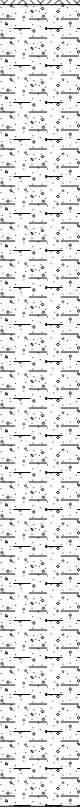
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.50	B1		0.30	173.91		Grass over brown very sandy gravelly CLAY with occasional rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
				0.65	173.56		Dark orange brown very clayey gravelly slightly cobbly fine to coarse SAND with occasional angular boulders of diorite. Gravel and cobbles are angular to subangular diorite. [OADBY MEMBER]	
	1.00	B2					Firm light orange-brown sandy gravelly friable CLAY. Gravel is subangular to subrounded fine to coarse of diorite and siltstone. Sand is fine to coarse. [OADBY MEMBER]	
				1.40 1.45	172.81 172.76		Weak dark pinkish grey DIORITE recovered as orange-brown sandy angular to subangular fine to coarse gravel with occasional angular cobbles and boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
2							Trial pit terminated at 1.450m bgl	
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

1. Trial pit terminated due to encountering shallow bedrock.
2. No visual or olfactory evidence of contamination.
3. Excavation backfilled with arisings upon completion.

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		07/10/2025	
Project No. : PJS25-0070	Co-ords: E449593 N309511		Equipment: Kubota KX080	
TP16	Ground Level 173.67m AoD	Logged By HM	Scale 1:25	Page Number Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.10	ES1	HVP=68	0.35	173.32		Grass over brown very sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
	1.00 1.00	D1					Firm to stiff orange-brown mottled grey slightly sandy friable gravelly CLAY. Gravel is subangular to subrounded fine to coarse of siltstone and diorite. Sand is fine to coarse. [OADBY MEMBER]	
	1.50	B1						
2								
3				3.00	170.67		Trial pit terminated at 3.000m bgl	
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 07/10/2025	Approved By AM 07/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Trial pit terminated due to reaching target depth. 2. No visual or olfactory evidence of contamination. 3. Excavation backfilled with arisings upon completion.					

Trial Pit Log

Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		07/10/2025	
Project No. : PJS25-0070	Co-ords: E449595 N309489		Equipment: Kubota KX080	
TP17	Ground Level	Logged By	Scale	Page Number
	173.24m AoD		HM	
				Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1	0.15	ES1		0.25	172.99		Grass over brown very sandy gravelly slightly cobbly CLAY. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL].	
							Firm orange-brown mottled grey slightly sandy gravelly friable CLAY. Gravel is subangular to subrounded fine to coarse of siltstone and diorite. Sand is fine to coarse. [OADBY MEMBER]	
							<u>0.80 to 1.65m - Becoming less friable with depth.</u>	
2	1.00		HVP=108					
	1.50		HVP=81					
					<u>1.65 to 3.00m - Becoming more friable with depth.</u>			
3	2.50		HVP=70	3.00	170.24			
4								
5								
Trial pit terminated at 3.000m bgl								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 07/10/2025	Approved By AM 07/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Trial pit terminated due to reaching target depth. 2. No visual or olfactory evidence of contamination. 3. Excavation backfilled with arisings upon completion.					

Trial Pit Log

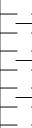
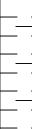
Project Name: Ratby Lane, Markfield	Client: Taylor Wimpey		08/10/2025	
Project No. : PJS25-0070	Co-ords: E449866 N309383		Equipment: Kubota KX080	
TP18	Ground Level	Logged By	Scale	Page Number
		HM	1:25	Sheet 1 of 1

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)
	Depth (m bgl)	Type	Results					
1				0.20			Grass over brown very sandy gravelly CLAY with frequent rootlets. Gravel is subangular to rounded fine to coarse quartzite and siltstone. Sand is fine to coarse. [TOPSOIL]	
				0.40			Dark yellowish brown gravelly cobbly fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone, siltstone and diorite. Cobbles are angular to subangular of diorite. [WEATHERED SOUTH CHARNWOOD DIORITES]	
				0.90			Weak dark pinkish grey DIORITE recovered as orange-brown sandy angular to subangular fine to coarse gravel with frequent angular cobbles and occasional boulders. Sand is fine to coarse. [WEATHERED SOUTH CHARNWOOD DIORITES]	
							Trial pit terminated at 0.900m bgl	
2								
3								
4								
5								

Dimensions		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Pit Length	Pit Width				
		Excavation Stability	Pit stable.		
General Remarks and Observations:				PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Trial pit terminated due to encountering shallow bedrock. 2. No visual or olfactory evidence of contamination. 3. Excavation backfilled with arisings upon completion.					

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				08/10/2025			
Project No. : PJS25-0070				Co-ords: E449657 N309595				Equipment: Premier 110 (DSUK)			
WS01				Ground Level 177.14m AoD		Logged By SW		Scale 1:25		Page Number Sheet 1 of 2	

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well
	Depth (m bgl)	Type	Results						
1	0.10	ES1		0.30	176.84		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]		
	0.30	ES2					Stiff orangish-brown and grey slightly sandy gravelly CLAY. Gravel is sub-angular fine to coarse siltstone and diorite. [OADBY MEMBER]		
	1.00	SPT (S)	N=16 (4,4/4,4,4,4)						
2				1.40	175.74		Very stiff reddish-brown CLAY. [OADBY MEMBER]		
	1.70	D1							
	2.00	SPT (S)	N=29 (10,11/11,6,6,6)	1.85	175.29		Medium dense yellow locally clayey slightly gravelly fine to coarse SAND. Gravel is sub-angular fine to coarse siltstone. [OADBY MEMBER]		
3				2.50	174.64		Very stiff reddish-brown and grey CLAY. [OADBY MEMBER]		
	3.00	SPT (S)	N=21 (4,4/6,5,5,5)						
4							3.60 to 3.90m - Becoming grey. Recovered as damp and soft.		
	4.00	SPT (S)	N=19 (4,4/4,5,5,5)						
5	5.00	SPT (S)	N=33 (6,6/6,10,7,10)						

Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.	Reviewed By AM	Approved By AM
Depth Base	Diameter	Depth Base	Diameter				
				Borehole Stability	Borehole Stable.	08/10/2025	08/10/2025

General Remarks and Observations:						PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Borehole terminated due achieving target depth. 2. No visual or olfactory evidence of contamination. 3. Borehole installed with gas and groundwater monitoring ancillaries on completion.							

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				08/10/2025			
Project No. : PJS25-0070				Co-ords: E449657 N309595				Equipment: Premier 110 (DSUK)			
WS01				Ground Level 177.14m AoD		Logged By SW		Scale 1:25		Page Number Sheet 2 of 2	

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well
	Depth (m bgl)	Type	Results						
6				5.45	171.69		Very stiff reddish-brown and grey CLAY. [OADBY MEMBER]		
							Borehole terminated at 5.450m bgl		
7									
8									
9									
10									

Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.	Reviewed By AM 08/10/2025	Approved By AM 08/10/2025
Depth Base	Diameter	Depth Base	Diameter				
				Borehole Stability	Borehole Stable.		

General Remarks and Observations:						PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Borehole terminated due achieving target depth. 2. No visual or olfactory evidence of contamination. 3. Borehole installed with gas and groundwater monitoring ancillaries on completion.							

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				08/10/2025																											
Project No. : PJS25-0070				Co-ords: E449709 N309608				Equipment: Premier 110 (DSUK)																											
WS02				Ground Level 178.82m AoD		Logged By SW		Scale 1:25		Page Number Sheet 1 of 1																									
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well																										
	Depth (m bgl)	Type	Results																																
1	0.40	ES1	N=22 (5,5/6,5,5,6)	0.30	178.52		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]																												
	0.50	D1								Stiff yellowish-brown and grey slightly sandy gravelly CLAY. Gravel is sub-angular fine to coarse siltstone and diorite. [OADBY MEMBER]																									
	1.00	D2		0.95	177.87		Very stiff reddish-brown CLAY with occasional carboaceous ragments and rare fine mudstone gravel. [OADBY MEMBER]																												
	1.00	SPT (S)																																	
2	1.50	D3	N=25 (6,6/6,6,6,7)																																
	2.00	SPT (S)																																	
3	2.70	SPT (S)	N=50 (21,24/50 for 185mm)	3.04	175.78																														
																																			
4							Borehole terminated at 3.040m bgl																												
																																			
5																																			
																																			
<table border="1"> <tr> <th>Hole Diameter</th> <th>Casing Diameter</th> <th rowspan="2">Groundwater Remarks</th> <th rowspan="2">No groundwater encountered.</th> <th rowspan="2">Reviewed By</th> <th rowspan="2">Approved By</th> </tr> <tr> <th>Depth Base</th> <th>Diameter</th> <th>Depth Base</th> <th>Diameter</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>AM</td> <td>AM</td> </tr> </table>				Hole Diameter	Casing Diameter	Groundwater Remarks	No groundwater encountered.	Reviewed By	Approved By	Depth Base	Diameter	Depth Base	Diameter					AM	AM	<table border="1"> <tr> <th colspan="2">Borehole Stability</th> <th rowspan="2">Borehole Stable.</th> <th rowspan="2">08/10/2025</th> <th rowspan="2">08/10/2025</th> </tr> <tr> <th></th> <th></th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				Borehole Stability		Borehole Stable.	08/10/2025	08/10/2025							
Hole Diameter	Casing Diameter	Groundwater Remarks	No groundwater encountered.	Reviewed By	Approved By																														
Depth Base	Diameter					Depth Base	Diameter																												
				AM	AM																														
Borehole Stability		Borehole Stable.	08/10/2025	08/10/2025																															
General Remarks and Observations:								1. Borehole terminated due achieving SPT refusal. 2. No visual or olfactory evidence of contamination. 3. Borehole backfilled with arisings on completion.																											
								PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk																											

Window Sample Drilling Log

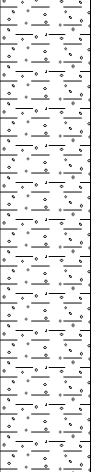
Project Name: Ratby Lane, Markfield		Client: Taylor Wimpey		07/10/2025	
Project No. : PJS25-0070		Co-ords: E449780 N309567		Equipment: Premier 110 (DSUK)	
WS03	Ground Level	Logged By	Scale	Page Number	
	179.34m AoD	SW	1:25	Sheet 1 of 1	

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well
	Depth (m bgl)	Type	Results						
1	0.30	ES1	N=50 (21,29/50 for 70mm)	0.25	179.09		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]		
	0.50	D1		0.60	178.74		Yellowish-brown and grey slightly clayey sandy GRAVEL of dark pinkish-grey diorite [WEATHERED SOUTH CHARNWOOD DIORITES]		
	0.60	SPT (S)					Weak dark pinkish-grey crystalline DIORITE. [WEATHERED SOUTH CHARNWOOD DIORITES]		
							Borehole terminated at 0.820m bgl		
2									
3									
4									
5									

Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.	Reviewed By	Approved By
Depth Base	Diameter	Depth Base	Diameter				
				Borehole Stability	Borehole Stable.	AM	AM
General Remarks and Observations:							
1. Borehole terminated due achieving SPT refusal.							
2. No visual or olfactory evidence of contamination.							
3. Borehole backfilled with arisings on completion.							

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				07/10/2025			
Project No. : PJS25-0070				Co-ords: E449848 N309526				Equipment: Premier 110 (DSUK)			
WS04				Ground Level 176.45m AoD		Logged By SW		Scale 1:25		Page Number Sheet 1 of 1	

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well
	Depth (m bgl)	Type	Results						
1	0.40	ES1		0.30	176.15		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]		
	0.50	D1							
	1.00	SPT (S)	N=17 (1,2/3,4,5,5)						
2	1.90	SPT (S)	N=50 (11,8/50 for 210mm)	1.90	174.55		Stiff reddish-brown locally gravelly CLAY. Gravel is angular to sub-angular fine to coarse siltstone and diorite. [OADBY MEMBER]		
				2.26	174.19				
3	Borehole terminated at 2.260m bgl								
4									
5									

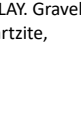
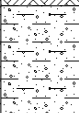
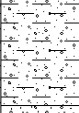
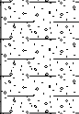
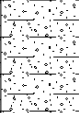
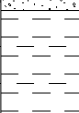
Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.	Reviewed By AM	Approved By AM
Depth Base	Diameter	Depth Base	Diameter				
				Borehole Stability	Borehole Stable.	07/10/2025	07/10/2025

General Remarks and Observations:

- Borehole terminated due achieving SPT refusal.
- No visual or olfactory evidence of contamination.
- Borehole installed with gas and groundwater monitoring ancillaries on completion.

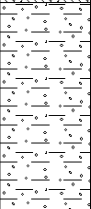
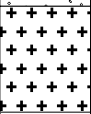
PJS Geotechnical
Geneva II - Lakeview
Annesley, Nottinghamshire
NG15 0ED
enquiries@pjs-geo.co.uk

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				07/10/2025			
Project No. : PJS25-0070				Co-ords: E449916 N309486				Equipment: Premier 110 (DSUK)			
WS05				Ground Level		Logged By		Scale		Page Number	
				174.43m AoD		SW		1:25		Sheet 1 of 1	
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well		
	Depth (m bgl)	Type	Results								
1	0.50	ES1	N=26 (4,5/5,5,7,9)	0.40	174.03		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]				
				1.10	173.33		Firm yellowish-brown and grey slightly sandy gravelly CLAY. Gravel is angular to sub-angular fine to coarse siltstone. [OADBY MEMBER]				
				1.90	172.53		Yellowish-brown and grey clayey slightly gravelly fine to coarse SAND. Gravel is sub-angular siltstone. [OADBY MEMBER]				
2	2.00	SPT (S)	N=17 (3,3/4,4,4,5)				Stiff reddish-brown CLAY with occasional carbonaceous fragments and rare fine mudstone gravel. [OADBY MEMBER]				
3	3.00	SPT (S)	N=9 (2,2/2,2,2,3)								
4	4.00	SPT (S)	N=50 (7,7/50 for 275mm)	4.00	170.43		Weak dark pinkish-grey crystalline DIORITE. [WEATHERED SOUTH CHARNWOOD DIORITES]				
				4.43	170.00						
								3.40 to 3.60m - Becomes firm.			
								3.60 to 3.80m - Becomes damp and soft.			
5						3.80 to 4.00m - Becomes very stiff.					
						Borehole terminated at 4.430m bgl					
Hole Diameter		Casing Diameter		Groundwater Remarks		No groundwater encountered.		Reviewed By		Approved By	
Depth Base	Diameter	Depth Base	Diameter								
				Borehole Stability		Borehole Stable.		AM		AM	
General Remarks and Observations:								07/10/2025		07/10/2025	
1. Borehole terminated due achieving SPT refusal. 2. No visual or olfactory evidence of contamination. 3. Borehole backfilled with arisings on completion.								PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk			

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				07/10/2025			
Project No. : PJS25-0070				Co-ords: E449713 N309545				Equipment: Premier 110 (DSUK)			
WS06				Ground Level 178.06m AoD		Logged By SW		Scale 1:25		Page Number Sheet 1 of 1	

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well
	Depth (m bgl)	Type	Results						
1	0.20	ES1	N=50 (15,15/50 for 200mm)	0.30	177.76		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]		
	0.60	D1							
	1.00	SPT (S)		1.00	177.06				
	1.35	176.71							
2				Borehole terminated at 1.350m bgl					
3									
4									
5									

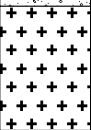
Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.	Reviewed By AM	Approved By AM
Depth Base	Diameter	Depth Base	Diameter				
				Borehole Stability	Borehole Stable.	07/10/2025	07/10/2025

General Remarks and Observations:

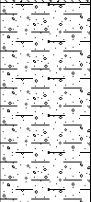
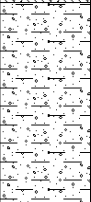
- Borehole terminated due achieving SPT refusal.
- No visual or olfactory evidence of contamination.
- Borehole installed with gas and groundwater monitoring ancillaries on completion.

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Window Sample Drilling Log

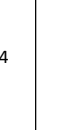
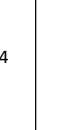
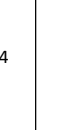
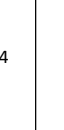
Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				08/10/2025			
Project No. : PJS25-0070				Co-ords: E449643 N309545				Equipment: Premier 110 (DSUK)			
WS07				Ground Level 175.78m AoD		Logged By SW		Scale 1:25		Page Number Sheet 1 of 1	
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well		
	Depth (m bgl)	Type	Results								
1				0.30	175.48		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]				
	0.40	ES1					Very stiff orangish-brown and grey slightly sandy gravelly CLAY. Gravel is sub-angular fine to coarse siltstone and diorite. [OADBY MEMBER]				
	0.50	D1									
	1.00	SPT (S)	N=50 (7,10/50 for 260mm)	1.00	174.78		Weak dark pinkish-grey crystalline DIORITE. [WEATHERED SOUTH CHARNWOOD DIORITES]				
				1.41	174.37		Borehole terminated at 1.410m bgl				
2											
3											
4											
5											
Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.			Reviewed By AM	Approved By AM		
Depth Base	Diameter	Depth Base	Diameter								
				Borehole Stability	Borehole Stable.			08/10/2025	08/10/2025		
General Remarks and Observations:								PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk			
1. Borehole terminated due achieving SPT refusal. Supplementary borehole (WS07A) drilled to confirm bedrock. 2. No visual or olfactory evidence of contamination. 3. Borehole backfilled with arisings on completion.											

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				08/10/2025			
Project No. : PJS25-0070				Co-ords: E449641 N309545				Equipment: Premier 110 (DSUK)			
WS07A				Ground Level 175.78m AoD		Logged By SW		Scale 1:25		Page Number Sheet 1 of 1	
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well		
	Depth (m bgl)	Type	Results								
1	1.00	SPT (S)	N=50 (7,9/50 for 265mm)	0.30	175.48		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]				
							Very stiff orangish-brown and grey slightly sandy gravelly CLAY. Gravel is sub-angular fine to coarse siltstone and diorite. [OADBY MEMBER]				
							Weak dark pinkish-grey crystalline DIORITE. [WEATHERED SOUTH CHARNWOOD DIORITES]				
							Borehole terminated at 1.420m bgl				
2											
3											
4											
5											
Hole Diameter		Casing Diameter		Groundwater Remarks		Reviewed By AM 08/10/2025		Approved By AM 08/10/2025			
Depth Base	Diameter	Depth Base	Diameter								
				Borehole Stability		Borehole Stable.					
General Remarks and Observations:						1. Borehole terminated due achieving SPT refusal. 2. No visual or olfactory evidence of contamination. 3. Borehole backfilled with arisings on completion.					
						PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk					

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				08/10/2025			
Project No. : PJS25-0070				Co-ords: E449581 N309496				Equipment: Premier 110 (DSUK)			
WS08				Ground Level 173.19m AoD		Logged By SW		Scale 1:25		Page Number Sheet 1 of 2	

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well
	Depth (m bgl)	Type	Results						
1	0.20	ES1	N=18 (2,2/3,5,5,5)	0.30	172.89		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]		
	0.40	ES2					Stiff orangish-brown and grey slightly sandy gravelly CLAY. Gravel is sub-angular fine to coarse siltstone. [OADBY MEMBER]		
	1.00 1.00	D1 SPT (S)					Stiff reddish-brown slightly gravelly CLAY. Gravel is fine to medium of siltstone and mudstone. [OADBY MEMBER]		
2	1.50	D2	N=15 (2,3/3,4,4,4)	0.85	172.34				
	2.00 2.00	D3 SPT (S)							
	2.50	D4							
3	3.00	SPT (S)	N=15 (3,3/3,4,4,4)						
4	4.00	SPT (S)	N=16 (3,3/4,4,4,4)				4.00 to 4.10m - Recovered as damp.		
5									

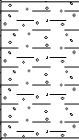
Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.	Reviewed By AM	Approved By AM
Depth Base	Diameter	Depth Base	Diameter				
				Borehole Stability	Borehole Stable.	08/10/2025	08/10/2025

General Remarks and Observations:

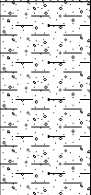
- Borehole terminated due achieving target depth.
- No visual or olfactory evidence of contamination.
- Borehole installed with gas and groundwater monitoring ancillaries on completion.

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Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				08/10/2025			
Project No. : PJS25-0070				Co-ords: E449581 N309496				Equipment: Premier 110 (DSUK)			
WS08				Ground Level 173.19m AoD		Logged By SW		Scale 1:25		Page Number Sheet 2 of 2	
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well		
	Depth (m bgl)	Type	Results								
6	5.00	SPT (S)	N=44 (10,11/11,11,12,10)	5.45	167.74		Stiff reddish-brown slightly gravelly CLAY. Gravel is fine to medium of siltstone and mudstone. [OADBY MEMBER]				
			Borehole terminated at 5.450m bgl								
7											
8											
9											
10											
Hole Diameter		Casing Diameter		Groundwater Remarks		No groundwater encountered.		Reviewed By AM		Approved By AM	
Depth Base	Diameter	Depth Base	Diameter								
				Borehole Stability		Borehole Stable.		08/10/2025		08/10/2025	
General Remarks and Observations:								PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk			
1. Borehole terminated due achieving target depth. 2. No visual or olfactory evidence of contamination. 3. Borehole installed with gas and groundwater monitoring ancillaries on completion.											

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				07/10/2025			
Project No. : PJS25-0070				Co-ords: E449706 N309495				Equipment: Premier 110 (DSUK)			
WS09				Ground Level 175.99m AoD		Logged By SW		Scale 1:25		Page Number Sheet 1 of 1	
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well		
	Depth (m bgl)	Type	Results								
1	0.20	ES1	N=52 (9,9/52 for 255mm)	0.35	175.64		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]				
							Very stiff orangish brown slightly sandy very gravelly CLAY. Gravel is angular to sub-angular fine to coarse of siltstone and diorite. [OADBY MEMBER]				
	1.00 1.00	D1 SPT (S)		1.00	174.99		Weak dark pinkish-grey crystalline DIORITE. [WEATHERED SOUTH CHARNWOOD DIORITES]				
				1.41	174.58		Borehole terminated at 1.410m bgl				
2											
3											
4											
5											
Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.			Reviewed By AM	Approved By AM		
Depth Base	Diameter	Depth Base	Diameter								
				Borehole Stability	Borehole Stable.			07/10/2025	07/10/2025		
General Remarks and Observations:								PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk			
1. Borehole terminated due achieving SPT refusal. 2. No visual or olfactory evidence of contamination. 3. Borehole backfilled with arisings on completion.											

Window Sample Drilling Log

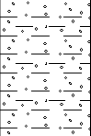
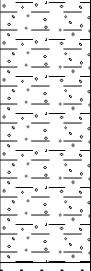
Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				07/10/2025			
Project No. : PJS25-0070				Co-ords: E449762 N309491				Equipment: Premier 110 (DSUK)			
WS10				Ground Level 176.12m AoD		Logged By SW		Scale 1:25		Page Number Sheet 1 of 1	

	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well
	Depth (m bgl)	Type	Results						
1	0.10	ES1	N=50 (14,11/50 for 295mm)	0.25	175.87		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]		
	0.70	D1							
	1.00	SPT (S)		1.00	175.12		Weak dark pinkish-grey crystalline DIORITE. [WEATHERED SOUTH CHARNWOOD DIORITES]		
	1.44			174.68	Borehole terminated at 1.440m bgl				
2									
3									
4									
5									

Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.	Reviewed By AM	Approved By AM
Depth Base	Diameter	Depth Base	Diameter				
				Borehole Stability	Borehole Stable.	07/10/2025	07/10/2025

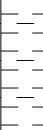
General Remarks and Observations:						PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	
1. Borehole terminated due achieving SPT refusal. 2. No visual or olfactory evidence of contamination. 3. Borehole installed with gas and groundwater monitoring ancillaries on completion.							

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				07/10/2025			
Project No. : PJS25-0070				Co-ords: E449823 N309499				Equipment: Premier 110 (DSUK)			
WS11				Ground Level		Logged By		Scale		Page Number	
				175.91m AoD		SW		1:25		Sheet 1 of 1	
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well		
	Depth (m bgl)	Type	Results								
1	0.20	ES1		0.30	175.61		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]				
	0.50	D1		0.50	175.41		Firm yellowish-brown and grey slightly sandy slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse siltstone. [OADBY MEMBER]				
	1.00	SPT (S)	N=13 (5,6/4,3,3,3)				Stiff reddish-brown locally gravelly CLAY. Gravel is angular to sub-angular fine to coarse siltstone and diorite. [OADBY MEMBER]				
							1.00 to 1.20m - Becomes very gravelly.				
	1.90	SPT (S)	N=50 (13,22/50 for 65mm)	1.90	174.01		Weak dark pinkish-grey crystalline DIORITE. [WEATHERED SOUTH CHARNWOOD DIORITES]				
2				2.12	173.79		Borehole terminated at 2.120m bgl				
3											
4											
5											
Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.			Reviewed By	Approved By		
Depth Base	Diameter	Depth Base	Diameter								
				Borehole Stability	Borehole Stable.			AM	AM		
General Remarks and Observations:								07/10/2025	07/10/2025		
1. Borehole terminated due achieving SPT refusal. 2. No visual or olfactory evidence of contamination. 3. Borehole backfilled with arisings on completion.								PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk			

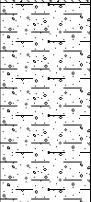
Window Sample Drilling Log

Project Name: Ratby Lane, Markfield		Client: Taylor Wimpey		07/10/2025	
Project No. : PJS25-0070		Co-ords: E449890 N309414		Equipment: Premier 110 (DSUK)	
WS12	Ground Level	Logged By	Scale	Page Number	
	176.10m AoD		SW	1:25	Sheet 1 of 1

Sample and In Situ Testing				Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well
Depth (m bgl)	Type	Results							
1	0.20	ES2	N=13 (3,4/4,3,3,3)	0.30	175.80		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]		
	0.35	ES1					Firm yellowish-brown and grey slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse siltstone. [OADBY MEMBER]		
	1.00	D1		1.10	175.00		Stiff reddish-brown very gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse siltstone, mudstone, chalk and chert [OADBY MEMBER]		
	1.00	SPT (S)					Stiff reddish-brown CLAY with occasional carboanceous ragments and rare fine mudstone gravel. [OADBY MEMBER]		
2	1.50	D2	N=21 (3,4/4,4,5,8)						
	2.00	D3							
3	2.00	SPT (S)	N=50 (5,8/50 for 295mm)						
	3.00								
4									
5									
Borehole terminated at 3.440m bgl									

Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.	Reviewed By	Approved By
Depth Base	Diameter	Depth Base	Diameter				
				Borehole Stability	Borehole Stable.	AM	AM
General Remarks and Observations:							
1. Borehole terminated due achieving SPT refusal.						07/10/2025	07/10/2025
2. No visual or olfactory evidence of contamination.							
3. Borehole installed with gas and groundwater monitoring ancillaries on completion.						PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk	

Window Sample Drilling Log

Project Name: Ratby Lane, Markfield				Client: Taylor Wimpey				08/10/2025			
Project No. : PJS25-0070				Co-ords: E449734 N309526				Equipment: Premier 110 (DSUK)			
WS13				Ground Level 177.67m AoD		Logged By SW		Scale 1:25		Page Number Sheet 1 of 1	
	Sample and In Situ Testing			Depth (m bgl)	Level (m AOD)	Legend	Stratum Description	Water Strikes (m bgl)	Well		
	Depth (m bgl)	Type	Results								
1	0.20	ES2	N=50 (6,6/50 for 125mm)	0.30	177.37		Grass over brown sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse quartzite, siltstone and diorite. [TOPSOIL]				
	0.35	ES1					Stiff yellowish-brown and grey slightly sandy gravelly CLAY. Gravel is sub-angular fine to coarse siltstone and diorite. [OADBY MEMBER]				
	1.00	D1 SPT (S)		1.00	176.67		Weak dark pinkish-grey crystalline DIORITE. [WEATHERED SOUTH CHARNWOOD DIORITES]				
	1.00			1.28	176.39	Borehole terminated at 1.280m bgl					
2											
3											
4											
5											
Hole Diameter		Casing Diameter		Groundwater Remarks	No groundwater encountered.				Reviewed By AM	Approved By AM	
Depth Base	Diameter	Depth Base	Diameter								
				Borehole Stability	Borehole Stable.				08/10/2025	08/10/2025	
General Remarks and Observations:								PJS Geotechnical Geneva II - Lakeview Annesley, Nottinghamshire NG15 0ED enquiries@pjs-geo.co.uk			
1. Borehole terminated due achieving SPT refusal. 2. No visual or olfactory evidence of contamination. 3. Borehole backfilled with arisings on completion.											

Appendix D: SPT Trip Hammer Calibration Certificates

Dynamic Sampling Uk Ltd
Unit 8 Victory Park
Victory Road
Derby
DE248ZF

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref: 110.50
Test Date: 06/09/2024
Report Date: 06/09/2024
File Name: 110.50.spt
Test Operator: B.HUNTER

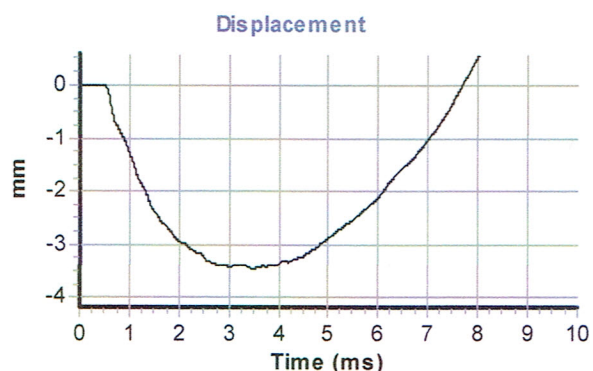
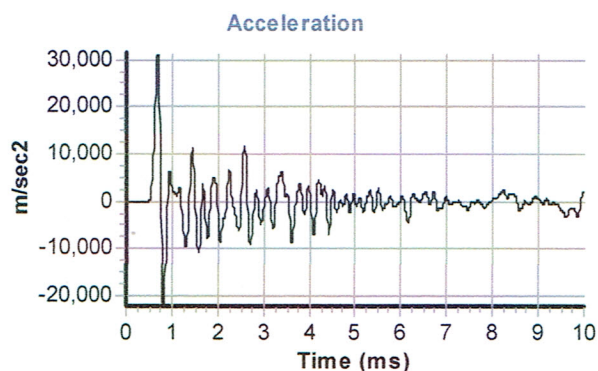
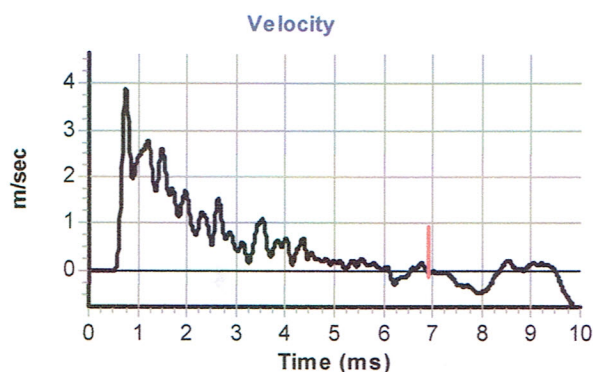
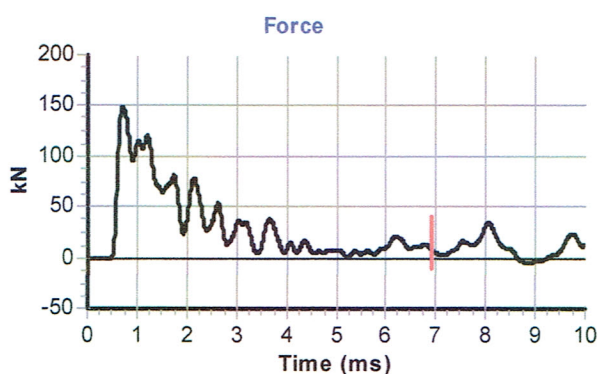
Instrumented Rod Data

Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.6
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 62901
Accelerometer No.2: 69902

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location



Calculations

Area of Rod A (mm^2): 983
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 358

Energy Ratio E_r (%): **76**

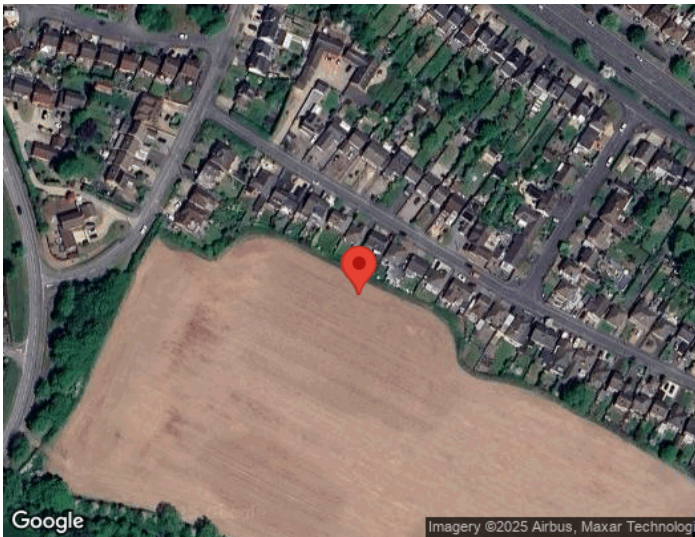
Signed: B Hunter
Title: Operations Manager

Appendix E: Exploratory Hole Photographs

PJS25-0070 Ratby Lane, Markfield - Ground Investigation Photographs

Item 1	ID: A060
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08 Oct 2025
TP01-1.05



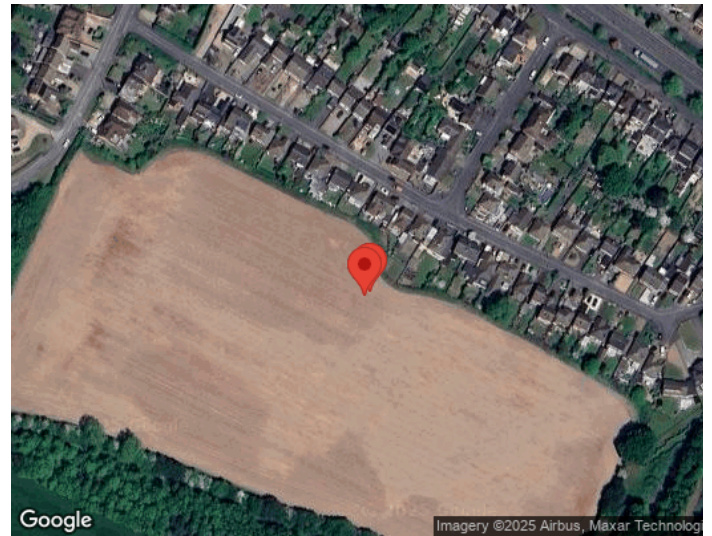
08 Oct 2025

TP02-1.00m



08 Oct 2025

TP03-0.75



08 Oct 2025

TP04-2.75



07 Oct 2025

TP05-2.70



07 Oct 2025

TP06-3.00



08 Oct 2025

TP07-1.05m



08 Oct 2025

TP08-2.65



08 Oct 2025

TP09-1.8



08 Oct 2025
TP10-2.8



07 Oct 2025

TP11-2.55



08 Oct 2025

TP12-3.00m



08 Oct 2025

TP13-1.6



08 Oct 2025

TP14-1.70m



08 Oct 2025

TP15-1.45m



07 Oct 2025

TP16-3.00m



07 Oct 2025
TP17-3.00



08 Oct 2025
TP18-0.90m



07 Oct 2025

SA02-1.10m



07 Oct 2025
SA03



07 Oct 2025

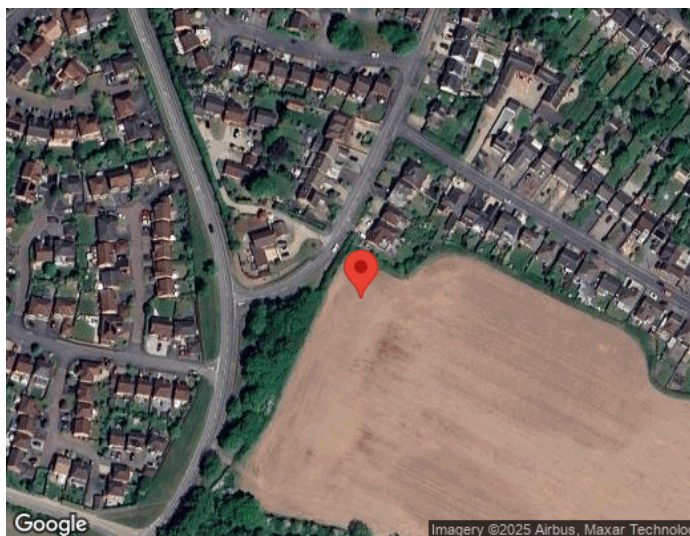
SA04-1.45



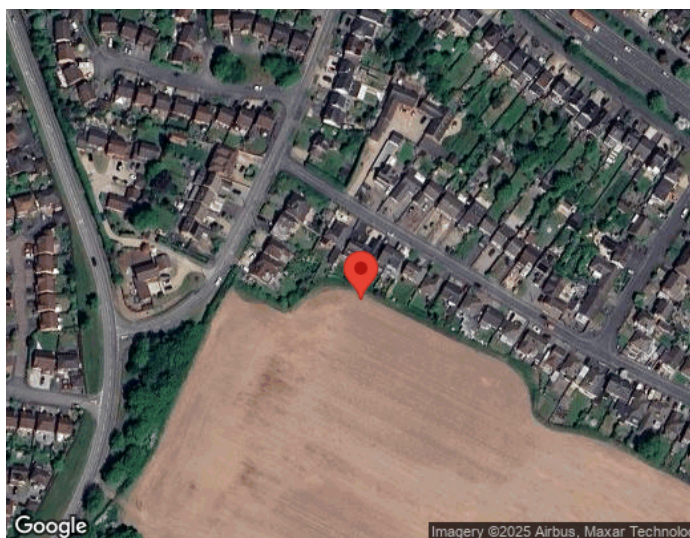
07 Oct 2025
SA05-0.95



08 Oct 2025
WS01



08 Oct 2025
WS02



07 Oct 2025
WS03



07 Oct 2025
WS04



07 Oct 2025
WS05



07 Oct 2025
WS06



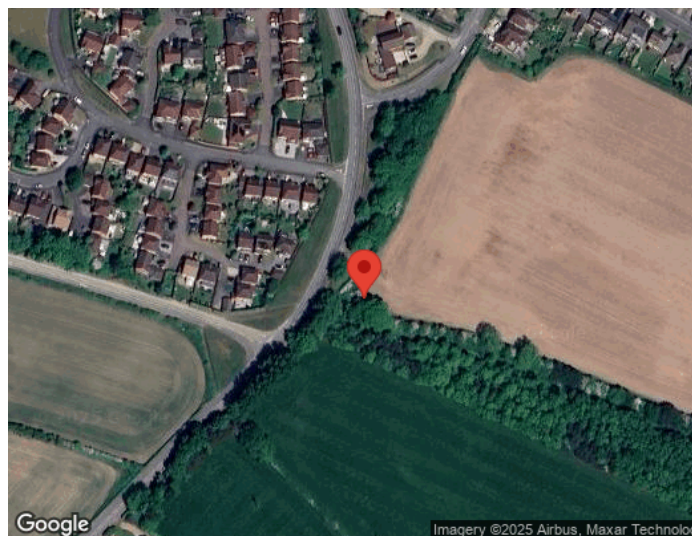
08 Oct 2025
WS07



08 Oct 2025
WS07A



08 Oct 2025
WS08



07 Oct 2025
WS09



07 Oct 2025
WS10



07 Oct 2025
WS11



07 Oct 2025

WS12



Appendix F: Chemical Testing Results

PJS Geotechnical Engineers Limited
Sherwood Business Park
Geneva II
Lakeview
NG15 0ED

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

t:
e: Steffan.Williams@pjs-geo.co.uk

t: 01923 225404
f: 01923 237404
e: info-i2analytical@normecgroup.com

Analytical Report Number : 25-055273

Project / Site name:	Ratby Lane Markfield	Samples received on:	10/10/2025
Your job number:	PJS25 0070	Samples instructed on/ Analysis started on:	13/10/2025
Your order number:	PJSG Q1673	Analysis completed by:	23/10/2025
Report Issue Number:	1	Report issued on:	23/10/2025
Samples Analysed:	17 soil samples - 3 leachate 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: 25-055273
Project / Site name: Ratby Lane Markfield
Your Order No: PJSG Q1673

Lab Sample Number	713749	713750	713751	713752	713753
Sample Reference	TP11	TP05	TP10	TP04	TP14
Sample Number	ES1	ES1	ES1	ES1	ES1
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.30	0.10	0.10	0.15	0.10
Date Sampled	08/10/2025	08/10/2025	08/10/2025	08/10/2025	08/10/2025
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	16.1	< 0.1	5.5	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	14	16	15	14
Total mass of sample received	kg	0.1	NONE	0.6	0.7	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	-	SCA	OGR	OGR	OGR
Analysis completed	N/A	N/A	N/A	-	22/10/2025	17/10/2025	17/10/2025	17/10/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.1	-	6.5	6.4	6.5
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	140	-	21	46	19
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	71.5	-	10.5	22.8	9.48
Organic Matter (automated)	%	0.1	MCERTS	0.8	-	4.7	3.7	3.2

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 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	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.08	-	0.09	0.07	0.07
Pyrene	mg/kg	0.05	MCERTS	0.07	-	0.08	0.07	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.07	-	0.06	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.07	-	0.07	< 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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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	-	6	7.7	8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	-	U/S ^{*U/S g}	U/S ^{*U/S g}	U/S ^{*U/S g}
Chromium (VI) by IC	mg/kg	1.8	NONE	-	-	< 1.80	< 1.80	< 1.80
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	38	-	18	23	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	-	20	25	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	-	28	32	35
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	19	-	11	13	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	2.3
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	40	-	78	66	91

Analytical Report Number: 25-055273
Project / Site name: Ratby Lane Markfield
Your Order No: PJSG Q1673

Lab Sample Number	713749	713750	713751	713752	713753
Sample Reference	TP11	TP05	TP10	TP04	TP14
Sample Number	ES1	ES1	ES1	ES1	ES1
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.30	0.10	0.10	0.15	0.10
Date Sampled	08/10/2025	08/10/2025	08/10/2025	08/10/2025	08/10/2025
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 (GC-MS)

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	-	-	-

Analytical Report Number: 25-055273
Project / Site name: Ratby Lane Markfield
Your Order No: PJSJG Q1673

Lab Sample Number				713749	713750	713751	713752	713753
Sample Reference				TP11	TP05	TP10	TP04	TP14
Sample Number				ES1	ES1	ES1	ES1	ES1
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.30	0.10	0.10	0.15	0.10
Date Sampled				08/10/2025	08/10/2025	08/10/2025	08/10/2025	08/10/2025
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'-DDD	µg/kg	10	NONE	-	< 10	-	-	-
O,p'-DDE	µg/kg	10	NONE	-	< 10	-	-	-
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	-	53	-	-	-
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	-	-	-

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

Analytical Report Number: 25-055273
Project / Site name: Ratby Lane Markfield
Your Order No: PJSG Q1673

Lab Sample Number	713754	713755	713756	713758	713760
Sample Reference	TP09	TP12	TP03	WS12	WS05
Sample Number	ES1	ES1	ES1	ES1	ES1
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.20	0.35	0.10	0.35	0.50
Date Sampled	08/10/2025	08/10/2025	08/10/2025	08/10/2025	08/10/2025
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	35
Moisture Content	%	0.01	NONE	15	14	14	8.8	6.8
Total mass of sample received	kg	0.1	NONE	0.6	0.6	0.6	0.9	0.9

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	-
Asbestos Analyst ID	N/A	N/A	N/A	OGR	-	OGR	-	-
Analysis completed	N/A	N/A	N/A	17/10/2025	-	17/10/2025	-	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	-	6.8	6.7	6.5	7.1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	36	32	18	29
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	18	15.8	9.16	14.3
Organic Matter (automated)	%	0.1	MCERTS	-	0.7	5.4	0.7	0.6

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 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	< 0.05
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	< 0.05
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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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	6.8	7.2	7.1	7.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	< 1.8	U/S *U/S 9	< 1.8	< 1.8
Chromium (VI) by IC	mg/kg	1.8	NONE	-	-	< 1.80	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	38	18	22	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	41	27	20	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	14	27	13	10
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	-	19	13	18	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	1.1	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	40	80	64	37

Analytical Report Number: 25-055273
Project / Site name: Ratby Lane Markfield
Your Order No: PJSG Q1673

Lab Sample Number	713754	713755	713756	713758	713760
Sample Reference	TP09	TP12	TP03	WS12	WS05
Sample Number	ES1	ES1	ES1	ES1	ES1
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.20	0.35	0.10	0.35	0.50
Date Sampled	08/10/2025	08/10/2025	08/10/2025	08/10/2025	08/10/2025
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 (GC-MS)

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	-	-	-	-

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Project / Site name: Ratby Lane Markfield
Your Order No: PJSJG Q1673

Lab Sample Number				713754	713755	713756	713758	713760
Sample Reference				TP09	TP12	TP03	WS12	WS05
Sample Number				ES1	ES1	ES1	ES1	ES1
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.35	0.10	0.35	0.50
Date Sampled				08/10/2025	08/10/2025	08/10/2025	08/10/2025	08/10/2025
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'-DDD	µg/kg	10	NONE	< 10	-	-	-	-
O,p'-DDE	µg/kg	10	NONE	< 10	-	-	-	-
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	22	-	-	-	-
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	-	-	-	-

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

Analytical Report Number: 25-055273
Project / Site name: Ratby Lane Markfield
Your Order No: PJSG Q1673

Lab Sample Number	713761	713762	713763	713764	713765
Sample Reference	WS10	WS06	WS09	WS02	WS01
Sample Number	ES1	ES1	ES1	ES1	ES1
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.10	0.20	0.20	0.40	0.10
Date Sampled	08/10/2025	08/10/2025	08/10/2025	08/10/2025	08/10/2025
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	17.7
Moisture Content	%	0.01	NONE	-	15	15	12	14
Total mass of sample received	kg	0.1	NONE	-	0.8	1	1	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	OGR	OGR	OGR	-	OGR
Analysis completed	N/A	N/A	N/A	17/10/2025	17/10/2025	17/10/2025	-	17/10/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	-	5.9	6.5	6.2	6.2
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	36	34	22	29
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	18.1	17.1	11	14.7
Organic Matter (automated)	%	0.1	MCERTS	-	4.2	3.6	1.5	3.6

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 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	0.14
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	0.09
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	0.14	0.06	< 0.05	0.14
Pyrene	mg/kg	0.05	MCERTS	-	0.13	0.07	< 0.05	0.15
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.09	0.06	< 0.05	0.07
Chrysene	mg/kg	0.05	MCERTS	-	0.13	< 0.05	< 0.05	0.11
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	0.11	0.06	< 0.05	0.12
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	0.07	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	0.09	< 0.05	< 0.05	0.09
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	-	0.07	< 0.05	< 0.05	0.06

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	0.88	< 0.80	< 0.80	0.96
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	7.3	7.9	7.5	9.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	U/S ^{u/s} g	U/S ^{u/s} g	< 1.8	U/S ^{u/s} g
Chromium (VI) by IC	mg/kg	1.8	NONE	-	< 1.80	< 1.80	-	< 1.80
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	20	22	25	30
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	24	32	21	28
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	32	45	17	43
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	15	18	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	1.1	< 1.0	1.9
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	84	83	70	89

Analytical Report Number: 25-055273
Project / Site name: Ratby Lane Markfield
Your Order No: PJSG Q1673

Lab Sample Number	713761	713762	713763	713764	713765
Sample Reference	WS10	WS06	WS09	WS02	WS01
Sample Number	ES1	ES1	ES1	ES1	ES1
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.10	0.20	0.20	0.40	0.10
Date Sampled	08/10/2025	08/10/2025	08/10/2025	08/10/2025	08/10/2025
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 (GC-MS)

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	-	-	-	-	-

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Project / Site name: Ratby Lane Markfield
Your Order No: PJSJG Q1673

Lab Sample Number				713761	713762	713763	713764	713765
Sample Reference				WS10	WS06	WS09	WS02	WS01
Sample Number				ES1	ES1	ES1	ES1	ES1
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.10	0.20	0.20	0.40	0.10
Date Sampled				08/10/2025	08/10/2025	08/10/2025	08/10/2025	08/10/2025
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'-DDD	µg/kg	10	NONE	-	-	-	-	-
O,p'-DDE	µg/kg	10	NONE	-	-	-	-	-
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	-	-	-	-	-

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

Analytical Report Number: 25-055273
Project / Site name: Ratby Lane Markfield
Your Order No: PJSG Q1673

Lab Sample Number				713768	713769
Sample Reference				WS07	WS08
Sample Number				ES1	ES1
Water Matrix				N/A	N/A
Depth (m)				0.40	0.20
Date Sampled				08/10/2025	08/10/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	23
Total mass of sample received	kg	0.1	NONE	1	0.7

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	-	OGR
Analysis completed	N/A	N/A	N/A	-	17/10/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	6.7	5.8
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	34	46
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	16.9	23.1
Organic Matter (automated)	%	0.1	MCERTS	0.9	7.5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.11
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.28
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.26
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.15
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.15
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.19
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.11
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.18
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.08
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.1

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	1.62
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	9.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	U/S ^{u/s} g
Chromium (VI) by IC	mg/kg	1.8	NONE	-	< 1.80
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24	32
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19	47
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.7	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	44	110

Analytical Report Number: 25-055273
Project / Site name: Ratby Lane Markfield
Your Order No: PJSQ Q1673

Lab Sample Number				713768	713769
Sample Reference				WS07	WS08
Sample Number				ES1	ES1
Water Matrix				N/A	N/A
Depth (m)				0.40	0.20
Date Sampled				08/10/2025	08/10/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Pesticides (GC-MS)

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	-	-

Analytical Report Number: 25-055273
 Project / Site name: Ratby Lane Markfield
 Your Order No: PJSG Q1673

Lab Sample Number				713768	713769
Sample Reference				WS07	WS08
Sample Number				ES1	ES1
Water Matrix				N/A	N/A
Depth (m)				0.40	0.20
Date Sampled				08/10/2025	08/10/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		
O,p'-DDD	µg/kg	10	NONE	-	-
O,p'-DDE	µg/kg	10	NONE	-	-
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	-	-

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

Analytical Report Number: 25-055273
Project / Site name: Ratby Lane Markfield

Your Order No: PJSG Q1673

Lab Sample Number	713759	713766	713767
Sample Reference	WS12	WS01	TP07(WS)
Sample Number	ES2	ES2	ES2
Water Matrix	N/A	N/A	N/A
Depth (m)	0.20	0.30	0.20
Date Sampled	08/10/2025	08/10/2025	08/10/2025
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Test Limit of detection	Test Accreditation Status

Moisture of sample	%	N/A	NONE	18	19	22
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	2.7	3.7	< 1.0
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	0.21
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.9	1.3	0.9
Copper (dissolved)	µg/l	0.7	ISO 17025	27	28	7.8
Lead (dissolved)	µg/l	1	ISO 17025	3.7	2.6	2.2
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.8	3.3	2.6
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	19	25	29

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

Analytical Report Number : 25-055273

Project / Site name: Ratby Lane Markfield

* 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 *
713749	TP11	ES1	0.3	Brown clay and sand with stones and gravel
713750	TP05	ES1	0.1	Brown loam and sand with vegetation
713751	TP10	ES1	0.1	Brown loam and sand with vegetation and stones
713752	TP04	ES1	0.15	Brown sand with vegetation
713753	TP14	ES1	0.1	Brown loam and sand with vegetation
713754	TP09	ES1	0.2	Brown sand with vegetation
713755	TP12	ES1	0.35	Brown clay and sand
713756	TP03	ES1	0.1	Brown sand with vegetation
713758	WS12	ES1	0.35	Brown clay and sand
713760	WS05	ES1	0.5	Brown sand with stones
713762	WS06	ES1	0.2	Brown loam and sand with vegetation and gravel
713763	WS09	ES1	0.2	Brown loam and sand with vegetation
713764	WS02	ES1	0.4	Brown clay and sand
713765	WS01	ES1	0.1	Brown sand with vegetation and stones
713768	WS07	ES1	0.4	Brown clay
713769	WS08	ES1	0.2	Brown loam with vegetation

Analytical Report Number : 25-055273

Project / Site name: Ratby Lane Markfield

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
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
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
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
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
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
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE
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
Pesticides by GC-MS/MS	Determination of Pesticides in soil by GC MS/MS	In-house method	L055B	W	NONE
Cr(VI) in soils by Ion chromatography	Determination of hexavalent chromium in alkaline soil extract by use of ion chromatography with spectrophotometric detection	In-house method	L130B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

Analytical Report Number : 25-055273
Project / Site name: Ratby Lane Markfield

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
One stage WAC 2:1 leachate preparation	One stage batch test at a liquid to solid ratio of 2 L/kg	BS EN 12457-1-2002	L043B	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.

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

The result for sum should be interpreted with caution

*U/S g- Unsuitable for analysis due to high colour intensity.

Analytical Report Number : 25-055273

Project / Site name: Ratby Lane Markfield

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.

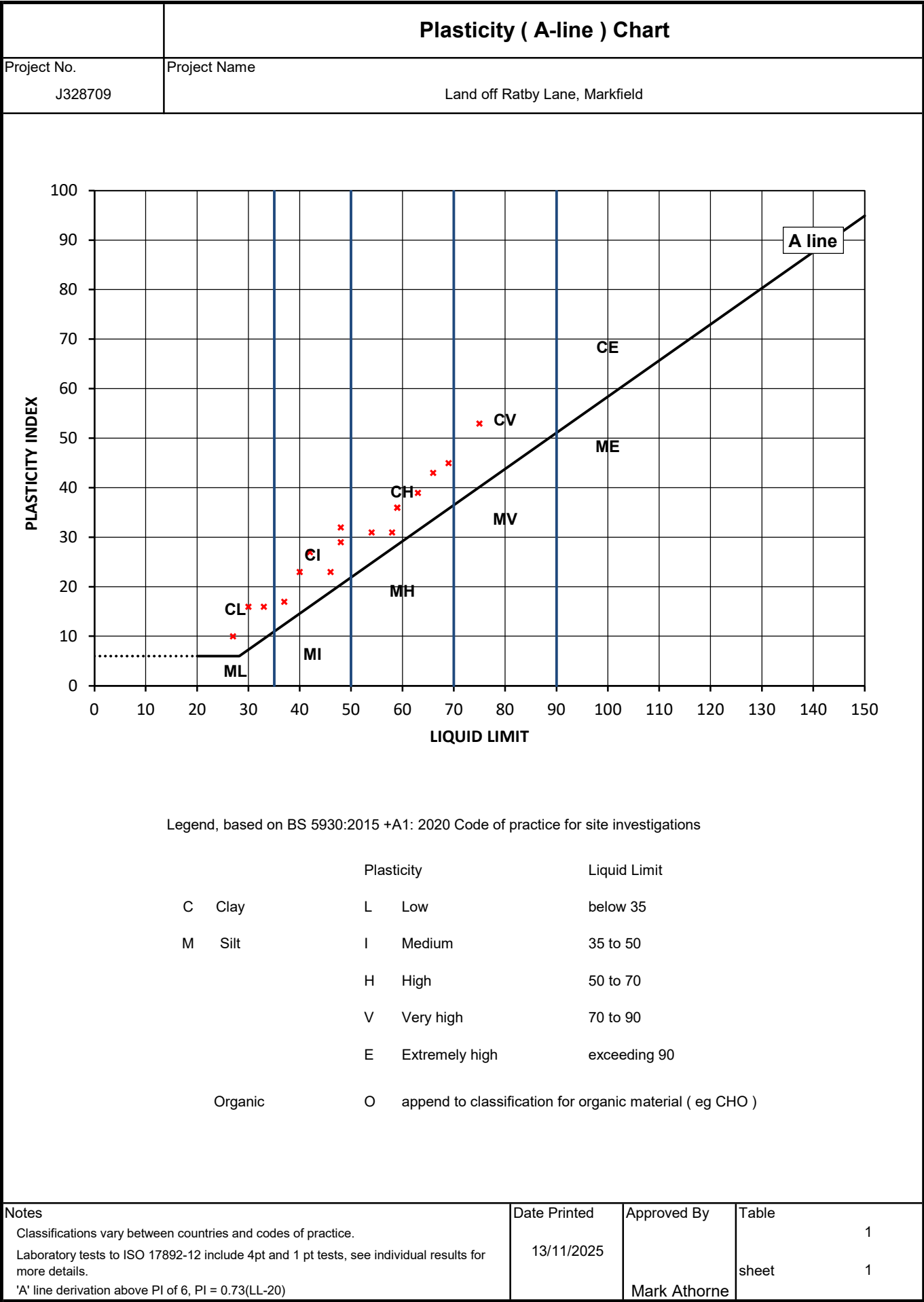
Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP07(W5)	ES2	L	713767	b	One stage WAC 2:1 leachate preparation	L043B	b
WS01	ES2	L	713766	b	One stage WAC 2:1 leachate preparation	L043B	b
WS12	ES1	S	713758	b	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	b
WS12	ES2	L	713759	b	One stage WAC 2:1 leachate preparation	L043B	b

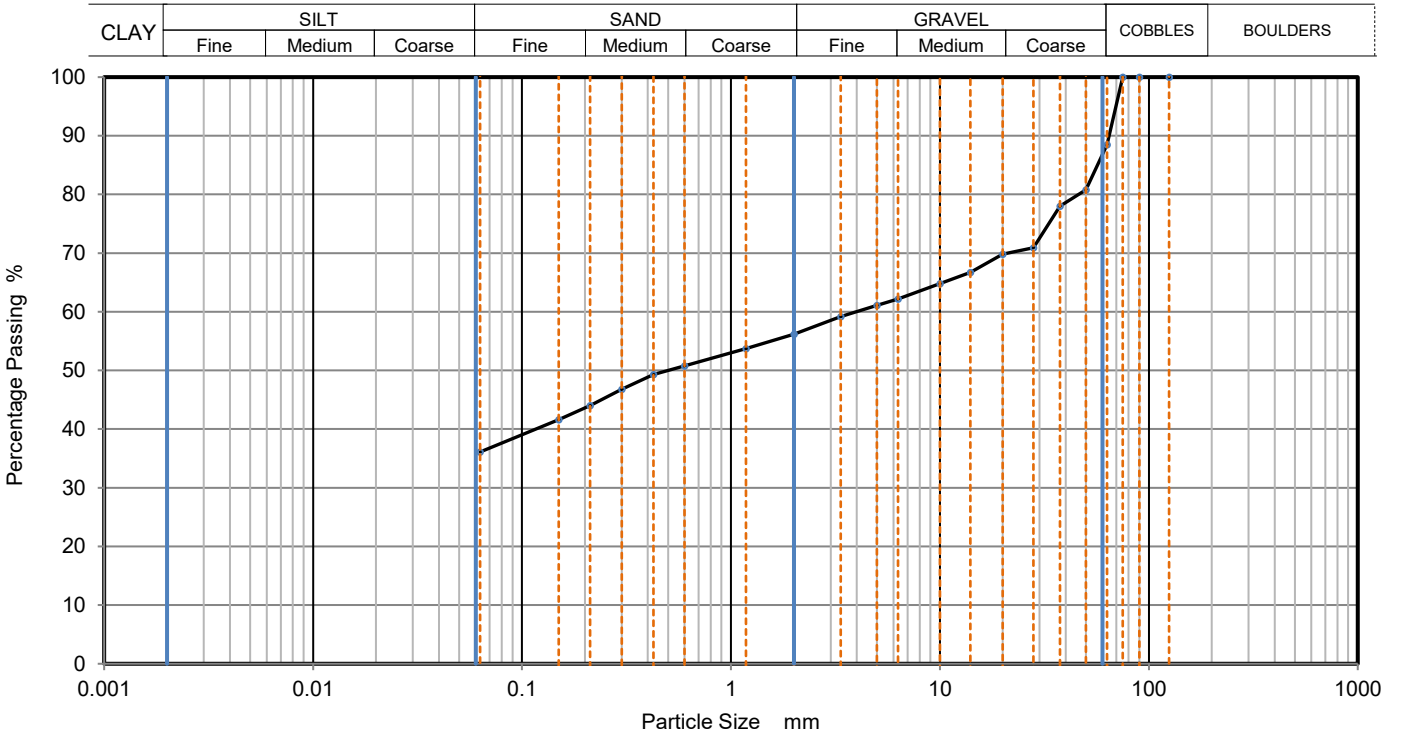
Appendix G: Geotechnical Testing Results

The Testing Lab PLC
Unit 2 James Road
Adwick-le-Street
Doncaster
DN6 7HH

GFQ-008-74 Issue 02 - Nov 23				Summary of Classification Test Results																
Project No. J328709				Project Name Land off Ratby Lane, Markfield																
Hole No.	Sample				Soil Description	Density		w	Passing 425µm	LL	If 1 Point Test			PL	PI	Particle density Mg/m³	Remarks			
	Ref	Top	Base	Type		bulk Mg/m³	dry Mg/m³				Pen 1	Pen 2	CF							
TP04	1	1.50		D	Red brown slightly sandy CLAY			21.7	100-n	75-4pt-i				22	53					
TP05	1	1.00		D	Orange brown slightly sandy slightly gravelly CLAY			16.6	74-hp	59-4pt-i				23	36					
TP06	1	1.50		D	Multicoloured slightly sandy CLAY			15.9	100-hp	48-4pt-i				16	32					
TP10	1	0.50		D	Orange brown slightly sandy CLAY			15.1	77-hp	37-4pt-i				20	17					
TP11	1	0.50		D	Red brown slightly sandy CLAY			16.2	83-hp	63-4pt-i				24	39					
TP11	2	1.50		B	Red brown mottled grey slightly sandy slightly gravelly CLAY			21.5	98-hp	48-4pt-i				19	29					
TP11	3	2.00		B	Red brown slightly sandy CLAY			17.3	98S	40-4pt-i				17	23					
TP12	1	2.00		D	Red brown grey slightly sandy CLAY			12.9	95-hp	46-4pt-i				23	23					
TP14	1	0.50		D	Brown slightly sandy CLAY			21.9	100-n	58-4pt-i				27	31					
TP15	2	1.00		B	Brown slightly sandy CLAY			17.4	100-n	59-4pt-i				23	36					
WS01	1	1.70		D	Red brown slightly sandy slightly gravelly CLAY			19.6	100-hp	54-4pt-i				23	31					
WS02	1	0.50		D	Brown slightly sandy CLAY			8.9	95-hp	33-4pt-i				17	16					
WS04	1	0.50		D	Red brown slightly sandy slightly gravelly CLAY			19.0	100-n	66-4pt-i				23	43					
WS05	1	1.00		D	Orange brown mottled grey slightly sandy CLAY			13.3	86-hp	42-4pt-i				15	27					
WS06	1	0.60		D	Light grey and brown slightly sandy slightly gravelly CLAY			7.1	68-w	27-4pt-i				17	10					
WS07	1	0.50		D	Multicoloured slightly sandy CLAY			18.9	98-hp	69-4pt-i				24	45					
WS12	1	1.00		D	Red brown slightly sandy CLAY			10.6	77-w	30-4pt-i				14	16					
Key									Test Standards:											
Density tests: Linear measurement unless : wd - water displacement wi - immersion in water w - water content									Atterberg: 4pt cone unless : cas - Casagrande method 1pt - single point test CF - Correlation Factor Liquid limit test: i - increasing moisture content, d - decreasing moisture content Atterberg sample prep: n - Natural, HP - Hand Picked, w - Washed											
									Bulk Density Tests - BS EN ISO 17892-2:2014 Water Content - BS EN ISO 17892-1:2014+A1:2022 Liquid & Plastic Limits - BS EN ISO 17892-12:2018+A2:2022 Particle Density - BS EN ISO 17892-3:2015											
									Date Printed: 13/11/2025									ISO INDX		



GFQ-008-77 Issue 02 - Nov 23	Determination of Particle Size Distribution (ISO 17892-4:2016)			Job Ref	J328709
				Borehole/Pit No.	TP01
Project Name	Land off Ratby Lane, Markfield			Sample No.	1
Soil Description	Brown slightly sandy slightly gravelly CLAY with cobbles			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	ISO 17892 -4, by sieving on pre-dried or dry sample			KeyLAB ID	TTLP2025111126



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	89		
50	81		
37.5	78		
28	71		
20	70		
14	67		
10	65		
6.3	62		
5	61		
3.35	59		
2	56		
1.18	54		
0.6	51		
0.425	49		
0.3	47		
0.212	44		
0.15	42		
0.063	36		

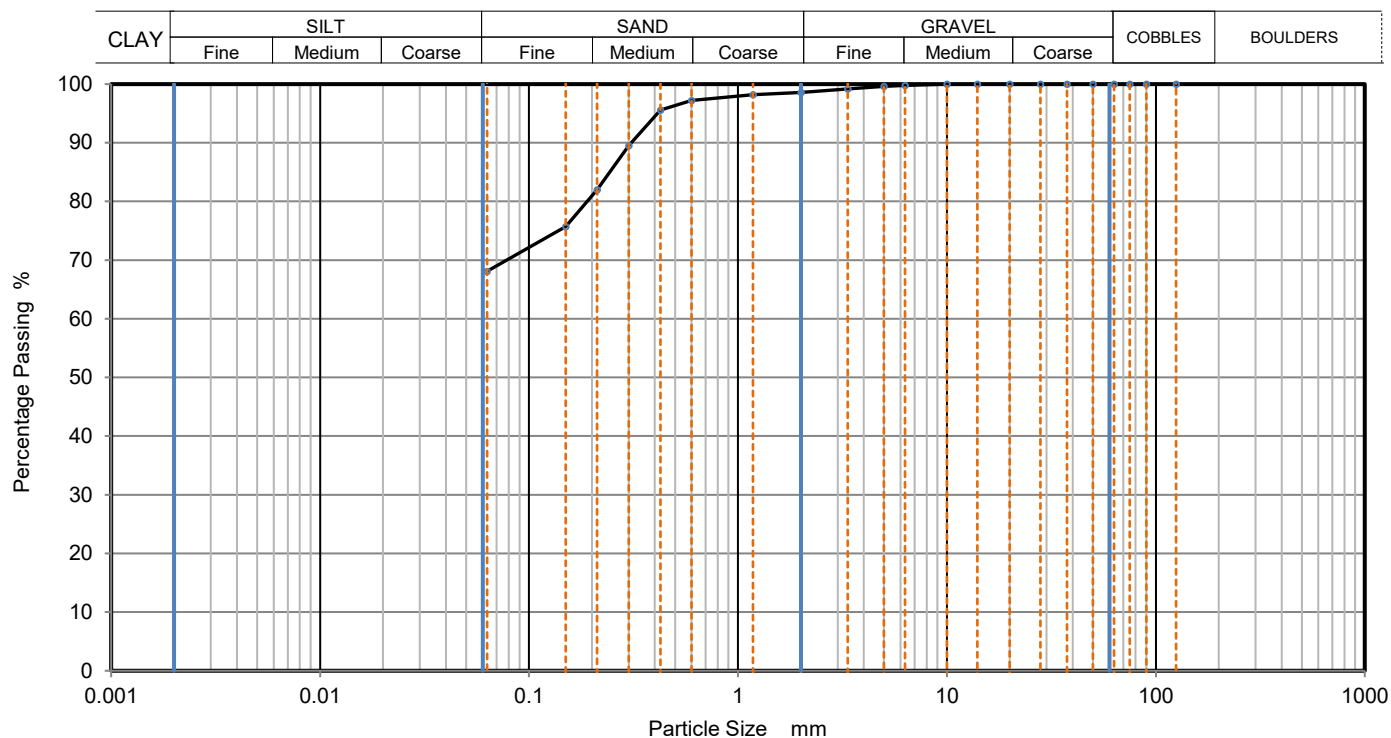
Dry Mass of sample, g 3779

Sample Proportions	% dry mass
Very coarse	12
Gravel	32
Sand	20
Fines <0.063mm	36

Grading Analysis	
D100	mm 75
D60	mm 3.95
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	
Pretreatment Method (If Applicable)	

Remarks
Preparation and testing performed to BS EN ISO 17892-4 unless noted below

GFQ-008-77 Issue 02 - Nov 23	Determination of Particle Size Distribution (ISO 17892-4:2016)			Job Ref	J328709
				Borehole/Pit No.	TP11
Project Name	Land off Ratby Lane, Markfield			Sample No.	2
Soil Description	Red brown mottled grey slightly gravelly sandy CLAY			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	ISO 17892 -4, by sieving on pre-dried or dry sample			KeyLAB ID	TTLP2025111132



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	97		
0.425	96		
0.3	90		
0.212	82		
0.15	76		
0.063	68		

Dry Mass of sample, g

784

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	31
Fines <0.063mm	68

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	
Pretreatment Method (If Applicable)	

Remarks

Preparation and testing performed to BS EN ISO 17892-4 unless noted below

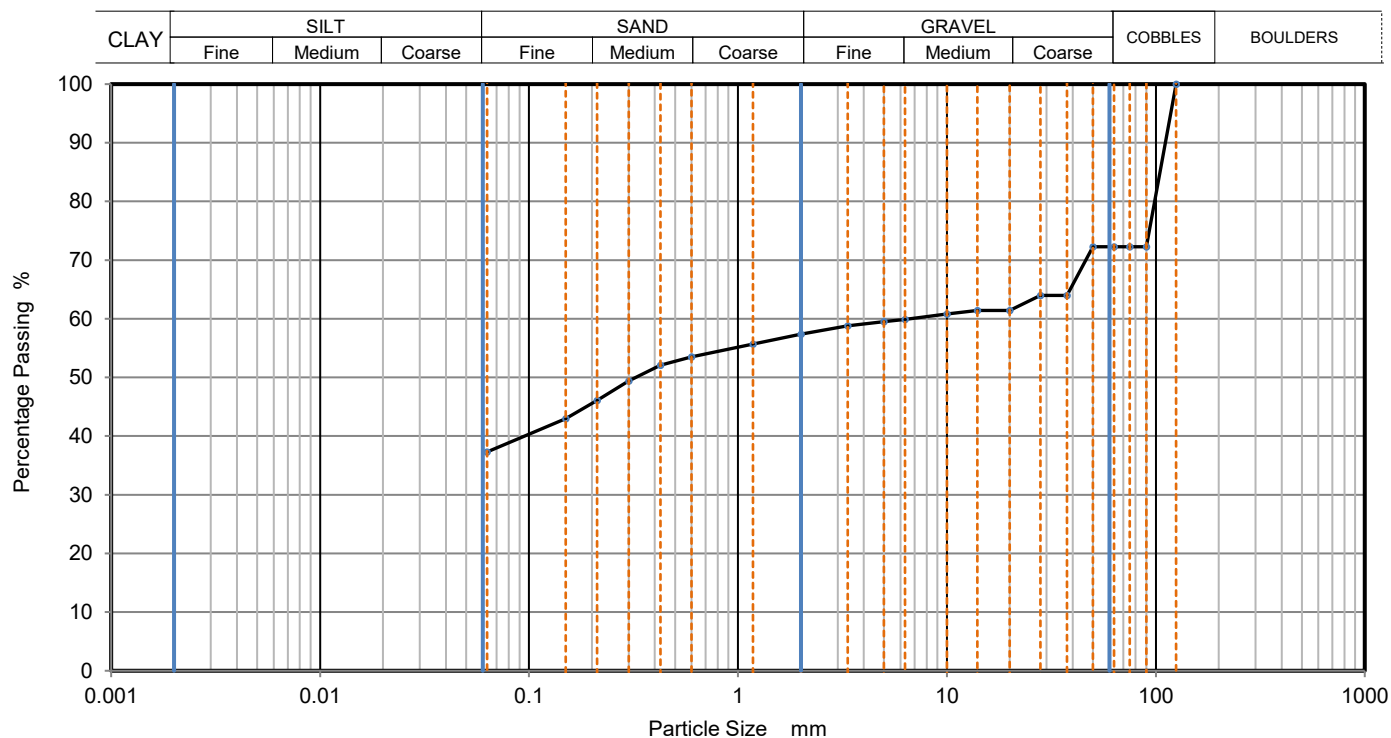
Date Printed:

13/11/2025



ISO PSD

GFQ-008-77 Issue 02 - Nov 23	Determination of Particle Size Distribution (ISO 17892-4:2016)			Job Ref	J328709
				Borehole/Pit No.	TP15
Project Name	Land off Ratby Lane, Markfield			Sample No.	1
Soil Description	Brown slightly sandy slightly gravelly CLAY			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	ISO 17892 -4, by sieving on pre-dried or dry sample			KeyLAB ID	TTLP2025111137



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	72		
75	72		
63	72		
50	72		
37.5	64		
28	64		
20	61		
14	61		
10	61		
6.3	60		
5	60		
3.35	59		
2	57		
1.18	56		
0.6	54		
0.425	52		
0.3	49		
0.212	46		
0.15	43		
0.063	37		

Dry Mass of sample, g

5810

Sample Proportions	% dry mass
Very coarse	28
Gravel	15
Sand	20
Fines <0.063mm	37

Grading Analysis	
D100	mm 125
D60	mm 6.61
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	
Pretreatment Method (If Applicable)	

Remarks

Preparation and testing performed to BS EN ISO 17892-4 unless noted below

Date Printed:

13/11/2025



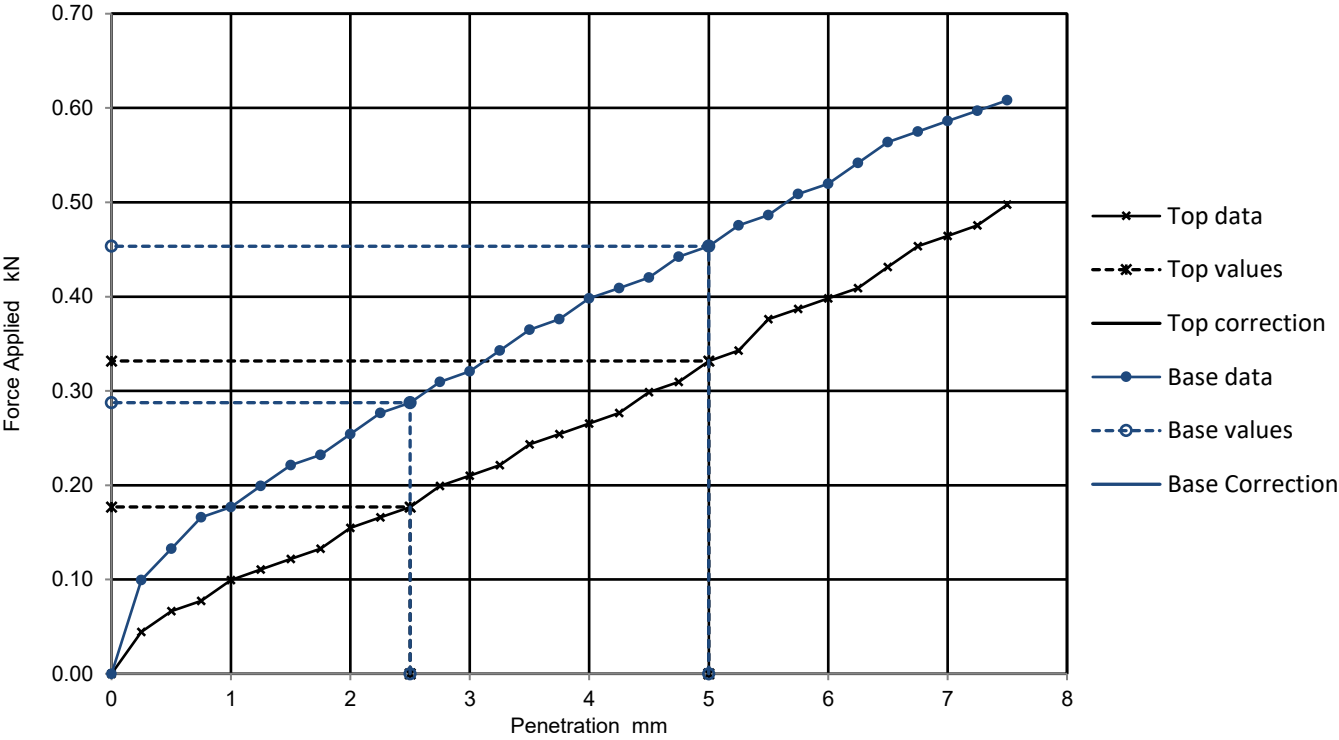
ISO PSD

GQF-008-36 Issue 02 - June 24	California Bearing Ratio (CBR)			Job Ref	J328709
				Borehole/Pit No.	TP01
Project Name	Land off Ratby Lane, Markfield			Sample No.	1
Soil Description	Brown slightly sandy slightly gravelly CLAY			Depth m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	TTLP2025111126
Test Method	BS1377-2: 2022			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed			12	%	Dry density after soaking		Mg/m3
Initial Specimen details	Bulk density	2.04	Mg/m3	Surcharge applied		0	kg
	Dry density	1.73	Mg/m3			0	kPa
	Moisture content	18.1	%				

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	1.3	1.7	1.7	N/A
No	2.2	2.3	2.3	

Moisture Content	%
	18.1
	18.0

Remarks



7758



CBR

Date Printed

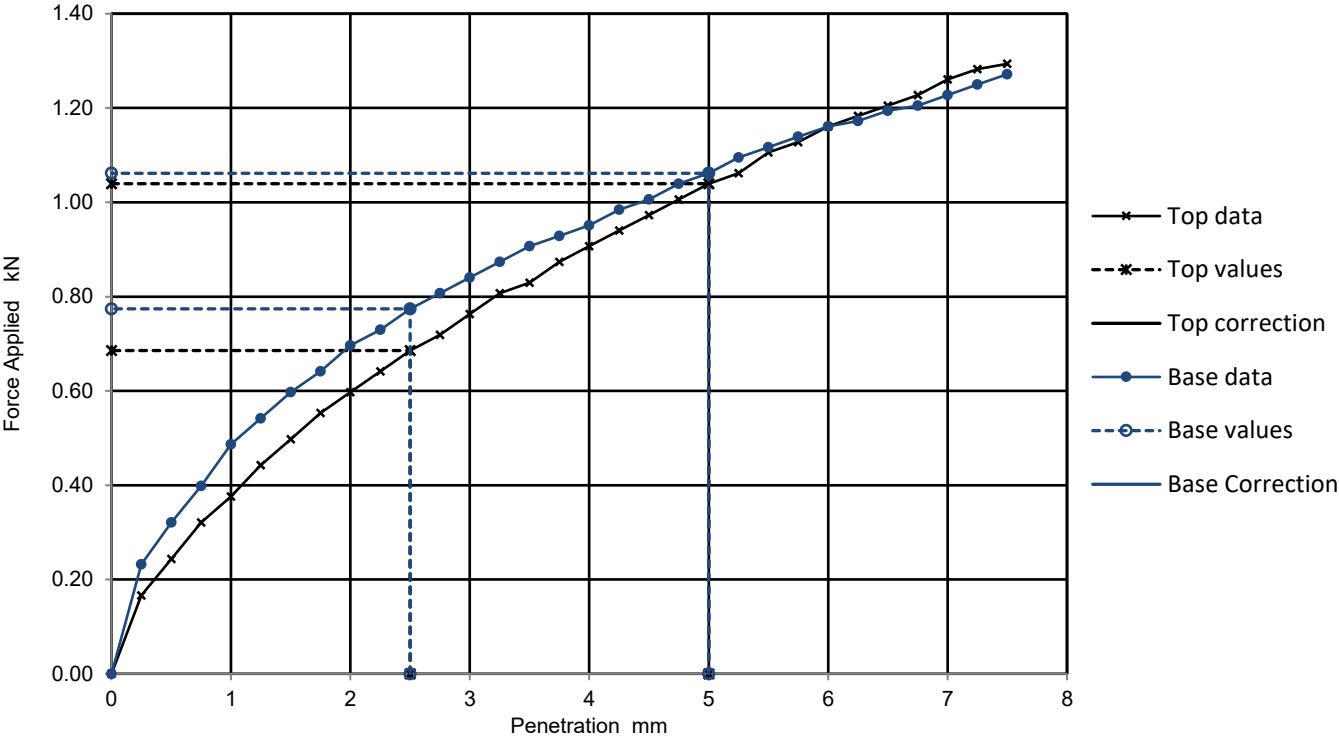
12/11/2025

GQF-008-36 Issue 02 - June 24	California Bearing Ratio (CBR)			Job Ref	J328709
				Borehole/Pit No.	TP11
Project Name	Land off Ratby Lane, Markfield			Sample No.	3
Soil Description	Red brown slightly sandy CLAY			Depth m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	TTLP2025111133
Test Method	BS1377-2: 2022			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed			0	%	Dry density after soaking		Mg/m3
Initial Specimen details	Bulk density	2.09	Mg/m3	Surcharge applied		0	kg
	Dry density	1.78	Mg/m3			0	kPa
	Moisture content	17.5	%				

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	5.2	5.2	5.2	5.5
No	5.9	5.3	5.9	

Moisture Content %
17.5
17.5

Remarks



7758



CBR

Date Printed

12/11/2025

GQF-008-50 Issue 02 - June 24	Dry Density / Moisture Content Relationship Light Compaction		Job Ref	J328709	
			Borehole / Pit No	TP01	
Project Name	Land off Ratby Lane, Markfield		Sample No	1	
Soil Description	Brown slightly sandy slightly gravelly CLAY with occasional cobbles		Depth	0.50 m	
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377-2:2022		Keylab ID	TTLP2025111126	

The graph plots Dry Density (Mg/m³) on the y-axis (1.50 to 2.10) against Moisture Content (%) on the x-axis (0 to 32). Three theoretical lines for 0%, 5%, and 10% air voids are shown. A compaction curve with data points is plotted, showing a peak at approximately 18% moisture content and 1.73 Mg/m³ dry density.

Moisture Content (%)	Dry Density (Mg/m³)
14.5	1.59
15.5	1.69
17.5	1.73
19.5	1.70
20.5	1.66

Preparation	Material used was natural	
Mould Type	1 Litre	
Samples Used	Composite specimens tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	12
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	1.73
Optimum Moisture Content	%	18

 7758	Remarks		COMPL
	Date Printed	13/11/2025	

GQF-008-50 Issue 02 - June 24	Dry Density / Moisture Content Relationship Light Compaction		Job Ref	J328709	
			Borehole / Pit No	TP11	
Project Name	Land off Ratby Lane, Markfield		Sample No	2	
Soil Description	Red brown mottled grey slightly sandy slightly gravelly CLAY		Depth	1.50 m	
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377-2:2022		Keylab ID	TTLP2025111132	

Moisture Content (%)	Dry Density (Mg/m³)
11.5	1.56
15.5	1.69
16.0	1.70
18.5	1.69
22.5	1.65
26.5	1.53

Preparation	Material used was natural	
Mould Type	1 Litre	
Samples Used	Composite specimens tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	1.70
Optimum Moisture Content	%	16

	Remarks		COMPL
	Date Printed	13/11/2025	

GQF-008-50 Issue 02 - June 24	Dry Density / Moisture Content Relationship Light Compaction		Job Ref	J328709	
			Borehole / Pit No	TP11	
Project Name	Land off Ratby Lane, Markfield		Sample No	3	
Soil Description	Red brown slightly sandy CLAY		Depth	2.00 m	
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377-2:2022		Keylab ID	TTLP2025111133	

Moisture Content (%)	Dry Density (Mg/m³)
12.5	1.60
15.5	1.73
17.5	1.78
19.5	1.72
21.5	1.65

Preparation	Material used was natural	
Mould Type	1 Litre	
Samples Used	Composite specimens tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	1.78
Optimum Moisture Content	%	18

	Remarks		COMPL
	Date Printed	13/11/2025	

GQF-008-50 Issue 02 - June 24	Dry Density / Moisture Content Relationship Light Compaction		Job Ref	J328709	
			Borehole / Pit No	TP11	
Project Name	Land off Ratby Lane, Markfield		Sample No	4	
Soil Description	Brown slightly sandy CLAY		Depth	2.50 m	
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377-2:2022		Keylab ID	TTLP2025111134	

Moisture Content (%)	Dry Density (Mg/m³)
13.5	1.68
15.5	1.76
17.0	1.77
18.5	1.76
20.0	1.70
22.0	1.64

Preparation	Material used was natural	
Mould Type	1 Litre	
Samples Used	Composite specimens tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	1.77
Optimum Moisture Content	%	17

		Remarks		COMPL
		Date Printed	13/11/2025	

GQF-008-50 Issue 02 - June 24		Dry Density / Moisture Content Relationship Light Compaction		Job Ref		J328709																																													
				Borehole / Pit No		TP15																																													
Project Name		Land off Ratby Lane, Markfield		Sample No		1																																													
Soil Description		Brown slightly sandy slightly gravelly CLAY with some cobbles		Depth		0.50 m																																													
Specimen Ref.		Specimen Depth		m		Sample Type		B																																											
Test Method		BS1377-2:2022		Keylab ID		TTLP2025111137																																													
Dry Density, Mg/m³ Moisture Content, % <table><tr><td colspan="2">Preparation</td><td colspan="2">Material used was natural</td></tr><tr><td colspan="2">Mould Type</td><td colspan="2">1 Litre</td></tr><tr><td colspan="2">Samples Used</td><td colspan="2">Composite specimens tested</td></tr><tr><td colspan="2">Material Retained on 37.5 mm Sieve</td><td colspan="2">%</td><td colspan="2">0</td></tr><tr><td colspan="2">Material Retained on 20.0 mm Sieve</td><td colspan="2">%</td><td colspan="2">2</td></tr><tr><td colspan="2">Particle Density - Assumed</td><td colspan="2">Mg/m³</td><td colspan="2">2.65</td></tr><tr><td colspan="2">Maximum Dry Density</td><td colspan="2">Mg/m³</td><td colspan="2">1.66</td></tr><tr><td colspan="2">Optimum Moisture Content</td><td colspan="2">%</td><td colspan="2">19</td></tr></table>										Preparation		Material used was natural		Mould Type		1 Litre		Samples Used		Composite specimens tested		Material Retained on 37.5 mm Sieve		%		0		Material Retained on 20.0 mm Sieve		%		2		Particle Density - Assumed		Mg/m ³		2.65		Maximum Dry Density		Mg/m ³		1.66		Optimum Moisture Content		%		19	
Preparation		Material used was natural																																																	
Mould Type		1 Litre																																																	
Samples Used		Composite specimens tested																																																	
Material Retained on 37.5 mm Sieve		%		0																																															
Material Retained on 20.0 mm Sieve		%		2																																															
Particle Density - Assumed		Mg/m ³		2.65																																															
Maximum Dry Density		Mg/m ³		1.66																																															
Optimum Moisture Content		%		19																																															
		7758		Remarks				COMPL																																											
				Date Printed		13/11/2025																																													

GQF-008-50 Issue 02 - June 24	Dry Density / Moisture Content Relationship Light Compaction		Job Ref	J328709	
			Borehole / Pit No	TP15	
Project Name	Land off Ratby Lane, Markfield		Sample No	2	
Soil Description	Brown slightly sandy CLAY		Depth	1.00 m	
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377-2:2022		Keylab ID	TTLP2025111138	

The graph plots Dry Density (Mg/m³) on the y-axis (1.50 to 2.10) against Moisture Content (%) on the x-axis (0 to 32). Three theoretical curves are shown for 0% (solid), 5% (dashed), and 10% (dotted) air voids. Test data points are plotted at approximately (19.5, 1.56), (20.5, 1.60), (21.5, 1.63), (23.5, 1.58), and (25.5, 1.53). A line connects these points, showing a peak at 21% moisture content.

Preparation	Material used was natural	
Mould Type	1 Litre	
Samples Used	Composite specimens tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	1.63
Optimum Moisture Content	%	21

		Remarks		COMPL
		Date Printed	13/11/2025	

Appendix H: Gas & Groundwater Monitoring Records

PJS GAS AND GROUNDWATER MONITORING RECORD

Site Name:	Ratby Lane, Markfield		
Job Number:	PJS25-0070		
Monitoring Engineer:	SW		
Start Time:	12:25:00		
End Time:	13:15:00		

Monitoring Equipment:	GFM 436	Calibration Date	03/12/2024
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Date	17/10/2025
Temperature (°C)	13
Pressure (mb) - Start	1004
Pressure (mb) - End	1004
(Rising / Falling)	Falling
Weather	Overcast

Ambient Readings	CH ₄	CO ₂	O ₂	CO	H ₂ S
	<0.1	<0.1	20.4	<10	<10

Time	BH Ref.	Relative Pressure (mbar)	Gas Flow (l/hr)		CH ₄ (% v/v)		CO ₂ (% v/v)		O ₂ (% v/v)		CO (ppm)	H ₂ S (ppm)		Depth to groundwater (m)	Depth of Borehole (m)	Groundwater Elevation (m AOD)	Remarks / Observations
			Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady	Peak	Peak	Peak				
13:15:00	WS01	1004	<0.1	<0.1	<0.1	<0.1	0.9	0.9	19.7	19.7	<10	<10		3.87	4.70	-3.87	
13:05:00	WS04	1004	<0.1	<0.1	<0.1	<0.1	1.3	1.3	18.9	18.9	<10	<10		DRY	1.90		
12:55:00	WS06	1004	<0.1	<0.1	<0.1	<0.1	0.9	0.9	19.9	19.9	<10	<10		DRY	1.00		
12:25:00	WS08	1004	<0.1	<0.1	<0.1	<0.1	1.4	1.4	18.5	18.5	<10	<10		DRY	4.50		
12:45:00	WS10	1004	<0.1	<0.1	<0.1	<0.1	0.7	0.7	19.9	19.9	<10	<10		DRY	1.00		
12:35:00	WS12	1004	<0.1	<0.1	<0.1	<0.1	1.3	1.3	19.5	19.5	<10	<10		DRY	3.00		

PJS GAS AND GROUNDWATER MONITORING RECORD

Site Name:	Ratby Lane, Markfield		
Job Number:	PJS25-0070		
Monitoring Engineer:	SW		
Start Time:	12:35:00		
End Time:	13:25:00		

Monitoring Equipment:	GFM 436	Calibration Date	03/12/2024
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Date	23/10/2025
Temperature (°C)	12
Pressure (mb) - Start	965
Pressure (mb) - End	965
(Rising / Falling)	Falling
Weather	Overcast

Ambient Readings	CH ₄	CO ₂	O ₂	CO	H ₂ S
	<0.1	0.1	20.4	<10	<10

Time	BH Ref.	Relative Pressure (mbar)	Gas Flow (l/hr)		CH ₄ (% v/v)		CO ₂ (% v/v)		O ₂ (% v/v)		CO (ppm)	H ₂ S (ppm)	Depth to groundwater (m)	Depth of Borehole (m)	Groundwater Elevation (m AOD)	Remarks / Observations
			Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady	Peak	Peak				
13:25:00	WS01	965	<0.1	<0.1	<0.1	<0.1	0.7	0.7	19.7	19.7	<10	<10	3.48	4.70	-3.48	
13:15:00	WS04	965	<0.1	<0.1	<0.1	<0.1	2.0	2.0	19.1	19.1	<10	<10	DRY	1.90		
13:05:00	WS06	965	<0.1	<0.1	<0.1	<0.1	0.9	0.9	19.5	19.5	<10	<10	DRY	1.00		
12:35:00	WS08	965	<0.1	<0.1	<0.1	<0.1	0.8	0.8	19.2	19.2	<10	<10	DRY	4.50		
12:55:00	WS10	965	<0.1	<0.1	<0.1	<0.1	0.3	0.3	20.3	20.3	<10	<10	DRY	1.00		
12:45:00	WS12	965	<0.1	<0.1	<0.1	<0.1	0.4	0.4	20.2	20.2	<10	<10	DRY	3.00		

Appendix I: Infiltration Testing Results

BRE Digest 365 Soakaway Tests



PROJECT NUMBER	PJS25-0070
PROJECT TITLE	Ratby Lane, Markfield
TRIAL PIT REFERENCE	SA01
DATE	08-Oct-25

Soil Infiltration Rate m/s	N/A
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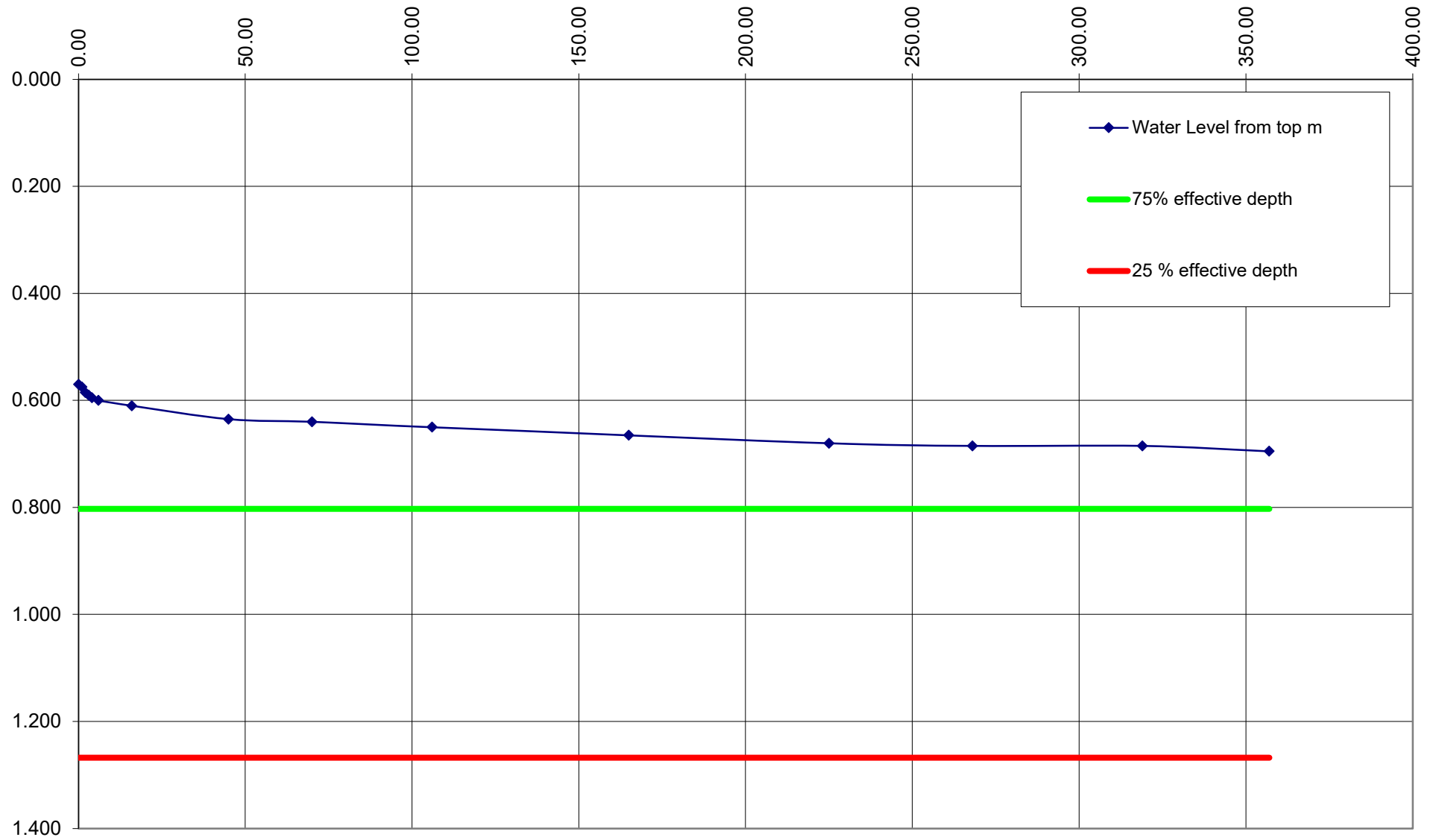
Depth	1.50
Length	1.95
Width	0.60
Water level from surface at start	0.57
Time to 75 % empty mins	
Time to 25 % empty mins	

SA01

Time for outflow between 75% and 25 % effective depth mins	0.00
Height of water in TP	0.93
Effective depth m	0.93
25% effective depth	1.2675
75% effective depth	0.8025
Vol between 75% and 25% m3	0.1795365
Mean Surface Area m50 m2	3.5415
Soil Infiltration Rate m/s	N/A

Interval Minutes	Time mins	Time days		Date	Time	Water Level from top m	25 % effective depth	75% effective depth	R of C of water
0.00	0.00	0.00	08/10/2025 08:54	08/10/2025	08:54	0.570	1.2675	0.8025	
1.00	1.00	0.00	08/10/2025 08:55	08/10/2025	08:55	0.575	1.2675	0.8025	0.005
1.00	2.00	0.00	08/10/2025 08:56	08/10/2025	08:56	0.585	1.2675	0.8025	0.01
1.00	3.00	0.00	08/10/2025 08:57	08/10/2025	08:57	0.590	1.2675	0.8025	0.005
1.00	4.00	0.00	08/10/2025 08:58	08/10/2025	08:58	0.595	1.2675	0.8025	0.005
2.00	6.00	0.00	08/10/2025 09:00	08/10/2025	09:00	0.600	1.2675	0.8025	0.0025
10.00	16.00	0.01	08/10/2025 09:10	08/10/2025	09:10	0.610	1.2675	0.8025	0.001
29.00	45.00	0.03	08/10/2025 09:39	08/10/2025	09:39	0.635	1.2675	0.8025	0.000862069
25.00	70.00	0.05	08/10/2025 10:04	08/10/2025	10:04	0.640	1.2675	0.8025	0.0002
36.00	106.00	0.07	08/10/2025 10:40	08/10/2025	10:40	0.650	1.2675	0.8025	0.000277778
59.00	165.00	0.11	08/10/2025 11:39	08/10/2025	11:39	0.665	1.2675	0.8025	0.000254237
60.00	225.00	0.16	08/10/2025 12:39	08/10/2025	12:39	0.680	1.2675	0.8025	0.00025
43.00	268.00	0.19	08/10/2025 13:22	08/10/2025	13:22	0.685	1.2675	0.8025	0.000116279
51.00	319.00	0.22	08/10/2025 14:13	08/10/2025	14:13	0.685	1.2675	0.8025	0
38.00	357.00	0.25	08/10/2025 14:51	08/10/2025	14:51	0.695	1.2675	0.8025	0.000263158

SA01 - Test 1



BRE Digest 365 Soakaway Tests



PROJECT NUMBER	PJS25-0070
PROJECT TITLE	Ratby Lane, Markfield
TRIAL PIT REFERENCE	SA02
DATE	13-Oct-25

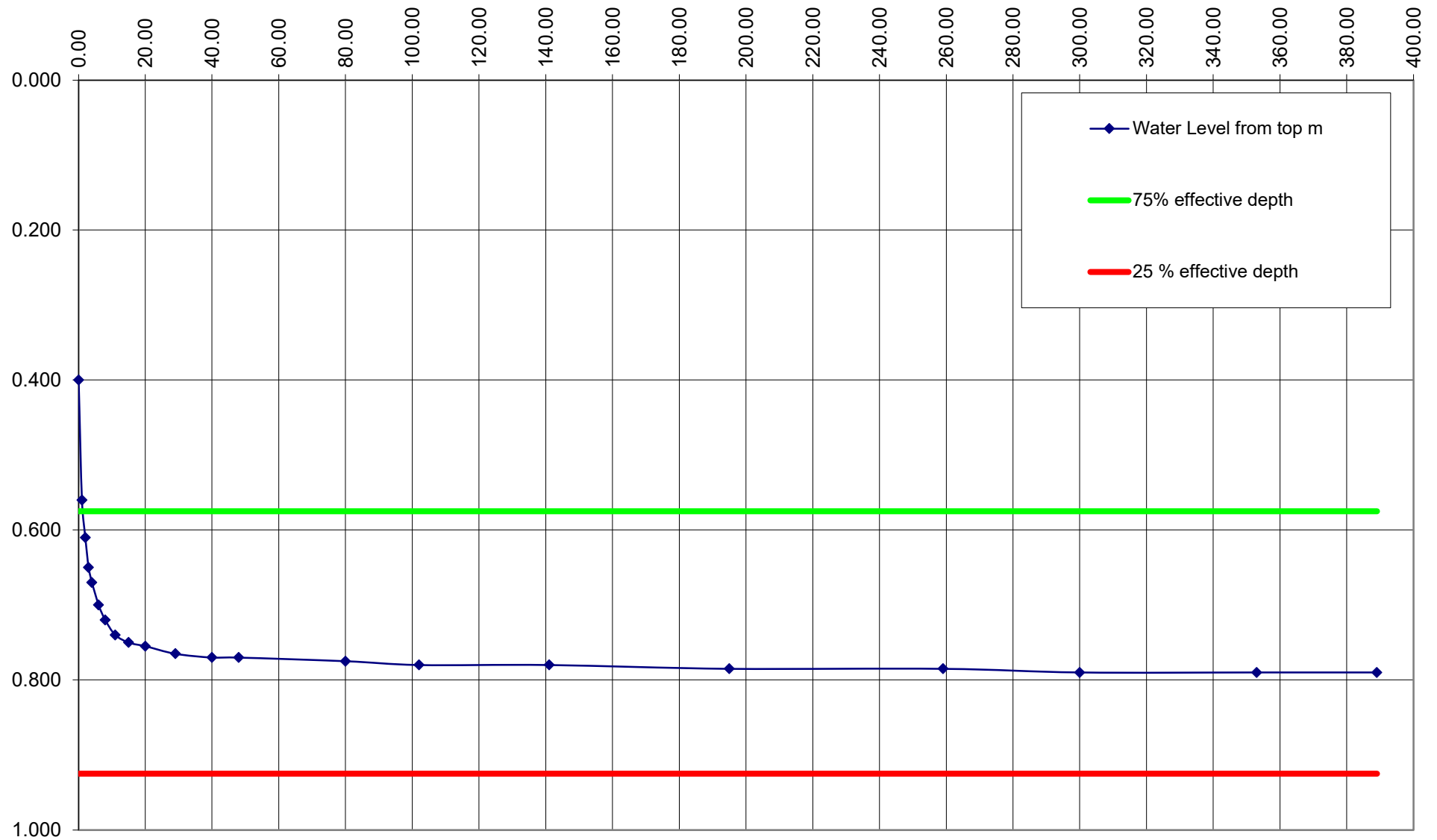
Soil Infiltration Rate m/s	N/A
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Depth	1.10	SA02
Length	1.80	
Width	0.60	
Water level from surface at start	0.40	
Time to 75 % empty mins		
Time to 25 % empty mins	1.20	

Time for outflow between 75% and 25 % effective depth mins	1.20
Height of water in TP	0.70
Effective depth m	0.70
25% effective depth	0.925
75% effective depth	0.575
Vol between 75% and 25% m3	0.12474
Mean Surface Area m50 m2	2.76
Soil Infiltration Rate m/s	N/A

Interval Minutes	Time mins	Time days		Date	Time	Water Level from top m	25 % effective depth	75% effective depth	R of C of water
0.00	0.00	0.00	08/10/2025 08:21	08/10/2025	08:21	0.400	0.925	0.575	
1.00	1.00	0.00	08/10/2025 08:22	08/10/2025	08:22	0.560	0.925	0.575	0.159999999
1.00	2.00	0.00	08/10/2025 08:23	08/10/2025	08:23	0.610	0.925	0.575	0.05
1.00	3.00	0.00	08/10/2025 08:24	08/10/2025	08:24	0.650	0.925	0.575	0.04
1.00	4.00	0.00	08/10/2025 08:25	08/10/2025	08:25	0.670	0.925	0.575	0.02
2.00	6.00	0.00	08/10/2025 08:27	08/10/2025	08:27	0.700	0.925	0.575	0.015
2.00	8.00	0.01	08/10/2025 08:29	08/10/2025	08:29	0.720	0.925	0.575	0.01
3.00	11.00	0.01	08/10/2025 08:32	08/10/2025	08:32	0.740	0.925	0.575	0.006666667
4.00	15.00	0.01	08/10/2025 08:36	08/10/2025	08:36	0.750	0.925	0.575	0.0025
5.00	20.00	0.01	08/10/2025 08:41	08/10/2025	08:41	0.755	0.925	0.575	0.001
9.00	29.00	0.02	08/10/2025 08:50	08/10/2025	08:50	0.765	0.925	0.575	0.001111111
11.00	40.00	0.03	08/10/2025 09:01	08/10/2025	09:01	0.770	0.925	0.575	0.000454545
8.00	48.00	0.03	08/10/2025 09:09	08/10/2025	09:09	0.770	0.925	0.575	0
32.00	80.00	0.06	08/10/2025 09:41	08/10/2025	09:41	0.775	0.925	0.575	0.00015625
22.00	102.00	0.07	08/10/2025 10:03	08/10/2025	10:03	0.780	0.925	0.575	0.000227273
39.00	141.00	0.10	08/10/2025 10:42	08/10/2025	10:42	0.780	0.925	0.575	0
54.00	195.00	0.14	08/10/2025 11:36	08/10/2025	11:36	0.785	0.925	0.575	9.25926E-05
64.00	259.00	0.18	08/10/2025 12:40	08/10/2025	12:40	0.785	0.925	0.575	0
41.00	300.00	0.21	08/10/2025 13:21	08/10/2025	13:21	0.790	0.925	0.575	0.000121951
53.00	353.00	0.25	08/10/2025 14:14	08/10/2025	14:14	0.790	0.925	0.575	0
36.00	389.00	0.27	08/10/2025 14:50	08/10/2025	14:50	0.790	0.925	0.575	0

SA02 - Test 1



BRE Digest 365 Soakaway Tests



PROJECT NUMBER	PJS25-0070
PROJECT TITLE	Ratby Lane, Markfield
TRIAL PIT REFERENCE	SA03
DATE	13-Oct-25

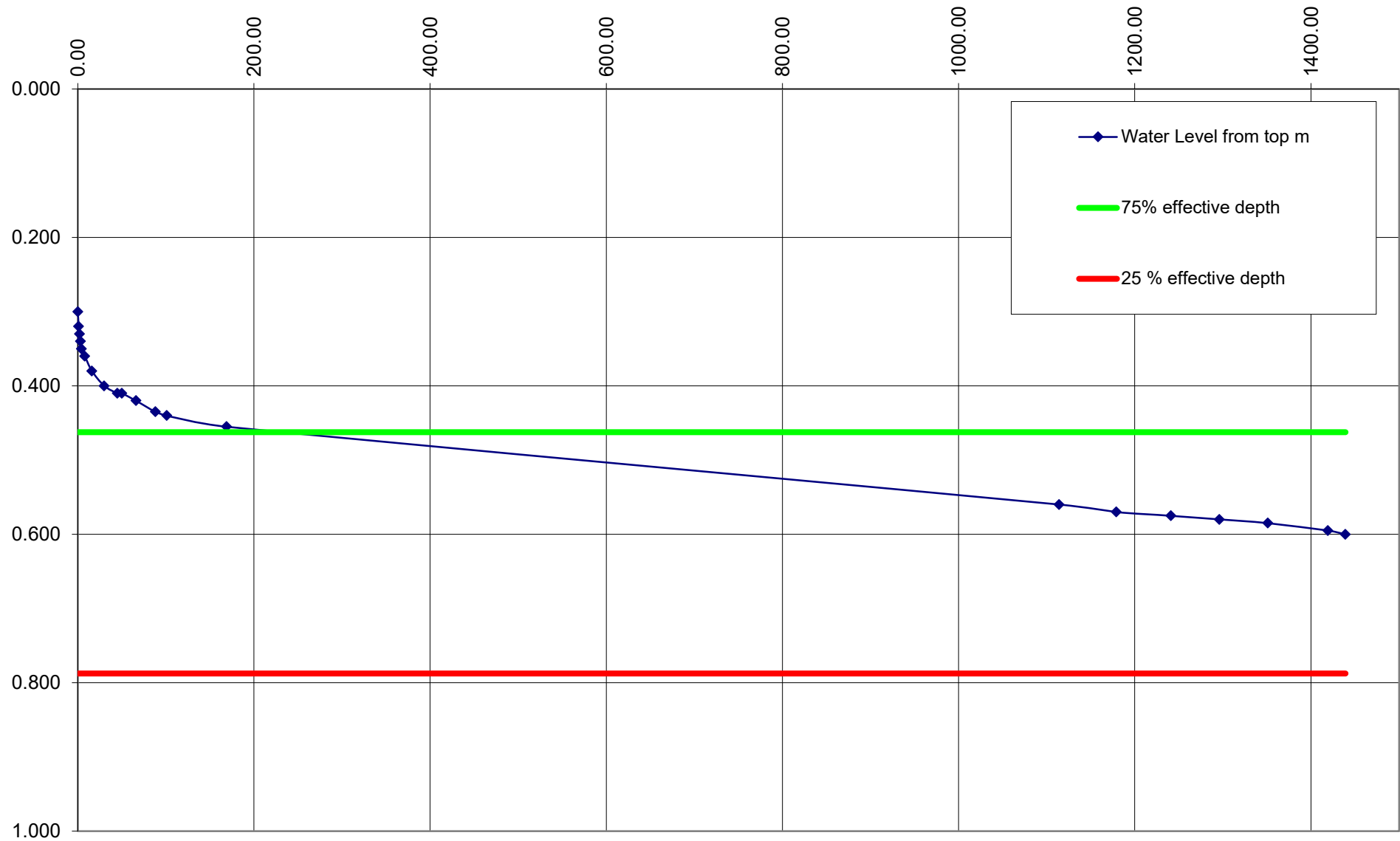
Soil Infiltration Rate m/s	N/A
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Depth	0.95	SA03
Length	2.00	
Width	0.60	
Water level from surface at start	0.30	
Time to 75 % empty mins		
Time to 25 % empty mins	230.00	

Time for outflow between 75% and 25 % effective depth mins	230.00
Height of water in TP	0.65
Effective depth m	0.65
25% effective depth	0.7875
75% effective depth	0.4625
Vol between 75% and 25% m3	0.1287
Mean Surface Area m50 m2	2.89
Soil Infiltration Rate m/s	N/A

Interval Minutes	Time mins	Time days		Date	Time	Water Level from top m	25 % effective depth	75% effective depth	R of C of water
0.00	0.00	0.00	07/10/2025 13:31	07/10/2025	13:31	0.300	0.7875	0.4625	
1.00	1.00	0.00	07/10/2025 13:32	07/10/2025	13:32	0.320	0.7875	0.4625	0.02
1.00	2.00	0.00	07/10/2025 13:33	07/10/2025	13:33	0.330	0.7875	0.4625	0.01
1.00	3.00	0.00	07/10/2025 13:34	07/10/2025	13:34	0.340	0.7875	0.4625	0.01
1.00	4.00	0.00	07/10/2025 13:35	07/10/2025	13:35	0.350	0.7875	0.4625	0.01
4.00	8.00	0.01	07/10/2025 13:39	07/10/2025	13:39	0.360	0.7875	0.4625	0.0025
8.00	16.00	0.01	07/10/2025 13:47	07/10/2025	13:47	0.380	0.7875	0.4625	0.0025
14.00	30.00	0.02	07/10/2025 14:01	07/10/2025	14:01	0.400	0.7875	0.4625	0.001428571
15.00	45.00	0.03	07/10/2025 14:16	07/10/2025	14:16	0.410	0.7875	0.4625	0.000666667
5.00	50.00	0.03	07/10/2025 14:21	07/10/2025	14:21	0.410	0.7875	0.4625	0
16.00	66.00	0.05	07/10/2025 14:37	07/10/2025	14:37	0.420	0.7875	0.4625	0.000625
22.00	88.00	0.06	07/10/2025 14:59	07/10/2025	14:59	0.435	0.7875	0.4625	0.000681818
13.00	101.00	0.07	07/10/2025 15:12	07/10/2025	15:12	0.440	0.7875	0.4625	0.000384615
68.00	169.00	0.12	07/10/2025 16:20	07/10/2025	16:20	0.455	0.7875	0.4625	0.000220588
945.00	1114.00	0.77	08/10/2025 08:05	08/10/2025	08:05	0.560	0.7875	0.4625	0.000111111
65.00	1179.00	0.82	08/10/2025 09:10	08/10/2025	09:10	0.570	0.7875	0.4625	0.000153846
62.00	1241.00	0.86	08/10/2025 10:12	08/10/2025	10:12	0.575	0.7875	0.4625	8.06452E-05
55.00	1296.00	0.90	08/10/2025 11:07	08/10/2025	11:07	0.580	0.7875	0.4625	9.09091E-05
55.00	1351.00	0.94	08/10/2025 12:02	08/10/2025	12:02	0.585	0.7875	0.4625	9.09091E-05
68.00	1419.00	0.99	08/10/2025 13:10	08/10/2025	13:10	0.595	0.7875	0.4625	0.000147059
20.00	1439.00	1.00	08/10/2025 13:30	08/10/2025	13:30	0.60	0.7875	0.4625	0.00025

SA03 - Test 1



BRE Digest 365 Soakaway Tests



PROJECT NUMBER	PJS25-0070		
PROJECT TITLE	Ratby Lane, Markfield		
TRIAL PIT REFERENCE	SA04		
DATE	07-Oct-25		

Soil Infiltration Rate m/s	1.95E-04	1.67E-04	1.67E-04
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Depth	1.20
Length	2.05
Width	0.60
Water level from surface at start	0.60
Time to 75 % empty mins	1.30
Time to 25 % empty mins	5.00

SA04

Time for outflow between 75% and 25 % effective depth mins	3.70
Height of water in TP	0.60
Effective depth m	0.60
25% effective depth	1.05
75% effective depth	0.75
Vol between 75% and 25% m3	0.12177
Mean Surface Area m50 m2	2.82
Soil Infiltration Rate m/s	1.95E-04

Interval Minutes	Time mins	Time days		Date	Time	Water Level from top m	25 % effective depth	75% effective depth	R of C of water
0.00	0.00	0.00	07/10/2025 12:53	07/10/2025	12:53	0.600	1.05	0.75	
1.00	1.00	0.00	07/10/2025 12:54	07/10/2025	12:54	0.710	1.05	0.75	0.110000001
1.00	2.00	0.00	07/10/2025 12:55	07/10/2025	12:55	0.850	1.05	0.75	0.14
1.00	3.00	0.00	07/10/2025 12:56	07/10/2025	12:56	0.930	1.05	0.75	0.08
1.00	4.00	0.00	07/10/2025 12:57	07/10/2025	12:57	0.990	1.05	0.75	0.06
1.00	5.00	0.00	07/10/2025 12:58	07/10/2025	12:58	1.050	1.05	0.75	0.06

Depth	1.20
Length	2.05
Width	0.60
Water level from surface at start	0.60
Time to 75 % empty mins	1.40
Time to 25 % empty mins	5.70

SA04

Time for outflow between 75% and 25 % effective depth mins	4.30
Height of water in TP	0.60
Effective depth m	0.60
25% effective depth	1.05
75% effective depth	0.75
Vol between 75% and 25% m3	0.12177
Mean Surface Area m50 m2	2.82
Soil Infiltration Rate m/s	1.67E-04

Interval Minutes	Time mins	Time days		Date	Time	Water Level from top m	25 % effective depth	75% effective depth	R of C of water
0.00	0.00	0.00	07/10/2025 13:00	07/10/2025	13:00	0.600	1.05	0.75	
1.00	1.00	0.00	07/10/2025 13:01	07/10/2025	13:01	0.700	1.05	0.75	0.1
1.00	2.00	0.00	07/10/2025 13:02	07/10/2025	13:02	0.820	1.05	0.75	0.12
1.00	3.00	0.00	07/10/2025 13:03	07/10/2025	13:03	0.910	1.05	0.75	0.090000001
1.00	4.00	0.00	07/10/2025 13:04	07/10/2025	13:04	0.970	1.05	0.75	0.06
1.00	5.00	0.00	07/10/2025 13:05	07/10/2025	13:05	1.010	1.05	0.75	0.04
1.00	6.00	0.00	07/10/2025 13:06	07/10/2025	13:06	1.070	1.05	0.75	0.06

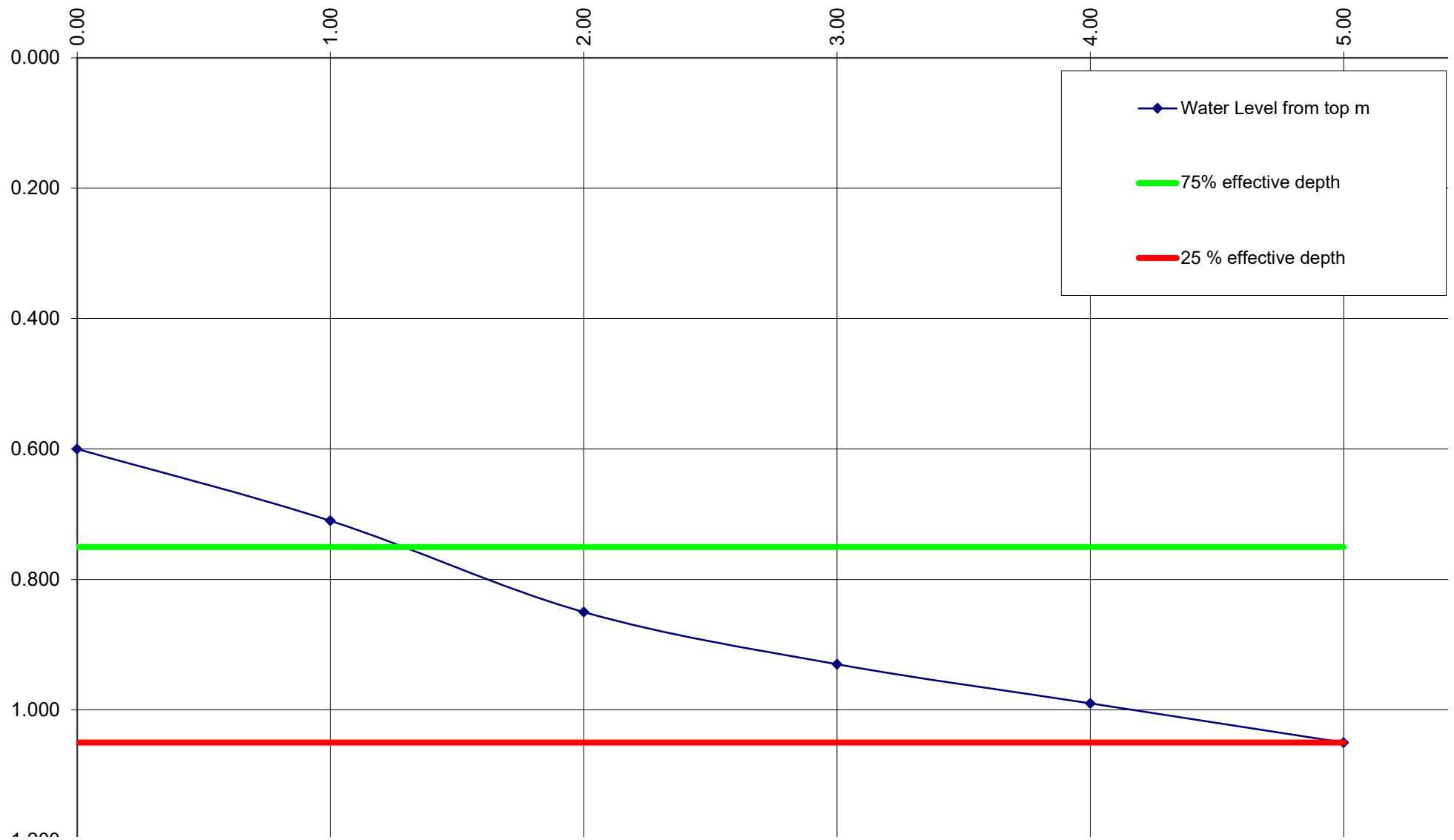
Depth	1.20
Length	2.05
Width	0.60
Water level from surface at start	0.60
Time to 75 % empty mins	1.40
Time to 25 % empty mins	5.70

SA04

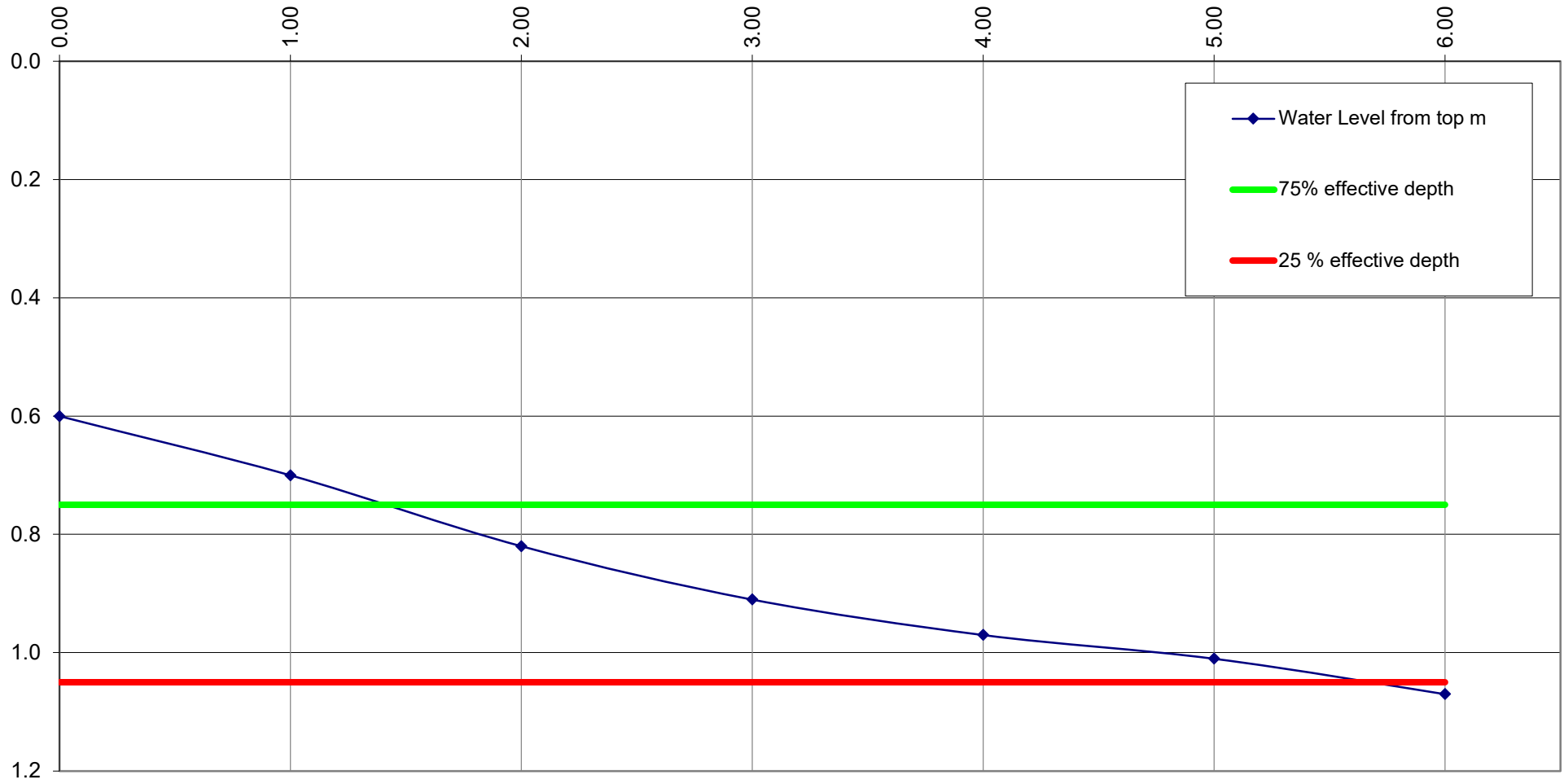
Time for outflow between 75% and 25 % effective depth mins	4.30
Height of water in TP	0.60
Effective depth m	0.60
25% effective depth	1.05
75% effective depth	0.75
Vol between 75% and 25% m3	0.12177
Mean Surface Area m50 m2	2.82
Soil Infiltration Rate m/s	1.67E-04

Interval Minutes	Time mins	Time days		Date	Time	Water Level from top m	25 % effective depth	75% effective depth	R of C of water
0.00	0.00	0.00	07/10/2025 13:09	07/10/2025	13:09	0.600	1.05	0.75	
1.00	1.00	0.00	07/10/2025 13:10	07/10/2025	13:10	0.700	1.05	0.75	0.100000001
1.00	2.00	0.00	07/10/2025 13:11	07/10/2025	13:11	0.820	1.05	0.75	0.12
1.00	3.00	0.00	07/10/2025 13:12	07/10/2025	13:12	0.910	1.05	0.75	0.09
1.00	4.00	0.00	07/10/2025 13:13	07/10/2025	13:13	0.990	1.05	0.75	0.080000001
2.00	6.00	0.00	07/10/2025 13:15	07/10/2025	13:15	1.060	1.05	0.75	0.035
2.00	8.00	0.01	07/10/2025 13:17	07/10/2025	13:17	1.110	1.05	0.75	0.025
1.00	9.00	0.01	07/10/2025 13:18	07/10/2025	13:18	1.180	1.05	0.75	0.07

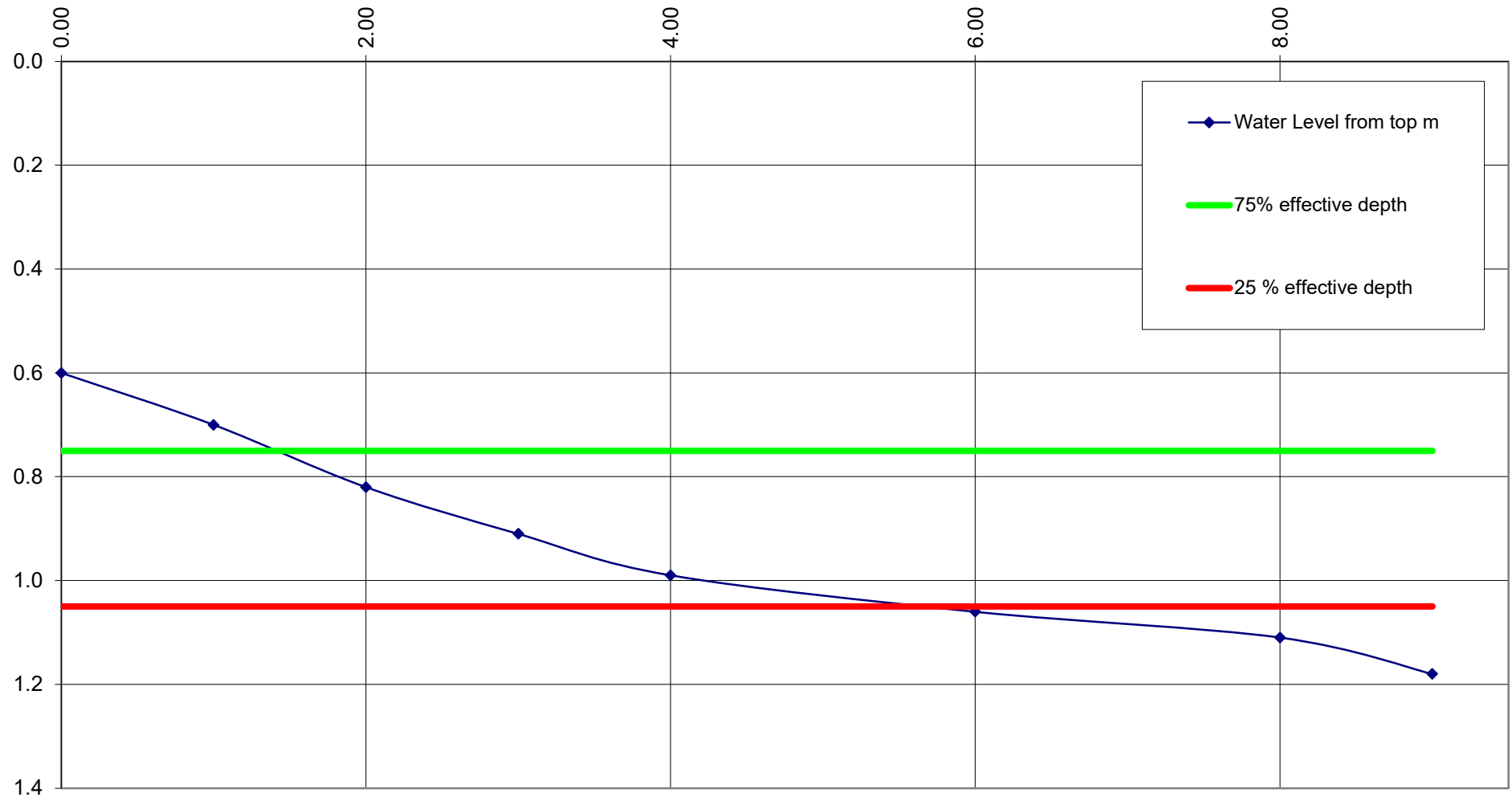
SA04- Test 1



SA04 - Test 2



SA04 - Test 3



BRE Digest 365 Soakaway Tests



PROJECT NUMBER	PJS25-0070
PROJECT TITLE	Ratby Lane, Markfield
TRIAL PIT REFERENCE	SA05
DATE	07-Oct-25

Soil Infiltration Rate m/s	2.66E-05	2.09E-05	1.77E-05
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Depth	0.80
Length	1.85
Width	0.60
Water level from surface at start	0.40
Time to 75 % empty mins	8.00
Time to 25 % empty mins	30.00

SA05

Time for outflow between 75% and 25 % effective depth mins	22.00
Height of water in TP	0.40
Effective depth m	0.40
25% effective depth	0.7
75% effective depth	0.5
Vol between 75% and 25% m3	0.07326
Mean Surface Area m50 m2	2.09
Soil Infiltration Rate m/s	2.66E-05

Interval Minutes	Time mins	Time days		Date	Time	Water Level from top m	25 % effective depth	75% effective depth	R of C of water
0.00	0.00	0.00	07/10/2025 12:34	07/10/2025	12:34	0.400	0.7	0.5	
1.00	1.00	0.00	07/10/2025 12:35	07/10/2025	12:35	0.420	0.7	0.5	0.02
1.00	2.00	0.00	07/10/2025 12:36	07/10/2025	12:36	0.430	0.7	0.5	0.01
1.00	3.00	0.00	07/10/2025 12:37	07/10/2025	12:37	0.450	0.7	0.5	0.02
1.00	4.00	0.00	07/10/2025 12:38	07/10/2025	12:38	0.455	0.7	0.5	0.005
4.00	8.00	0.01	07/10/2025 12:42	07/10/2025	12:42	0.500	0.7	0.5	0.01125
7.00	15.00	0.01	07/10/2025 12:49	07/10/2025	12:49	0.580	0.7	0.5	0.011428571
7.00	22.00	0.02	07/10/2025 12:56	07/10/2025	12:56	0.620	0.7	0.5	0.005714286
3.00	25.00	0.02	07/10/2025 12:59	07/10/2025	12:59	0.650	0.7	0.5	0.01
2.00	27.00	0.02	07/10/2025 13:01	07/10/2025	13:01	0.680	0.7	0.5	0.015
16.00	43.00	0.03	07/10/2025 13:17	07/10/2025	13:17	0.780	0.7	0.5	0.00625

Depth	0.80
Length	1.85
Width	0.60
Water level from surface at start	0.40
Time to 75 % empty mins	14.00
Time to 25 % empty mins	42.00

SA05

Time for outflow between 75% and 25 % effective depth mins	28.00
Height of water in TP	0.40
Effective depth m	0.40
25% effective depth	0.7
75% effective depth	0.5
Vol between 75% and 25% m3	0.07326
Mean Surface Area m50 m2	2.09
Soil Infiltration Rate m/s	2.09E-05

Interval Minutes	Time mins	Time days		Date	Time	Water Level from top m	25 % effective depth	75% effective depth	R of C of water
0.00	0.00	0.00	07/10/2025 13:21	07/10/2025	13:21	0.400	0.7	0.5	
1.00	1.00	0.00	07/10/2025 13:22	07/10/2025	13:22	0.410	0.7	0.5	0.01
1.00	2.00	0.00	07/10/2025 13:23	07/10/2025	13:23	0.415	0.7	0.5	0.005
1.00	3.00	0.00	07/10/2025 13:24	07/10/2025	13:24	0.420	0.7	0.5	0.005
1.00	4.00	0.00	07/10/2025 13:25	07/10/2025	13:25	0.425	0.7	0.5	0.005
12.00	16.00	0.01	07/10/2025 13:37	07/10/2025	13:37	0.510	0.7	0.5	0.007083333
11.00	27.00	0.02	07/10/2025 13:48	07/10/2025	13:48	0.580	0.7	0.5	0.006363636
16.00	43.00	0.03	07/10/2025 14:04	07/10/2025	14:04	0.680	0.7	0.5	0.00625
6.00	49.00	0.03	07/10/2025 14:10	07/10/2025	14:10	0.720	0.7	0.5	0.006666667

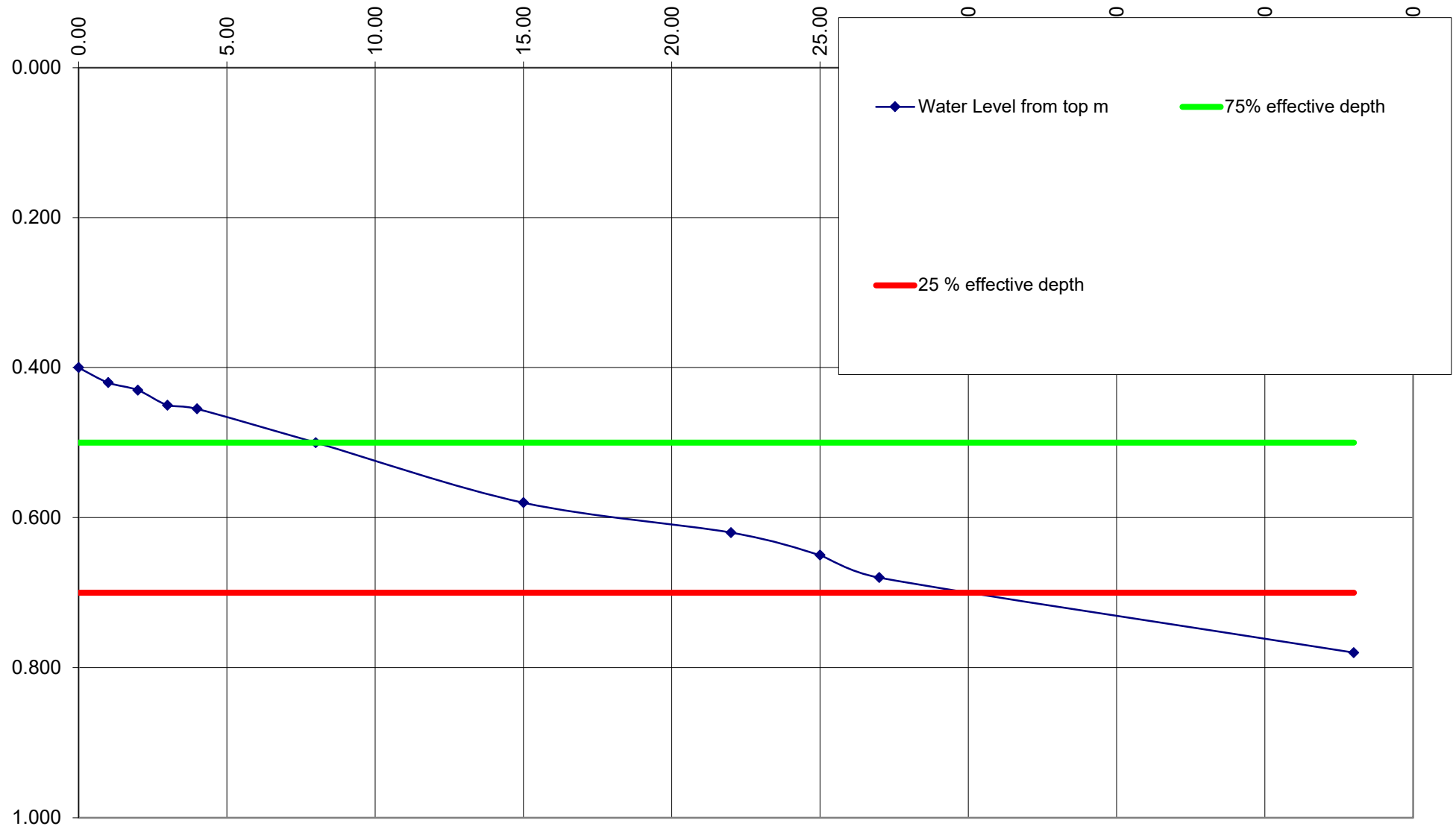
Depth	0.80
Length	1.85
Width	0.60
Water level from surface at start	0.40
Time to 75 % empty mins	16.00
Time to 25 % empty mins	49.00

SA05

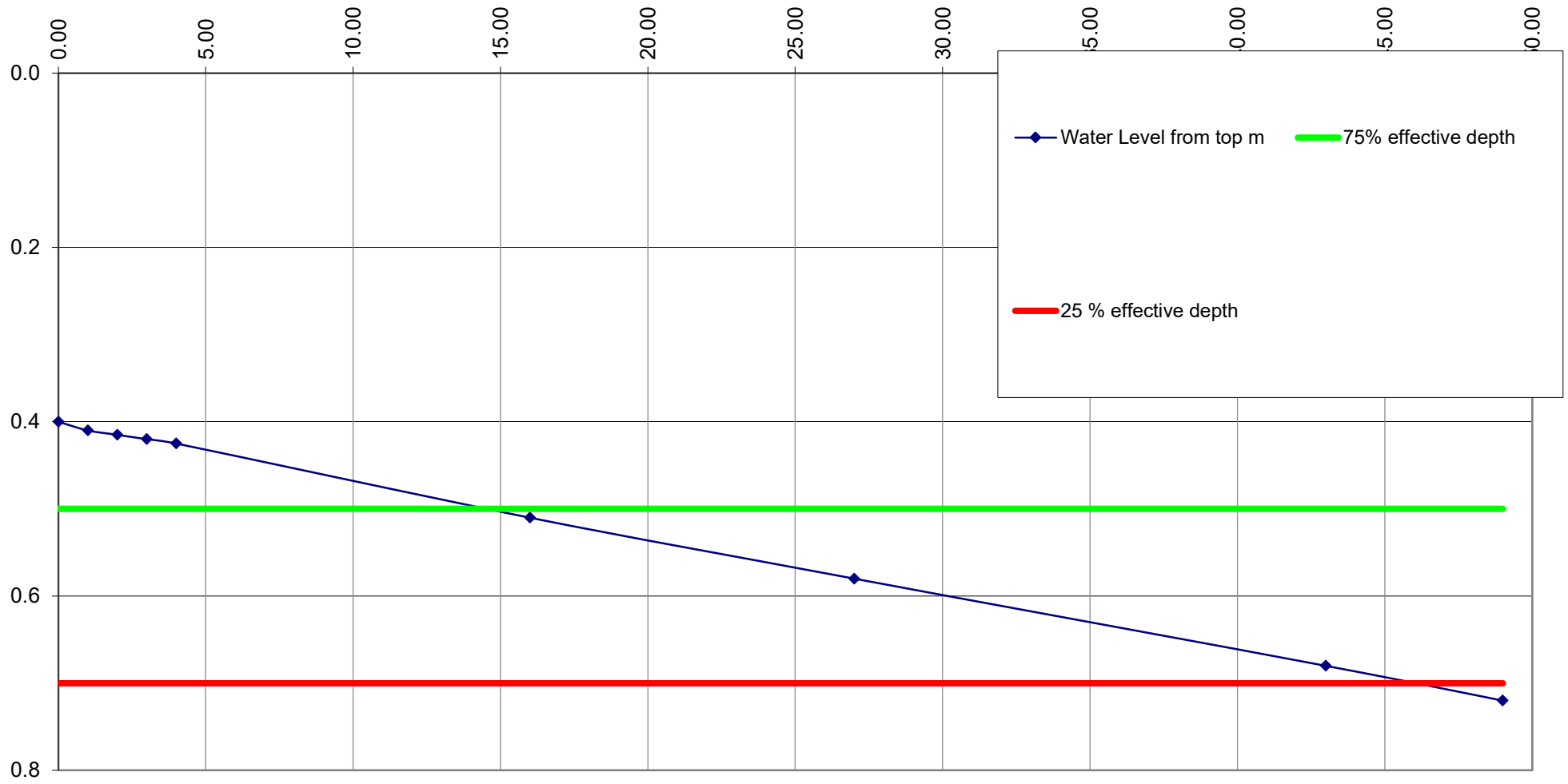
Time for outflow between 75% and 25 % effective depth mins	33.00
Height of water in TP	0.40
Effective depth m	0.40
25% effective depth	0.7
75% effective depth	0.5
Vol between 75% and 25% m3	0.07326
Mean Surface Area m50 m2	2.09
Soil Infiltration Rate m/s	1.77E-05

Interval Minutes	Time mins	Time days		Date	Time	Water Level from top m	25 % effective depth	75% effective depth	R of C of water
0.00	0.00	0.00	07/10/2025 14:11	07/10/2025	14:11	0.400	0.7	0.5	
1.00	1.00	0.00	07/10/2025 14:12	07/10/2025	14:12	0.410	0.7	0.5	0.01
1.00	2.00	0.00	07/10/2025 14:13	07/10/2025	14:13	0.415	0.7	0.5	0.005
1.00	3.00	0.00	07/10/2025 14:14	07/10/2025	14:14	0.420	0.7	0.5	0.005
1.00	4.00	0.00	07/10/2025 14:15	07/10/2025	14:15	0.425	0.7	0.5	0.005
8.00	12.00	0.01	07/10/2025 14:23	07/10/2025	14:23	0.470	0.7	0.5	0.005625
16.00	28.00	0.02	07/10/2025 14:39	07/10/2025	14:39	0.570	0.7	0.5	0.00625
19.00	47.00	0.03	07/10/2025 14:58	07/10/2025	14:58	0.690	0.7	0.5	0.006315789
15.00	62.00	0.04	07/10/2025 15:13	07/10/2025	15:13	0.760	0.7	0.5	0.004666667
14.00	76.00	0.05	07/10/2025 15:27	07/10/2025	15:27	0.800	0.7	0.5	0.002857143

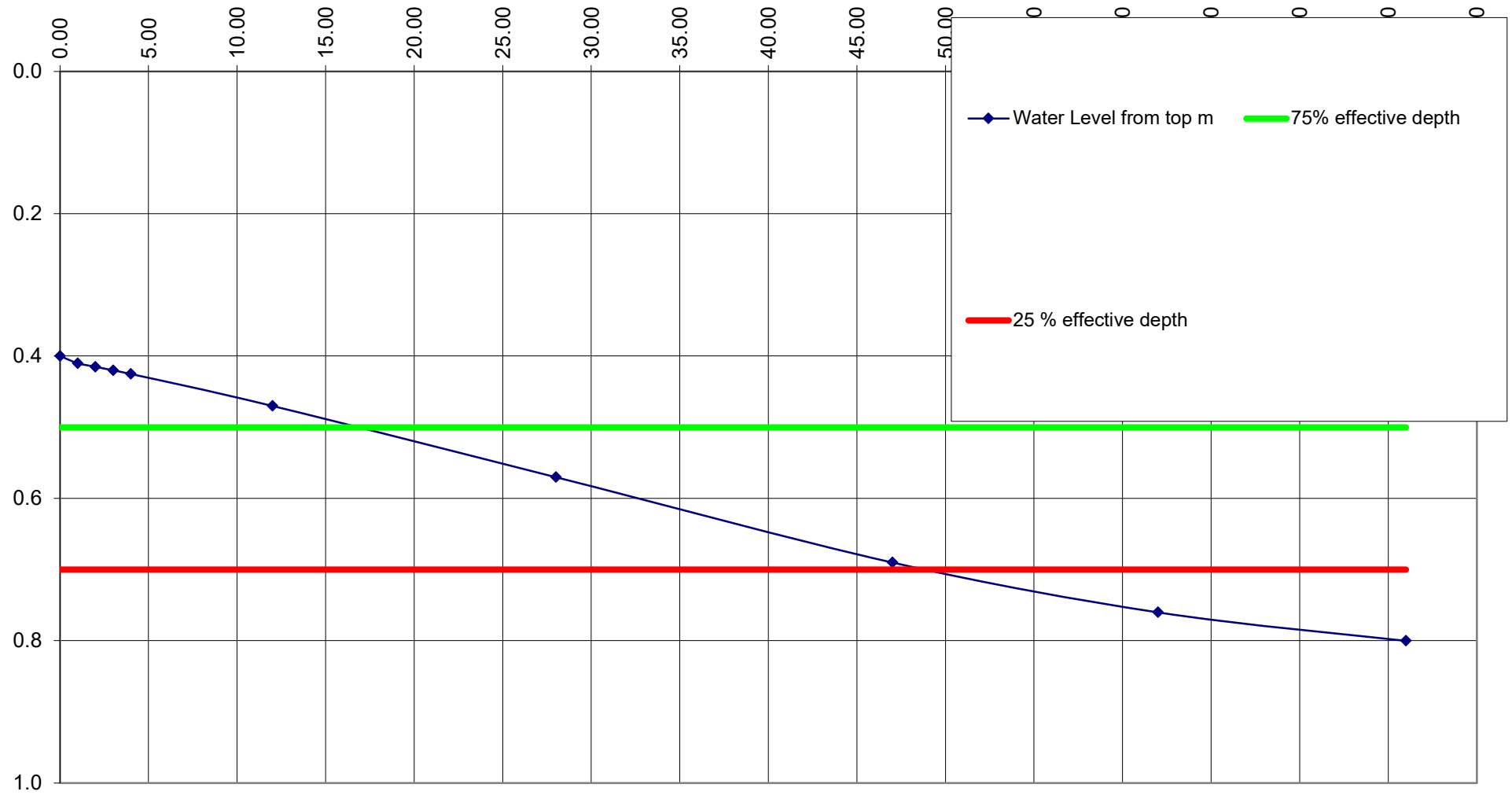
SA05 - Test 1



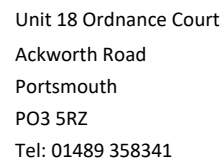
SA05 - Test 2



SA05 - Test 3



Appendix J: DCP Test Results



In accordance with TRL Report PR/INT/277/04

Job Number: O108087
Site: Markfield
Test date: 7th October 2025

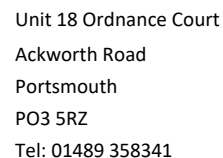
Surface type: Top soil
Weather: Cloudy
Cone angle 60° (TRL)

[illegible][illegible][illegible]

Operator: Jaydon Stewart

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Weather: Cloudy



In accordance with TRL Report PR/INT/277/04

Job Number: O108087
Site: Markfield
Test date: 7th October 2025

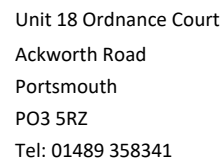
Surface type: Top soil
Weather: Cloudy
Cone angle 60° (TRL)

[illegible][illegible][illegible]

Operator: Jaydon Stewart

--

Weather: Cloudy



In accordance with TRL Report PR/INT/277/04

Job Number: O108087
Site: Markfield
Test date: 7th October 2025

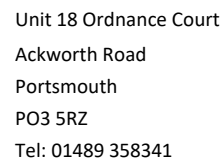
Surface type: Top soil
Weather: Cloudy
Cone angle 60° (TRL)

[illegible][illegible][illegible]

Operator: Jaydon Stewart

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Weather: Cloudy



In accordance with TRL Report PR/INT/277/04

Surface type: Top soil
Weather: Cloudy
Cone angle 60° (TRL)

[illegible]

Weather: Cloudy

Appendix K: Derivation of Gas Screening Values

General Approach

The approach to deriving a GSV should be as described in BS8485:2015+A1:2019 (Clause 6.3.1). This recommended current approach is summarised in the bullet points below and is described in more detail in the following text:

- Borehole hazardous gas flow rates (Q_{hg}) are calculated for each borehole standpipe for each monitoring event (with decisions made as to whether to use peak gas flow rates or steady state rates in each calculation);
- The reliability of measured gas flow rates and concentrations takes borehole construction into account and decisions are made about how to deal with any temporal or spatial shortages in the data; and
- Judgements are made regarding the site characteristic GSV in the assignment of the Characteristic Situation and for design purposes, taking all relevant information and the conceptual site model into account.

Calculations of borehole hazardous gas flow rate (Q_{hg})

Consideration must be given to both methane (CH_4) and carbon dioxide (CO_2) concentrations as well as flow rates. The borehole hazardous gas flow rate (Q_{hg}) is obtained for each hazardous gas, by multiplying the relevant gas concentration by the flow rate. The specific calculation of Q_{hg} is presented in BS8485:2015+A1:2019 (Clause 6.3.4). It is calculated for each gas, on each monitoring event in each well.

Where concentrations of gas or flow rates are less than the limit of detection on the analyser have been recorded, the limit of detection has been used (<0.1% for gas concentration & <0.1 l/hr for gas flow rates).

The individual values of borehole hazardous gas flow rate (Q_{hg}) obtained from several monitoring locations over a number of visits are considered collectively to establish a Gas Screening Value (GSV) for the site as a whole (a site characteristic GSV). This requires consideration of the results in relation to the conceptual site model.

Derivation of GSVs

The designation of GSV should be made by inspection of all the data based on the conceptual site model for the situation with the development's sub-structure and foundations in place.

If the data set is considered comprehensive and representative and consistent with the conceptual site model, the site characteristic Gas Screening Value (GSV) will normally be the maximum Q_{hg} .

Irrespective of the apparent comprehensiveness of the dataset, the plausible worst-case condition should be calculated for each hazardous gas by multiplying the maximum recorded flow in any standpipe in that stratum (and zone) with the maximum gas concentration in any other standpipe in that stratum (and zone), but discounting any peak instantaneous flows and negative flows that have been judged to be unrepresentative of a possible worst case. If this worst case check indicates that a greater hazard could reasonably exist, then either this worst case Q_{hg} should be adopted as the GSV, or further monitoring should take place to provide evidence that the worst case should not be used.

Determination of characteristic situation (CS)

The site characteristic GSV for both methane and carbon dioxide is then used to determine the characteristic situation (CS), with CS1 representing the lowest risk and CS6, the highest.

Further consideration of the appropriateness of this Characteristic Situation should be given by reference to additional factors (e.g., recorded maximum concentrations and flow rates). BS 8485:2015+A1:2019 advises that there is a requirement to consider an increase from CS1 to CS2 if methane concentrations exceed 1% v/v or carbon dioxide concentrations exceed 5% v/v however, increasing the classification is not mandatory. It is only necessary to increase the classification where a high-risk source of gas is present such as from domestic landfills and open mine workings, or where there are consistently elevated methane concentrations in a number of wells across a site in Made Ground.

It is not normally appropriate to increase the classification when there are sporadic and isolated elevated methane results and the source of gas is Made Ground with limited organic content, Alluvium or similar sources. For example, natural carbon dioxide concentrations can be up to 30% and methane in Made Ground can be up to 30% with no risk to development and no requirement to increase from CS1 to CS2.

The GSVs and corresponding characteristic situation is summarised in the Table 1 below reproduced from Table 2 within BS8485:2015+A1:2019.

Table 1: Site Characteristic GSV

Characteristic Situation (CS)	Characteristic GSV (l/h)	Hazard Potential	Additional Factors
CS1	<0.07	Very low	Typically, methane <1 % and / or carbon dioxide <5 %. Otherwise consider increase to CS2.
CS2	0.07 to <0.7	Low	Typical measured flow rate <70l/hr (otherwise consider increase to CS3).
CS3	0.7 to <3.5	Moderate	
CS4	3.5 to <15	Moderate to high	Quantitative risk assessment required to evaluate scope of protective measures.
CS5	15 to <70	High	
CS6	>70	Very high	

**Note: The CS is equivalent to the characteristic GSV in CIRIA C665.*

