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PHASE 2

# GEO-ENVIRONMENTAL REPORT

<ENVIRONMENTAL> <GEOTECHNICAL>

job number	C4826/24/E/7379	date	15.07.2025
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site address	Home Farm
	Bond Ings Rise
	Sherburn-in-Elmet
	LS25 6FW

written by	S. Alexander	checked by	R. Palmer
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issued by	R. Palmer
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# Report on a Phase 2 Geo-environmental Investigation

Project Name:	Project Orchard	
Site Location:	Home Farm, Bond Ings Rise, Sherburn in Elmet, LS25 6FW	
Client:	Engie Renewable Gases UK Limited	
Consultant:	Mason Clark Associates	
RGS Report No.	C4826/24/E/7379	Report date: July 2025

For and on behalf of **Rogers Geotechnical Services Ltd**

Engineer	Approver
	
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Document Revision History	
Revision Number: 0 DRAFT	Date: 23/05/25
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## 1. Introduction

In order to provide data for the construction of an anaerobic digestion plant, a site investigation has been undertaken in accordance with the instruction from the client. The works have broadly been undertaken in accordance with the GI specification outlined within document 240301-1, Revision 0 Draft, issued 13<sup>th</sup> March 2024 by Integrity Energy Services Ltd 2024.

This work was required in order to determine the nature of the underlying soils, to assess their engineering properties and to assist in the design of safe and economical foundations for the proposed development. This investigation also takes into consideration the risk of any contamination present. This report describes the work undertaken, presents the data obtained and discusses the ground conditions in relation to the proposed works.

## 2. Limitations

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The recommendations made and opinions expressed in this report are based on the ground conditions revealed by the site works, together with an assessment of the site and of the laboratory test results. Whilst opinions may be expressed relating to sub-soil conditions in parts of the site not investigated, for example between borehole positions, these are for guidance only and no liability can be accepted for their accuracy.

This report has been prepared in accordance with our understanding of current best practice. However, new information or legislation, or changes to best practice may necessitate revision of the report after the date of issue.

## 3. Desk Study

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A Preliminary Risk Assessment has been undertaken by enzygo geo environmental and the results were presented as report number CRM.0174.002.GE.R.001.A in November 2024. This report has been used extensively during the current intrusive investigation. It should be appreciated that the assessment concluded that no significant contamination risks and no ground gas risks were identified. Moreover, the risk to controlled waters was dismissed due to the absence of a viable significant source.

## 4. Fieldworks

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The fieldworks were undertaken between the 31<sup>st</sup> March and 14<sup>th</sup> May 2025 and comprised the following:

- GPS Survey – positions staked out.
- 5 No. cable percussive boreholes, 2 of which have been extended with rotary coring techniques.
- 23 No. borehole utilising a windowless sampling rig.
- Installation of 5 groundwater monitoring standpipes, including the provision of 4 divers for long term monitoring.
- Standard penetration tests within boreholes at regular depth increments.
- 12 dynamic probe tests, adjacent to WS01 to WS12.
- 22 mechanically excavated trial pits, 4 of which were utilised for soakaway tests.
- 12 plate load tests (CBR).

Investigatory locations were agreed with the consultant prior to the commencement of the works; the locations are presented on the site plan which is presented in Appendix 1 to this report.

**Table 1: Depth Range of Exploratory Hole Locations**

Location Type	Location Reference	Depth (m)	Comments
Cable Percussive Borehole	BH01	11.10	Borehole terminated on refusal.
	BH02	12.00	Borehole terminated on refusal.
	BH05	12.50	Borehole terminated on refusal.
Cable Percussive Borehole with Rotary Core	BH03	15.00	Borehole terminated at target depth.
	BH04	15.00	Borehole terminated at target depth.
Windowless Sample Boreholes	WS01	3.45	Target depth obtained. Continued with dynamic probe.
	WS02	3.45	Target depth obtained. Continued with dynamic probe.
	WS03	3.45	Target depth obtained. Continued with dynamic probe.
	WS04	3.45	Target depth obtained. Continued with dynamic probe.
	WS05	3.45	Target depth obtained. Continued with dynamic probe.
	WS06	3.45	Target depth obtained. Continued with dynamic probe.
	WS07	3.45	Target depth obtained. Continued with dynamic probe.
	WS08	3.45	Target depth obtained. Continued with dynamic probe.
	WS09	3.45	Target depth obtained. Continued with dynamic probe.
	WS10	3.45	Target depth obtained. Continued with dynamic probe.
	WS11	3.45	Target depth obtained. Continued with dynamic probe.
	WS12	3.45	Target depth obtained. Continued with dynamic probe.
	WSA	7.00	Target Depth obtained.
	WSA2	4.00	Second hole drilled 1m south of WSA, for second installation.
	WSB	7.00	Target Depth obtained.
	WSC	5.45	Target Depth obtained.
	WSD	5.45	Target Depth obtained.
	WSE	5.45	Target Depth obtained.
	WSF	5.45	Target Depth obtained.
	WSG	5.45	Target Depth obtained.
WSH	5.45	Target Depth obtained.	
WSI	5.45	Target Depth obtained.	
WSJ	5.45	Target Depth obtained.	



Dynamic Probe	DP01	10.00	Target Depth obtained. No refusal.
	DP02	10.00	Target Depth obtained. No refusal.
	DP03	10.00	Target Depth obtained. No refusal.
	DP04	10.00	Target Depth obtained. Effective refusal.
	DP05	10.00	Target Depth obtained. Effective Refusal.
	DP06	10.00	Target Depth obtained. No refusal.
	DP07	10.00	Target Depth obtained. Effective Refusal.
	DP08	10.00	Target Depth obtained. Effective Refusal
	DP09	10.00	Target Depth obtained. Effective Refusal.
	DP10	10.00	Target Depth obtained. Effective Refusal.
	DP11	10.00	Target Depth obtained. No refusal.
	DP12	10.00	Target Depth obtained. Effective Refusal.
Machine Excavated Trial pit	TP01	3.00	Target Depth obtained.
	TP02	3.00	Target Depth obtained.
	TP03	1.50	Target Depth obtained.
	TP04	1.50	Target Depth obtained.
	TP05	1.50	Target Depth obtained.
	TP06	1.50	Target Depth obtained.
	TP07	2.00	Target Depth obtained.
	TP08	2.00	Target Depth obtained.
	TP09	3.00	Target Depth obtained.
	TP10	3.00	Target Depth obtained.
	TP11	3.00	Target Depth obtained.
	TP12	3.00	Target Depth obtained.
	TP13	3.00	Target Depth obtained.
	TP14	3.00	Target Depth obtained.
	TP15	3.00	Target Depth obtained.
	TP16	3.00	Target Depth obtained.
	TP17	3.00	Target Depth obtained.
	TP18	3.00	Target Depth obtained.

Machine Excavated Trial Pits with Soakaway Tests	SA01	3.10	Target Depth obtained. Soakaway test to BRE 365.
	SA02	3.05	Target Depth obtained. Soakaway test to BRE 365.
	SA03	3.50	Target Depth obtained. Soakaway test to BRE 365.
	SA04	3.40	Target Depth obtained. Soakaway test to BRE 365.
Plate Load Tests	PT01	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT02	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT03	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT04	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT05	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT06	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT07	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT08	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT09	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT10	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT11	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.
	PT12	0.30	Surface topsoil removed. To obtain CBR Value to BS 1377:Part 9. 13T excavator used as kentledge.

#### 4.1 Avoidance of Services.

Prior to breaking ground with mechanical plant, the following works were undertaken at each location.

- Location clearance utilising a CAT and Genny.

#### 4.2 GPS Survey

A GeoMax Zenith 16 was employed during the fieldworks to record positions relevant to the investigation. During the investigation, the GPS system typically indicated 2D co-ordinate (X-axis & Y-axis) accuracies of +/-5mm, with 3D co-ordinate (X-axis, Y-axis & Z-axis) accuracy of +/-9mm. Whilst the system utilised Assisted-GPS (A-GPS) to improve initialisation time, it should be appreciated that clear view of the sky is required in order to obtain accuracy better than +/-3m. Therefore, in areas where tall obstructions are present, such as near tree canopies or buildings, it is not always possible to obtain accurate survey data. The locations of all investigation locations are presented in Appendix 1. The GPS coordinates are presented on the investigation logs within the relevant appendices.

#### 4.3 Cable Percussive Boreholes

BH01 to BH05 were sunk using a 1.5 tonne capacity light cable percussive (shell and auger) drilling rig with 150mm diameter tools and casing.

During the boring operations, representative disturbed samples of the arisings were taken at intervals stated within GI Specification. Samples were sealed and sealed in bulk plastic bags and air tight containers. The recovered soil and rock cores were described in general accordance with BS5930: 2015, and full descriptions are given on the boreholes records which are presented in Appendix 2.

Standard penetration tests (SPTs) were undertaken at regular increments (unless specified otherwise by the Investigation Supervisor); except in cohesive materials where SPTs and undisturbed (U100) samples were alternated, where appropriate.

The SPTs were conducted in accordance with the procedures given in BS EN ISO 22476: Part 3: 2005 +A1: 2011, and the results are summarised on the borehole records. During this work an automatic trip hammer of 63.5kg falling through 760mm was employed to drive either a cone or split barrel sampler assembly into the ground, the barrel samples were retained in air tight plastic containers. The 100mm diameter undisturbed samples (U100) were sealed within a liner with wax and plastic caps.

Groundwater levels were recorded when struck and boring stopped for a period of 20 minutes to allow the water level to be monitored. Start and final depths are presented within the borehole records. In addition, chiselling was undertaken for a minimum of 30 minutes upon encountering obstructions or suspected rockhead.

#### 4.4 Cable Percussive Boreholes with Rotary Follow-on

In BH03 and BH04 the boreholes were continued via rotary coring methods through the base of the existing cable percussive borehole to prove the competency of bedrock. Temporary 139mm rotary casing was installed through to the base of the cable percussive borehole and coring was undertaken using a Commacchio GEO205 recovering an 82mm core. The rotary was undertaken to obtain 3m of competent bedrock to prove the competency of the rock.

The recovered soil and rock cores were described in general accordance with BS5930: 2015, and full descriptions are given on the boreholes records which are presented in Appendix 2. Also included on these records are the sample depths, ground water levels, the percentages of *Total Core Recovery* (TCR) and, within rock, the *Solid Core Recovery* (SCR) and *Rock Quality Designation* (RQD).

#### 4.5 Windowless Sample Boreholes.

WS01-WS12 and WSA to WSJ were sunk using a drive-in windowless sampler. The cores were undertaken in 1m lengths and reduced in diameter from 128mm to 57mm with increasing depth. Where necessary temporary casing was installed to support the borehole. An additional borehole was drilled adjacent to WSA, recorded as WSA2, to install an additional standpipe. No in-situ testing was undertaken in this location.

Standard penetration tests (SPTs) were undertaken at 1m increments, unless specified otherwise by the Investigation Supervisor. The SPTs were conducted in accordance with the procedures given in BS EN ISO 22476: Part 3: 2005 +A1: 2011, and the results are summarised on the borehole records.

Groundwater levels were recorded when struck and boring stopped for a period of 20 minutes to allow the water level to be monitored. Start and final depths are presented within the borehole records.

The recovered cores were sealed and returned to the laboratory for logging and subsequent testing. The soils were described in general accordance with BS5930: 2015, and full descriptions are given on the windowless sample records which are presented in Appendix 3. Also included on these records are the core diameters and percentages of core recovered.

#### 4.6 Dynamic Probes

Dynamic penetration tests were undertaken adjacent in the locations as directed by the Investigation Supervisor in accordance with the procedure given in BS1377: 1990: Part 9, using the super heavy penetrometer (DPSH). This probe consists of a 63.5kg mass falling through 750mm onto an anvil, which drives a 50mm diameter cone into the ground. The number of blows required to drive the cone through successive 100mm increments are recorded as the  $N_{100}$  values. The results of the dynamic penetration tests are tabulated and presented as bar charts of  $N_{100}$  values versus depth in Appendix 4.

#### 4.7 Borehole Monitoring Standpipes

Standpipes were installed in BH02, BH05, WSA, WSA2 and WSB. The details of all the installations are shown on the appropriate borehole records. The following table outlines the installation details:

Table 2: Installation Information			
Location Type	Location Reference	Depth (m)	Comments
Ground Gas /Groundwater Monitoring Point	BH02	12.00	Plain Pipe to 1.00m, slotted to 12.00m. Response zone filled with clean pea gravel. Bentonite seal above. Flush cover installed. Continuous groundwater monitor installed
	BH05	12.50	Plain Pipe to 1.00m, slotted to 12.50m. Response zone filled with clean pea gravel. Bentonite seal above. Flush cover installed. Continuous groundwater monitor installed
	WSA	7.00	Plain Pipe to 2.00m, slotted to 7.00m. Response zone filled with gravel. Bentonite seal above. Flush cover installed. Continuous groundwater monitor installed
	WSA2	4.00	Plain Pipe to 2.00m, slotted to 4.00m. Response zone filled with gravel. Bentonite seal above. Flush cover installed.
	WSB	6.00	Plain Pipe to 1.00m, slotted to 6.00m. Response zone filled with gravel. Bentonite seal above. Flush cover installed. Continuous groundwater monitor installed

#### 4.8 Machine Excavated Trial Pits

A series of machine excavated trial pits, TP01 to TP18, were undertaken at the locations as described by the Investigation Supervisor. The trial pits were commenced using a 13T tracked machine excavator to depths between 1.50m and 3.00m as required. At regular intervals throughout the excavation of the pits, bulk and disturbed samples were taken for chemical and geotechnical. The test specimens were retained in the appropriate bulk bags and air tight containers within cool boxes for onward transition to the laboratory. The recovered soils were described in general accordance with BS5930: 2015, and full descriptions are given on the boreholes records which are presented in Appendix 5.

Once excavations were completed, the trial pits were carefully re-instated with the arisings. Whilst every care was taken during the infilling process, including compacting of the infill at regular intervals with the back-acting arm of the excavator, it should be appreciated that some mounding of the surface may have resulted. Moreover, the infilled soils may be subjected to settlement over time, such that a depression in the surface may also occur. Therefore, the locations of any pits undertaken in this investigation should be conveyed to the current site user, as the mounds or depressions associated with the pits may present a risk to current site operations e.g. livestock or agricultural plant equipment. Furthermore, it must be realised that the infilled pits represent an area of disturbance within the site soils, thus the soils at the pit locations may vary characteristically compared to the undisturbed ground. As such, foundations placed in this disturbed material may not perform as anticipated.

#### 4.9 Machine Excavated Trial Pits with Soakaway Tests

Four machine excavated trial pits, SA01 to SA04, were excavated to undertake in-situ soakaway tests. At the elected test depths, the pit was trimmed and squared as much as practicable. Water was then pumped into the pit and the level monitored at timed intervals relative to a reference bar at ground level. These tests were conducted and calculated in general accordance with the method given by BRE Digest 365 and the results are presented in Appendix 6.

Trial pits were excavated in order to undertake soakaway testing using a 13T tracked excavator. The positions of the trial pits were specified by the Investigation Supervisor. The soils exposed in the trial pits were logged on site in general accordance with BS5930: 2015+A1: 2020, and full descriptions are given on the trial pit records which are attached to this letter along with the soakaway test results.

Once excavations were completed, the trial pits were carefully re-instated with the arisings. Whilst every care was taken during the infilling process, including compacting of the infill at regular intervals with the back-acting arm of the excavator, it should be appreciated that some mounding of the surface may have resulted. Moreover, the infilled soils may be subjected to settlement over time, such that a depression in the surface may also occur. Therefore, the locations of any pits undertaken in this investigation should be conveyed to the current site user, as the mounds or depressions associated with the pits may present a risk to current site operations e.g. livestock or agricultural plant equipment. Furthermore, it must be realised that the infilled pits represent an area of disturbance within the site soils, thus the soils at the pit locations may vary characteristically compared to the undisturbed ground. As such, foundations placed in this disturbed material may not perform as anticipated.

#### 4.10 Plate Load Tests

A total of twelve plate load tests were undertaken using a 450mm diameter plate on the sub-base. The testing was conducted in accordance with BS 1377 (1990): Part 9: 4.1 and 4.2. CBR values have been derived in accordance with IAN 73/06 (HD25) Feb '06 along with moduli of subgrade reaction. The stated procedure utilises the constant penetration plate test method, in which the force taken to mobilise the plate through 1.25mm of penetration is used to calculate the CBR. It should be noted that a 13 tonne tracked excavator (which was also used to undertake the trial pits) was employed to provide the necessary kentledge for the test. The plate load test results are presented within Appendix 7.

## 5. Geology

The available published geological data for the site has been examined and the following table presents the anticipated geology.

Table 3: Geological Data for the Site			
Strata Type	Strata Name <sup>1</sup>	Previous Name <sup>2</sup>	Description <sup>3</sup>
Superficial Geology	Hemingbrough Glaciolacustrine Formation	-	Unfossiliferous laminated clays, silts and sands with rare dropstones (typically fine-grained pale coloured sandstone, grey limestone and dark mudstone).
Solid Geology	Brotherton Formation	-	Limestone, dolomitic, grey with abundant Calcinema.
	Roxby Formation (Central East only)	-	Mudstone and siltstone, reddish brown, with subordinate sandstone. Sulphates (gypsum, anhydrite) common towards base.

The geological maps indicate that several geological faults cross the site trending in an approximate south-west north-east orientation. The faults generally display a variation of throws with the Roxby Formation being downthrown against the Brotherton Formation beneath the east of the centre of the site.

The Roxby formation contains two named gypsum/anhydrite members named as the Sherburn Anhydrite, located towards the upper third of the unit, and the Billingham anhydrite located close to the base of the unit.

<sup>1</sup> Sources: British Geological Survey (NERC) Map Sheet 70; Leeds; Solid and Drift Edition, and Geology of Britain Viewer [*online resource from www.bgs.ac.uk*]

<sup>2</sup> Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [*online resource from www.bgs.ac.uk*]

## 6. Strata Conditions & Groundwater

In accordance with the geology of the area, the succession has been shown to include the following:

**Table 4: Generalised Strata Profile**

Depth m below ground level to underside of layer	Strata Type	Positions Encountered	Groundwater Strikes m below ground level
0.10 to 0.50	TOPSOIL	ALL	None
0.80 – 1.50	Soft greyish brown slightly sandy slightly gravelly CLAY [ALLUVIUM]	ALL	None
5.00 to 6.45	Soft locally firm thinly laminated CLAY and SILT with sand partings. [HEMINGBOROUGH GLACIOLACUSTRINE FORMATION]	ALL	WS02 – 2m WSC - 3.00m (in gravel lens)
+2.50 – +3.30	Medium dense silty gravelly SAND. [HEMINGBOROUGH GLACIOLACUSTRINE FORMATION]	ALL BHs, WSA & WSB	BH02 – 5.40 BH03 – 6.10 BH04 – 6.00 BH05 – 6.45 WSA – 5.80 WSB – 6.00
+ 7.00 & 9.90	Firm to stiff laminated sandy gravelly CLAY.	BH01 & WSA	BH01 - 6.40
11.10 to 12.00	Reddish brown silty CLAY [WEATHERED ROXBY FORMATION]	ALL BHs except BH03	None
11.80 to 12.00	Hard dark grey silty CLAY [BROTHERTON FORMATION]	All BHs	BH01 – 11.00
+15.00	Grey dolomitic LIEMSTONE [BROTHERTON FORMATION]	BH03 & BH05	None

## 7. In-Situ Testing

### 7.1 Standard Penetration Tests

The standard penetration tests carried out are summarised in the following table and full details are presented on the borehole logs in Appendix 2 and 3:

**Table 5: Summary of Standard Penetration Tests**

Strata	Depth Range (m)	SPT 'N' (Blows/300mm)		Comments
		Granular soils	Cohesive soils	
ALLUVIUM	1.0 to 1.2	–	6 to 10	SPT's indicate a soft locally firm in-situ condition
HEMINGBOROUGH FORMATION	2.0 to 4.0 4.0 to 6.0	–	6 to 12 8 to 14	SPT's indicate a soft becoming firm locally soft in-situ condition
Very clayey silty SAND	6.0 to 10.50	11 to 20	-	SPT's indicate a medium dense in-situ condition
Laminated CLAY	7.50	-	26	SPTs indicate a stiff in-situ condition
Weathered ROXBY FORMATION	9.00 to 10.5	-	22 to 27	SPTs indicate generally stiff in-situ condition
Weathered BROTHERTON FORMATION	10.0 to 12	-	50+	SPTS indicate very stiff in-situ condition
BROTHERTON FORMATION	11.00 to 12.00	50+		SPTS indicate very dense in-situ condition becoming very weak rock.

## 7.2 Dynamic Probe Tests

The Dynamic Probe Tests carried out are summarised in the following table and full details are provided in Appendix 4:

Table 6: Summary of Dynamic Penetration Tests					
Position	Blows/100mm			Refusal type (Effective/ Abrupt) <sup>3</sup>	Comments
	0 - 2	3 - 10	10+		
	Depth to which blow count range was observed (m)				
DP01	2.3	4.5	10	None	Low blow counts to 2.30m, increase to medium blow counts through to 4.50m with gradual increase in depth. High blow counts from 4.50m to termination at 10m.
DP02	2.0	4.8	10	None	Low blow counts to 2.00m, increase to medium blow counts through to 4.80m with gradual increase in depth. High blow counts from 4.50m to termination at 10m
DP03	3.6	4.8	10	None	Low blow counts to 3.60m, increase to medium blow counts through to 4.80m with rapid increase to High blow counts to termination at 10m
DP04	4.1	6.6 7.9	7.4 10	Effective	Low blow counts to 4.10m, increase to medium blow counts through to 7.90m with band of high blow counts between 6.60m and 7.40m. High blow counts from 7.90m to termination and effective refusal at 10m.
DP05	2.0	5.8	10	Effective	Low blow counts to 2.00m, increase to medium blow counts through to 5.80m with gradual increase in depth. Rapid increased to high blow counts from 5.80m remaining variably high to termination at 10m.
DP06	2.0	6	10	None	Low blow counts to 2.00m, increase to medium blow counts through to 6.00m with gradual increase in depth. High blow counts to termination at 10m with gradual increase on blow counts.
DP07	3.8	5.6 6.8	6.4 10	Effective	Low blow counts to 3.80m, increase to medium blow counts through to 6.80m with gradual increase in depth and band of high blow counts between 5.60m and 6.40m. High blow counts from 6.40m to termination and effective refusal at 10m.

<sup>3</sup> Abrupt refusal: obstruction or bedrock encountered. Effective refusal: +25 blows/100mm.

DP08	3.10	6.10	10	None	Low blow counts to 3.10m, increase to medium blow counts through to 6.10m with gradual increase in depth. Initial rapid increase to very high blow counts (>20) from 6.10m to 6.80m before remaining variably high with gradual increase in depth to termination at 10m.
DP09	4.00	6.60	10	Effective	Low blow counts to 4.00m, increase to medium blow counts through to 6.60m with gradual increase in depth. High blow counts from 6.60m to termination with effective refusal at 10m.
DP10	3.60	6.40	10	Effective	Low blow counts to 3.60m, increase to medium blow counts through to 6.40m with gradual increase in depth. Initial rapid increase to very high blow counts between 6.40m and 6.90m before remaining variably high counts to termination and effective refusal at 10m.
DP11	3.80	5.60 7.10 7.80	6.50 7.60 10	None	Low blow counts to 3.80m, increase to medium blow counts through to 5.60m with gradual increase in depth. Initial rapid increase in blow counts from 5.60m to 6.50m before blow counts varying between 8 and 12 to 7.80m before remaining variably high to termination at 10m
DP12	4.0	6.5	10	Effective	Low blow counts to 4.0m, increase to medium blow counts through to 6.50m with gradual increase in depth. Initial rapid increase to very high blow counts between 6.50m and 6.70m before returning to between 9 and 14 blow counts to 9.10m before rapid increase to very high blow counts and effective refusal and termination at 10m.

It is thought that the blow counts gradually increasing with depth to between 5.50m and 6.50m are representative of increasing friction on the rods due to penetrating through laminated clay, silt and sand glacial lake deposits, as these results do not correlate with the in-situ SPT testing results or the lab, testing results. The initial rapid increases likely relate to a spike in friction caused by penetrating through a different stratum type, i.e. sand and gravel deposits recorded in the cable percussive boreholes and differing moisture profiles

### 7.3 Water Level Monitoring

The levels of the groundwater are being monitored by continuous in-situ monitors; results shall be taken for the next few months. Manual measurements of groundwater have also been taken and are presented below.

**Table 7: Standpipe Monitoring**

Location	Date	Water Level (m)	Standpipe Depth (m)
BH02	07.05.2025	0.35	12.20
BH05	07.05.2025	0.08	11.20
WSA	07.05.2025	0.98	6.90
WSA2	14.05.2025	-	4.00
WSB	07.05.2025	0.77	5.90

#### 7.4 Soakaway Test Results

On reaching the elected soakaway test depth, the pit was trimmed and squared as much as practicable. Water was then introduced into the pit at a controlled rate to prevent collapse of the sides and the level monitored at time intervals relative to a reference bar at ground level.

The results obtained from the soakaway tests are presented at Appendix 6 and are summarised below:

**Table 8: Soakaway Test Results**

Location	Soakage Area Dimensions (average) (m)	Depths of soaked strata (m)	Soil Description (of soaked strata)	Infiltration Rate (m/sec)	*Drainage Characteristics
SA01	0.45 * 1.8 * 3.10	3.10 to 2.65	Side – thinly laminated sandy silty CLAY. Base – thinly laminated sandy silty CLAY	N/A	Poor
SA02	0.45 * 1.80 * 3.50	3.50 to 2.74	Side – thinly laminated sandy silty CLAY Base – thinly laminated sandy silty CLAY	N/A	Poor
SA03	0.45 * 1.70 * 3.05	3.05 to 2.34	Side – thinly laminated sandy silty CLAY Base – thinly laminated sandy silty CLAY	N/A	Poor
SA04	0.45 * 1.80 * 3.45	3.45 to 2.81	Side – thinly laminated sandy silty CLAY Base – thinly laminated sandy silty CLAY	N/A	Poor

\*Based on the most onerous results for each test.

During the soakaway tests the water level did not achieve a fall from 75% to 25% of the effective depth of the storage volume in both trial pits. In both tests, the water level movement ceased at around 50% effective depth. Indeed no movement was recorded in the water level during any of the tests. On this basis, the tests could not be completed within the scope of the method provided in BRE Digest 365 due to the poor soakage rate of the exposed soils. Due to the negligible water movement it was not possible to extrapolate the results obtained in order to obtain a soil infiltration rate. It is considered that cohesive strata at the site can be classified as practically impermeable.

## 8. Laboratory Testing - Geotechnical

The following programme of laboratory testing has been undertaken on samples obtained during this investigation:

Table 9: Laboratory Testing – Geotechnical			
Test Type	Lab House	Number of tests	Standard
<b>Classification Tests</b>			
Moisture content determinations	RGS	17	BS EN ISO 17892-1:2014
	GSTL	12	
Liquid limit, plastic limit and plasticity index (Four point)	RGS	17	BS EN ISO 17892-12:2018
	GSTL	12	
Particle Size Distribution (Dry Sieve)	RGS	2	BS EN ISO 17892-4:2016: 5.2
Sedimentation (Pipette)	RGS	1	BS EN ISO 17892-4:2016: 5.3 – 5.4
<b>Compaction &amp; CBR</b>			
Dry Density/Water Content Relationship (2.5kg)	RGS	12	BS 1377-2: 2022, 11.3
California Bearing Ratio	RGS	12	BS 1377-2: 2022
<b>Compressibility, Permeability and Durability</b>			
One dimensional consolidation properties, test period 5 days	GSTL	18	BS 1377: 1990: Pt5: 3.0
<b>Shear Strength (total stress)</b>			
Undrained shear strength of a single 100mm diameter specimen in triaxial compression without the measurement of pore pressure	GSTL	18	BS1377: 1990: Pt7: 8.0

The results of the laboratory testing are presented within Appendix 8 and are summarised below.

Table 10: Summary of Geotechnical Test Results				
Test type	Number of tests	Range of results		Comments
Water content determinations	12	23.6% to 34.1%		All moisture contents above plastic limits. Moisture variable with depth.
Index properties (4 Point)	12	LL PL PI	50 to 58% 18 to 23% 30 to 37%	Clay of High plasticity. Consistency index 0.63 to 0.83 NHBC Class - Medium
Particle size distribution (Dry sieve)	1	Gravel Sand Silt/Clay	57% 34% 9%	Clayey silty very gravelly SAND.
Particle size distribution (Dry sieve and sedimentation)	1	Gravel Sand Silt Clay	25% 55% 18% 2%	Slightly clayey silty very gravelly SAND.
Light compaction (2.5kg)	12	MDD OMC	1.57 to 1.72 Mg/m <sup>3</sup> 17% to 24%	One outlier of 1.93Mg/m <sup>3</sup> and 11% - discounted.
CBR on compacted soil	12	Top Base	3% to 43% 3.3% to 37%	Many results above 5%

One-dimensional consolidation	18	$c_v$ $m_v$	0.66 to 6.90 m <sup>2</sup> /yr 0.21 to 0.73 m <sup>2</sup> /MN	Moderately slow to fast rate of settlement. Medium to high compressibility.
Undrained shear strength (Triaxial)	12	$c_u$ $\gamma$	16 to 63 kN/m <sup>2</sup> 19.82 to 17.36 kN/m <sup>3</sup>	Cohesion increased with depth.
Soluble sulphate & pH	-	SO <sub>4</sub> pH	42.7 to 335mg/l 7.9 to 8.2	Natural ground conditions.

In cohesive soil the approximate cohesion,  $c_u$ , and coefficient of consolidation,  $m_v$ , may be obtained from the equivalent SPT 'N' value using the following expressions (Stroud 1975).

$$c_u = f_1 N$$

$$m_v = \frac{1}{f_2 N}$$

where:  $c$  = cohesion (kN/m<sup>2</sup>).  
 $m_v$  = Coefficient of consolidation (m<sup>2</sup>/MN).  
 $f_1$  &  $f_2$  = factors based on plasticity index.  
 $N$  = SPT 'N<sub>300</sub>' value.

For the cohesive soils revealed at this site the highest (worst case) plasticity index<sup>4</sup> of 37% could be employed, which suggests an  $f_1$  value of 4.2 and an  $f_2$  value of 0.42.

### 8.1 Geotechnical Properties

The idealised geotechnical properties employed in design are summarised below.

Property	Range of values		Comments
Volume change potential (NHBC)	Medium		Sandy silty CLAY.
Shear strength parameters (up to 6m)	$c_u$ $\gamma$	32kN/m <sup>2</sup> 17.4kN/m <sup>3</sup>	Stroud (1974) where $c_u = f_1 N$ and triaxial test results. Lowest Density applied from lab testing
Consolidation characteristics	$c_v$ $m_v$	0.66m <sup>2</sup> /yr 0.73m <sup>2</sup> /MN	$m_v$ variable with depth and tends to increase with depth. Granular soils anticipated to have negligible long term settlement.
Concrete classification	ACEC AC-1, DS-1		Natural ground locations (Static water)

## 9. Laboratory Testing - Environmental

The following programme of laboratory testing has been undertaken on samples obtained during this investigation:

Test Type	Lab House	Number of tests	Comments
RGS Contamination Suite	I2 Analytical	2	Result Pending
pH	I2 Analytical	3	Result Pending
Water Soluble Sulphate (2:1 ratio)	I2 Analytical	3	Result Pending

<sup>4</sup> See paragraph 6.2 'Index Property Tests'

Total Sulphate	12 Analytical	3	Result Pending
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The results of the laboratory testing are presented within Appendix 8.

## 10. Discussion of Ground Conditions - Geotechnical

It is understood that the site is to be developed by the construction of a new anaerobic digestion plant. The proposed development comprises several key components which are listed as follows:

- 4no. anaerobic digestion tanks of diameter 32m, by 14.40m high.
- 3no. further tanks, of diameter 14m, by 10m high
- Drainage attenuation pond, 29m wide by 70m long.
- Covered lagoon, 4.50m high, dimensions not provided.
- Flare stack, 11m high.
- Gas washing tower of diameter 2.3m and 8.4m high.
- Reception building, height 14m, dimensions not provided.
- Various ancillary and infrastructure buildings.
- Access Road

At the time of writing this report the precise method of construction is not known, and this report is to aid finalised construction designs. Although calculations are targeted to specific locations and structures, the results are generalised for the site as a whole. Particularly where proposed loadings have not been made available for review

### 10.1 Site Appraisal

In general the site can be classified as containing four predominant strata facies and are given as such:

- Topsoil and near surface alluvium deposits, comprising recent deposits of soft clay and silt.
- Glacio-lacustrine deposits, comprising soft high plasticity interlaminated clay and silt with localised sand and gravel bands.
- Deeper fluvial and alluvium deposits comprising, granular deposits more prevalent towards the south, and firm to stiff clay more prevalent to the north. Groundwater was generally recorded wherever this unit was encountered and rose close to the surface in all occasions.
- Residual soils of Roxby Formation comprising silt clay and Brotherton Formation comprising stiff clays before transition into weathered bedrock.

#### 10.1.1 Digestion Tanks

As part of the development it is proposed to include 4no digestion tanks. In the specification for ground investigation provided by the client, analysis undertaken based on the diameter of the tanks and the proposed loadings are provided. It is estimated from the report that based on a diameter of 28m the influence from the tanks will penetrate to a depth of around 21m and the bulb of pressure is anticipated to extend a maximum width of around 18m from beyond the extents of the tank wall. It is estimated that the loadings on the tank at full capacity will be on the order of 85kPa to 90kPa for an evenly distributed load. It is not known if the loads provided include for the weight on the foundations. Given the extent of influence of each individual tank the report highlights that there will

be influence from neighbouring tanks such that loading should be able to achieve a bearing capacity of 40kPa at 7m.

However newer drawings provided have indicated that the tanks will now have a diameter of 32m as opposed to 28m. Calculating the maximum anticipated load spread evenly over the footprint of the proposed structure a total force applied by the structure has been calculated to 55,417.7kN. To spread this load over the new diameter of 32m a new pressure of 80kN/m<sup>2</sup> has been assumed allowing for additional loads from extra contents and construction materials due to the larger size.

The client should be aware that the changes in diameter will completely change the extent of the bulb of influence from the tanks and the loadings at depth. Once a new load analysis has been completed it is likely that further settlement calculations will be required to qualify the analysis. The following table provides the anticipated allowable increases in stress for each 1m increment based on the in-situ and lab testing undertaken and for on a circular concrete raft of 32m diameter placed at depth of 1m below existing ground level to protect against volume change and heave from near surface cohesive material.

Table 13: Allowable Increase in Stress													
Foundation Type		Circular Raft Foundation of diameter 32m placed at 1m depth											
Depth of influence below foundation	D (m)	0	1	2	3	4	5	6	7	8	9	10	11
Estimated max load a depth below foundation	(kN/m <sup>2</sup> )	80	80	80	80	72	72	72	64	64	64	56	56
Conservative shear strength <sup>5</sup>	(kN/m <sup>2</sup> )	Cu 21	Cu 25	Cu 29	Cu 33	Cu 50	Cu 65	Cu 23	N 15	N 11	N 11	N 13	N 50+
Allowable Increase in Stress	(kN/m <sup>2</sup> )	40	50	60	65	100	135	45	125	85	85	105	500
Net Allowable Bearing Capacity <sup>6</sup>	(kN/m <sup>2</sup> )	55	65	75	80	115	150	60	140	100	100	120	500

From the table, based on the proposed loadings and the shear strengths proven, there is not expected to be suitable load through the column to around 3m below the base of the foundation to support the loads anticipated, therefore a raft foundation placed directly upon this strata cannot be recommended.

In addition to the loadings above settlements based on the columns of material recovered from the boreholes and subjected to tested are estimated to be between 150mm and 225mm depending on localised variations in ground conditions. To reduce settlements below acceptable limits, ie less than 50mm, for the existing ground conditions based on a structure of these dimensions, surface loadings will need to be to less than 18kPa. It is estimated based of the coefficient of consolidation values that it will take between 3.5 years and 8 years to achieve 90% settlement based on the proposed loading and the variation in ground conditions between each tank. This introduces risks where tanks settle at different rates independently putting additional pressures on surrounding infrastructure.

<sup>5</sup> Uses F1N for cohesive and for granular stratum uses Terzaghi and Peck 1967

<sup>6</sup> Assumes bulk density of material removed from footing excavations to be 17kN/m<sup>3</sup>

Information from client indicates that a piled foundation solution is not viable therefore a different method of increasing bearing capacity and reducing long term settlements will be required. This could be done by deep soil mixing producing either batches or columns of improved ground or by implementation of rigid inclusions by displacement to attempt to improve the soil profile.

In the method of soil mixing, a mixer with a cement binder injector is lowered into the ground to a specified depth using a powerful drill, the soil is mixed usually up to an area of 4m by 4m and can be improved by introducing a strengthening agent such as lime or cement. Columns are produced using the same method, on a smaller diameter of between 1m and 1.5m but to greater depths up to 6m.

In the method of rigid inclusions or displacement ground improvement, a helical probe displacement auger or vibrating tube is placed into the ground to create a void and locally compacted the material around the location, then concrete or bound aggregates are pumped into the ground filling the cavity created to help stabilise and support the ground.

It is considered that following whichever method is selected a series of validation tests comprising both in-situ and laboratory tests will be required to ensure that the required stiffness of material has been obtained as well as desired improvements in soil settlement controls.

Both of these methods, are relatively shallow in situ methods, which can both improve ground bearing capacity and reduce and control settlements and produce minimal spoil which are better suited to environmentally sensitive environments. Irrespective of the method selected a working platform must be provided, the thickness of which will be determined by the type of rig employed, the forces imparted on the ground, and the strength of the near surface soils. The design of the platform should be undertaken in accordance with the procedures and specification given in the BRE publication entitled *Working platforms for tracked plant*.

### 10.1.2 Shallow Pad Foundations

There are a variety of structures proposed for the site which could be placed upon pad foundations, given the variability of designs and loadings across the site. The soils are relatively uniformly low strength across the site to a depth of around 6m where medium dense granular deposits are encountered. Given the sensitivity of the soils to settlement the limiting factor in this case is likely to be reducing the long-term settlements on the structures. It is of note that the cohesion of the ground to loading, is likely to exceed the maximum allowable load for which excessive settlements will occur. For pad foundations it is estimated that maximum settlements will be required to be on the order of 25mm. The following table provides the allowable increases in settlement which will induce these levels of settlements based on the proven ground conditions and lab testing.

Table 14: Allowable Increase in Stress							
Foundation Type		Square Pad Foundations					
Foundation Dimensions	B (m)	1.0	2.0	3.0	1.0	2.0	3.0
Foundation Depth	D (m)	1.0			2.0		
Net Allowable Bearing Capacity <sup>7</sup>	(kN/m <sup>2</sup> )	52	27	20	53	29	22
Allowable increase in stress	(kN/m <sup>2</sup> )	35	10	3	36	12	5

<sup>7</sup> Assumes bulk density of material removed from footing excavations to be 17kN/m<sup>3</sup>

The net allowable bearing capacities in the table above are likely to be very low, compared to the required loadings required. It is of note that for pads larger than 2.0m x 2.0m it is estimated that the mass of the footings alone is likely to induce settlements exceeding the generally allowed guidelines for long term settlements.

An example in the specification report is given for the solid feeders, whereby the hopper at maximum capacity is likely to impart total loadings on the order of 200kN spread through 2m x 2m pad footing, producing 50kN/m<sup>2</sup> of pressure on the ground. It is estimated based on the data available that settlements beneath each footing would be on the order of 50mm. In addition, based on the worst-case rates of settlement to obtain 90% compaction, it is estimated settlements will continue almost 4 years. Indeed, these rates could actually be extended due to the cyclic loading of the hoppers, which are unlikely to be at maximum loading indefinitely.

Based on the information provided above it is considered that some ground improvement will be required to control settlements in these areas, and perhaps improve bearing capacity if required. The same modes of ground improvement such as soil mixing or inclusions could also be employed in these areas.

### 10.1.3 Ground Bearing Concrete Slabs

For ground bearing slabs, the actual dimensions required will depend on the size of the structure being supported, and the loadings imparted by these structures. As such for accurate estimations of bearing capacities and estimated settlements, the proposed dimensions of each structure, machine, plant or equipment will need to be provided and bespoke calculations be undertaken based on the ground conditions revealed at this location. As the depth of influence of the footing will depend upon the width/breadth of the raft required the magnitudes of settlements will vary for each individual building. In lieu of this Plate Load Tests have been undertaken at depths which likely represents the formation level to help inform slab design to from moduli of subgrade reaction. The following table outlines the proven moduli in selected locations relevant to the proposed structures:

<b>Table 15: Moduli of Subgrade Reaction</b>			
<b>Location Id</b>	<b>Depth (m)</b>	<b>Modulus of subgrade reaction (kN/m<sup>2</sup>/m)</b>	<b>Comments</b>
PT08	0.30	50,000	Equivalent of moist clay or loam, 3.7% CBR
PT09	0.40	11,000	Equivalent of soil, 0.3% CBR
PT10	0.40	16,800	Equivalent of soil, 0.6%
PT11	0.40	27,100	Equivalent of moist clay or loam, 1.3%
PT12	0.40	6,500	Equivalent of soil, 0.1%

From the above information is considered that the CBR is generally below 2% for the southern portion of the site, likely owing to the water contents which were observed higher than the plastic limits and the clays being highly plastic. These low values are consistent across the site, and combined with the low dynamic probe results which recorded between 0 and 1 blow usually through the uppermost 1m of material, are generally consistent with the findings across the site as a whole. It is considered that some improvement of the soils may be required to improve the soil moduli to allow for construction of raft or ground slab foundations, and given the low strength of the clays to depths up to six metres combined with the magnitudes of settlements, the depths of such improvements may need to extent to at least 1.5 times the proposed width of the slab or to the granular deposits at 6m whichever is shallower.

## 10.2 Volume Change Potential

It should be appreciated that the cohesive soils revealed at this site possess a medium volume change potential under the guidance of the NHBC standards. Therefore, foundations will need to be placed at a minimum depth of 0.90m below ground level to protect against heave in accordance with the Chapter 4.2 of the NHBC standards. Notwithstanding this no trees have been observed in the proposed construction area, therefore the most significant risk of volume change will be changes in moisture due to construction activity such as compaction or soil improvement.

## 10.3 Hardstanding Areas and Pavements

It is considered that any roads or hard-standing at the site could be constructed employing traditional pavement design. A design California Bearing Ratio (CBR) of <2% should be employed in the pavement design<sup>8</sup> based on the findings of the plate load test results. However as significantly higher loads are anticipated such as at the silage clamps a programme of surface ground improvement by means of dynamic compaction could be employed. The dynamic compaction may involve employing a non-spherical roller towed by tracked or wheeled plant to impart energy to the soils to compact the soils and reduce settlements followed by compaction with a vibrating roller.

It is recommended that due to the sensitivity of the soils that a trafficking trial be undertaken in a smaller section of the site first to confirm the required improvements can be attained. This would allow designers and contractors to utilise different weight rollers and numbers of passes to achieve the desired results on smaller controlled section before expanding to the site as a whole.

This should be taken in conjunction with a pre-improvement and post improvement survey comprising field and in-situ testing such as plate load tests, sand replacement or nuclear density tests, as well as topographical surveys to ensure the desired improvements have been achieved. A validation report of the improvements should be completed prior to construction of any hardstanding areas to inform suitable design. Such soil improvement methods could be more economical given the depth of weak soils across the site. Any hardstanding area, could contain geogrid to further stiffen and support the ground and evenly distribute settlements across the subgrade.

## 10.4 Groundwater

Groundwater was generally encountered at the interface of the glacial lake deposits and the underlying granular deposits at depths of around 6m. This was observed to rise to within 0.50m of the surface in all boreholes where this was encountered. This suggests that the potential head for groundwater may be at or close to the surface. The client should be aware that the period leading up to and following the groundworks have been exceedingly dry compared to national averages, and there exists a potential for groundwater to rise to the surface should the water table be punctured.

Furthermore, the glacial lake deposits appear to be acting as a confining layer to the groundwater in the sands at depth, based on the depth that the water was observed to rise to during the fieldworks, the upthrust pressure from the groundwater at this level can be calculated at around 60kN/m<sup>2</sup>. Therefore, to prevent breakout of groundwater the pressure from the overlying units will need to exceed this value at all times. This may impact construction of the attenuation pond where

<sup>8</sup> Table 13/2 Design Manual for Roads and Bridges (1995), HA44/9: Volume 4 Section 1 Part 1, Highways Agency.

excavations will be required where should confining pressures not remain high enough leakage or seepage to the bottom of the tank may occur.

Localised shallow strikes were recorded in WSI where a gravel band was observed, and other gravel bands may allow groundwater seepage into excavations.

## 10.5 Effect of Sulphates

In view of the nature of the underlying soils it is considered that the design sulphate class be assessed with reference to Table C1<sup>9</sup>, which is provided in BRE Special Digest 1, *Concrete in aggressive ground*: Part C. On the basis of this table and considering the soluble sulphate contents recorded, it can be shown that well compacted buried concrete should be designed in accordance with Class DS-1 requirements. Assuming mobile groundwater, the table also indicates that the aggressive chemical environment for concrete (ACEC) classification is AC-1.

In order to evaluate the design chemical (DC) class for the buried concrete at this site reference should be made to Table D1<sup>10</sup>, which can be found in Part D, *Specifying concrete for general cast-in-situ use*, of BRE Special Digest 1. From this table it may be shown that for an intended working life of at least 50 years the concrete design class DC-1 is required.

## 11. Discussion of Ground Conditions - Environmental

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### 11.1 Discussion of Test Results

In view of the low sensitivity of the site, screening values for a commercial end use have been adopted for contamination analyses.

#### 11.1.1 Soil Samples

The results of the chemical testing undertaken on soil samples obtained during this investigation have been compared to the ATRISK soil screening values (SSVs) as compiled by WS Atkins plc. With respect to the results it should be appreciated that the soil organic matter (SOM) content for the samples tested was found to range between 1.6% and 2.9%. On this basis, it is considered that the screening values associated with 1% SOM should be adopted. These values have been derived in such a way as to adhere to the principles within the revised CLEA model and include the most current release of the SGVs. A list of subscribers is provided within the website<sup>11</sup> and these include many local authorities.

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<sup>9</sup> Table C1, *Aggressive Chemical Environment for Concrete (ACEC) classification for green field locations*

<sup>10</sup> Table D1, *Selection of the DC Class and the number of APMs for concrete elements where the hydraulic gradient due to groundwater is 5 or less: for general in-situ use of concrete.*

<sup>11</sup> <http://www.atrisksoil.co.uk/pages/general/subscribers.asp>

A comparison of the results of the testing, together with the data given above, can be found within Appendix 9. These results indicate the following:

Location	Depth (m)	Contaminants found to be exceeding SSVs (Commercial)
WSD	0.4	None
WSI	0.3	None

Concentrations of chromium<sup>VI</sup>, mercury, selenium, free cyanide, phenols (total), poly aromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPHs) were below the detection limits for the tests. Detectable levels of all other contaminants were recorded, but these fell below the associated Atrisk Soil Screening Values. In addition, no asbestos was detected within the soils samples tested.

On the basis of the above information, the results of the investigation have concluded that the site is not contaminated. There is a limited risk to operatives, end users, neighbours and controlled waters.

## 11.2 Fill Materials

It should also be appreciated that any fill material, either site-won or imported, to be employed at the site should be subjected to the following assessment to determine its suitability.

Fill materials should be initially screened, by a suitably qualified engineer to establish that:

- It is a suitable growing media if it is to be employed as such, including compliance with BS3882 (2015)
- It is free from obvious contamination i.e. visual or olfactory evidence
- It has not come from areas where Japanese Knotweed or other invasive or injurious plants are suspected to be growing
- It is not a statutory nuisance, such as being odorous
- It is free from unsuitable material i.e. whole bricks, brick ties, timber or glass.

It should also be appreciated that any fill should be subjected to validation testing to assess its suitability. The following table has been taken from YALPAG<sup>12</sup> documentation and may be used as a guide. Depending on the origin and nature of the material, not all fill will require the sampling frequency and testing indicated, although this should be in agreement with any regulatory bodies (such as the Local Authority).

Fill Type	Frequency	Minimum Determinands
Virgin Quarried Material	1 or 2 depending on the type of stone utilised, to confirm the inert nature of the material.	Standard metals/metalloids (should include as a minimum As, Cd, Cr, CrVI, Cu, Hg, Ni, Pb, Se, Zn)

<sup>12</sup> YALPAG Technical Guidance for Developers, Landowners and Consultants – Verification Requirements for Cover Systems V4 .1 Appendix 1a, June 2021

Crushed Hardcore, Stone, Brick	Minimum 1 per 500m <sup>3</sup>	Standard metals/metalloids (as above), PAH (16 USEPA speciation), asbestos, total TPH. Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE).
Greenfield/ Manufactured Soils	Minimum 3  Dependent on source and receptor, between 1 per 50m <sup>3</sup> and 1 per 250m <sup>3</sup>	Standard metals/metalloids (as above), PAH (16 USEPA speciation), asbestos, pH and soil organic matter (SOM) (or calculated from total organic carbon (TOC)).
Brownfield/ Screened Soils	Minimum 6  Dependent on source and receptor, between 1 per 50m <sup>3</sup> and 1 per 100m <sup>3</sup>	Standard metals/ metalloids (as above), PAH (16 USEPA speciation), TPH (CWG banded), asbestos, pH and SOM (or calculated from TOC). Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE)..

Suitable screening values should be utilised and considered with respect to the Soil Organic Matter (SOM) of the subject material i.e. 1% SOM would be typical for granular fill and 6% SOM for topsoil. Testing should comply with UKAS and MCERTS, where applicable, and undertaken by an accredited laboratory.

Where the material has been derived from a commercial company, certificates or other industry quality protocol compliance i.e. WRAP should be obtained. However, it will be necessary to ensure that this documentation specifically related to the material being imported, it is no more than two months old and complies with the screening and frequency requirements given above.

Suitable fill materials should be either placed immediately or sufficiently quarantined to prevent cross-contamination. If it is necessary, the quarantined material should be placed on appropriate sheeting and covered to prevent it becoming mixed with contaminated soils or dust, or penetrated by mobile contaminants.

## 12. Recommendations for Further Work

- This report should be forwarded to the relevant authorities as soon as practicable to ensure they have sufficient time to review and discuss any issues.
- Completion and reporting of water monitoring to submit as part of the Environmental Permit.
- Detailed design of the sub-structure.

Clearly Rogers Geotechnical Services Ltd would be happy to offer advice with respect to the above and assist where necessary.

## 13. References

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- British Geological Survey (NERC) (2025), BGS, Keyworth.
  - Geology of Britain Viewer:  
([http://maps.bgs.ac.uk/geologyviewer\\_google/googleviewer.html](http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html))
  - Lexicon of Named Rock Units:  
(<http://www.bgs.ac.uk/lexicon/>)
- British Standards Institution (1990) BS1377: *British standard methods of test for soils for civil engineering purposes*, B.S.I., London.
- British Standard Institution (2005 +A1: 2011) BS EN ISO 22476-2: *Geotechnical investigation and testing – Field testing, Part 2: Dynamic Probing*, B.S.I., London.
- British Standard Institution (2005 +A1: 2011) BS EN ISO 22476-3: *Geotechnical investigation and testing – Field testing, Part 3: Standard penetration test*, B.S.I., London.
- British Standards Institution (2015 +A1: 2020) BS 5930: *Code of practice for ground investigations*, B.S.I., London.
- British Standards Institution (2011), BS 10175: *Investigation of potentially contaminated sites – Code of Practice*, British Standards Institute.
- British Standards Institution (2015 +A1:2019) BS8485: *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*, B.S.I., London.
- British Standards Institution (2013), BS 8576 *Guidance on Investigations for Ground Gas – Permanent Gases and Volatile Organic Compounds*.
- British Standards Institution (2017) BS EN ISO 14688: *Geotechnical investigation and testing – Identification and classification of soil*, B.S.I., London.
- Building Research Establishment (BRE) Special Digest 1 (2005), Third Edition: *Concrete in aggressive ground*, BRE Press, Garston.
  - Part C: *Assessing the aggressive chemical environment*.
  - Part D: *Specifying concrete for general cast-in-situ use*.
- Department for Environment, Food and Rural Affairs and the Environment Agency (2009) DEFRA Science Report – Final SC050021/SR2, *Human Health toxicological assessment of contaminants in soil*. Environment Agency, Bristol.
- Department for Environment, Food and Rural Affairs and the Environment Agency (2009) DEFRA Science Report – SC050021/SR3, *Updated technical background to the CLEA model*. Environment Agency, Bristol.
- Department for Environment, Food and Rural Affairs (2014) SP1010: *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document*.

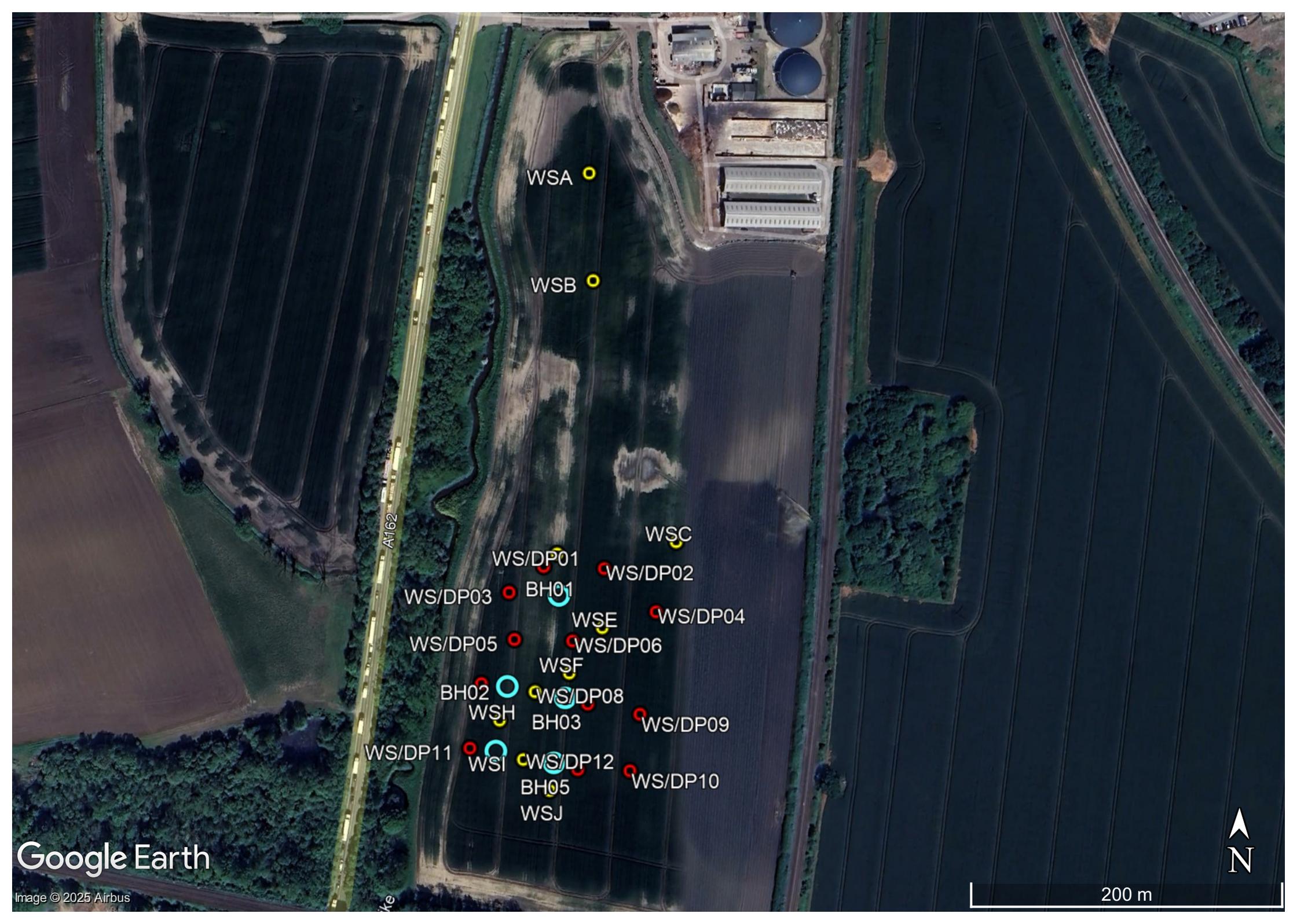


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## Appendix 1

### Site Plan

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WSA

WSB

WSC

WS/DP01

WS/DP02

WS/DP03

BH01

WSE

WS/DP04

WS/DP05

WS/DP06

WSF

BH02

WS/DP08

WSH

BH03

WS/DP09

WS/DP11

WSI

WS/DP12

WS/DP10

BH05

WSJ

Google Earth

Image © 2025 Airbus



200 m



A162

Mill Dike

Mill Dike

A162

WSC

WSD

WS/DP01

WS/DP02

WS/DP03

BH01

WS/DP04

WSE

WS/DP05

WS/DP06

WSF

WS/DP07

BH02

WSG

WS/DP08

WSH

BH03

WS/DP09

WS/DP11

BH04

WSI

BH05

WS/DP12

WS/DP10

WSJ

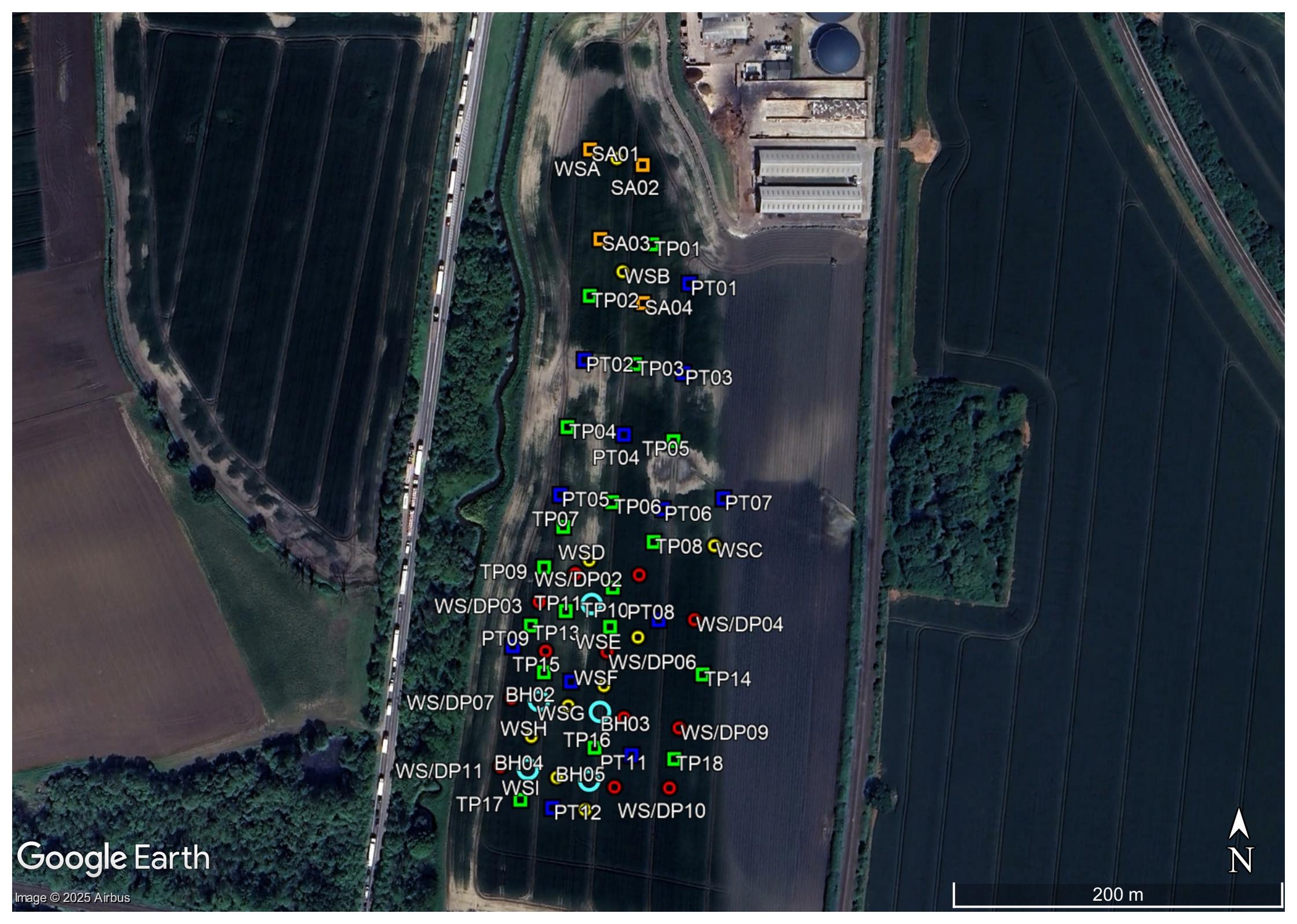
Google Earth

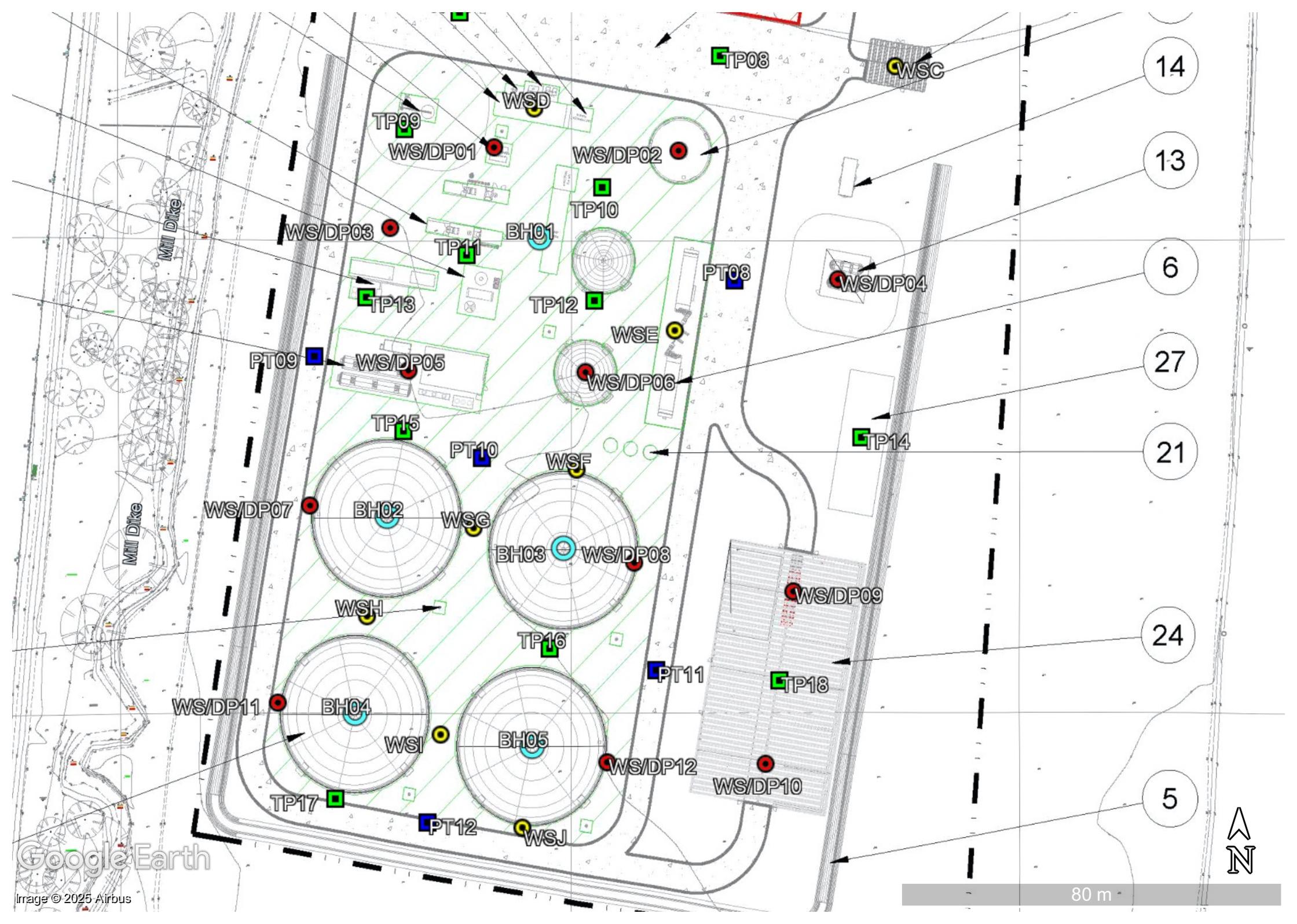
Image © 2025 Airbus

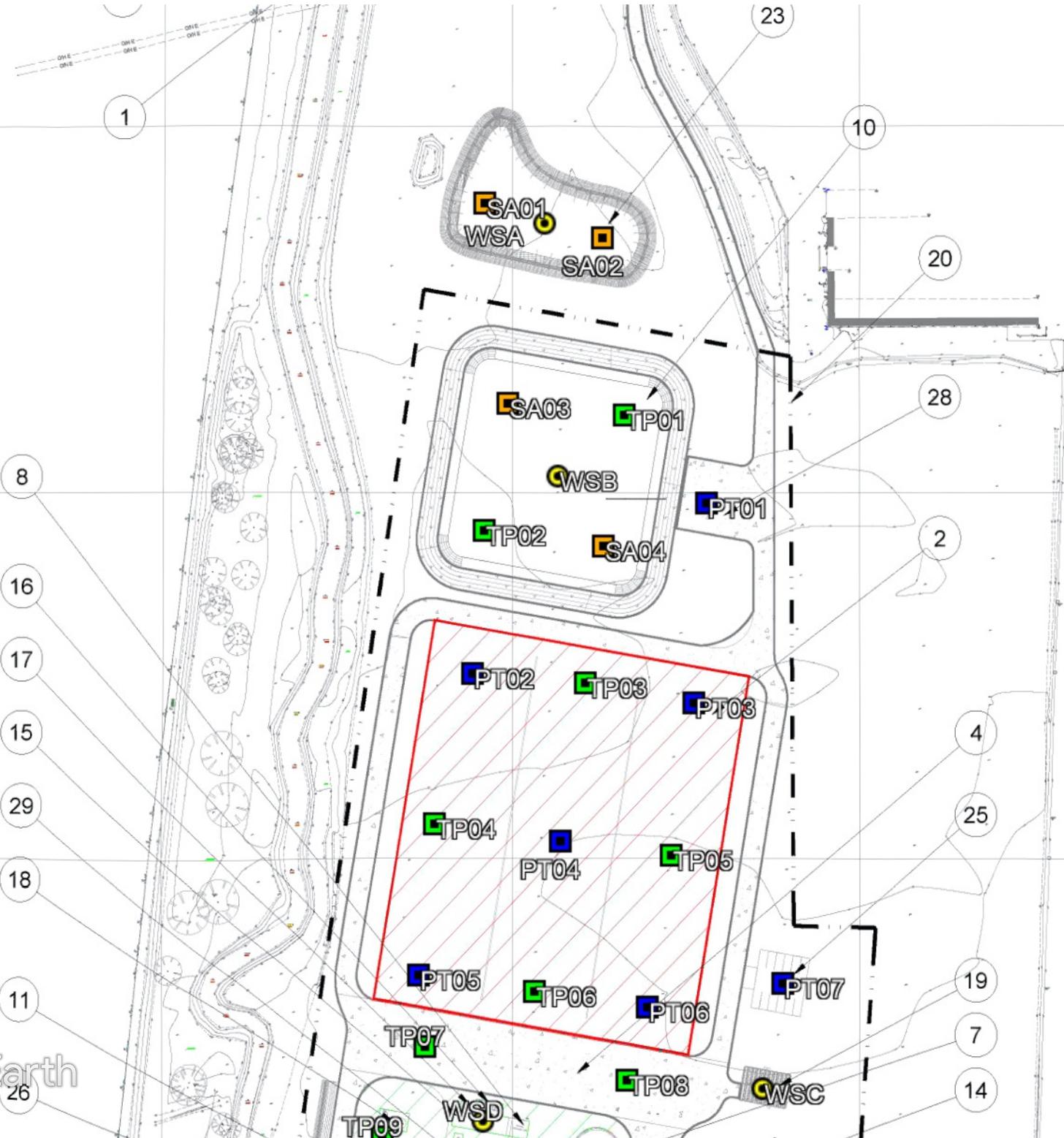


100 m



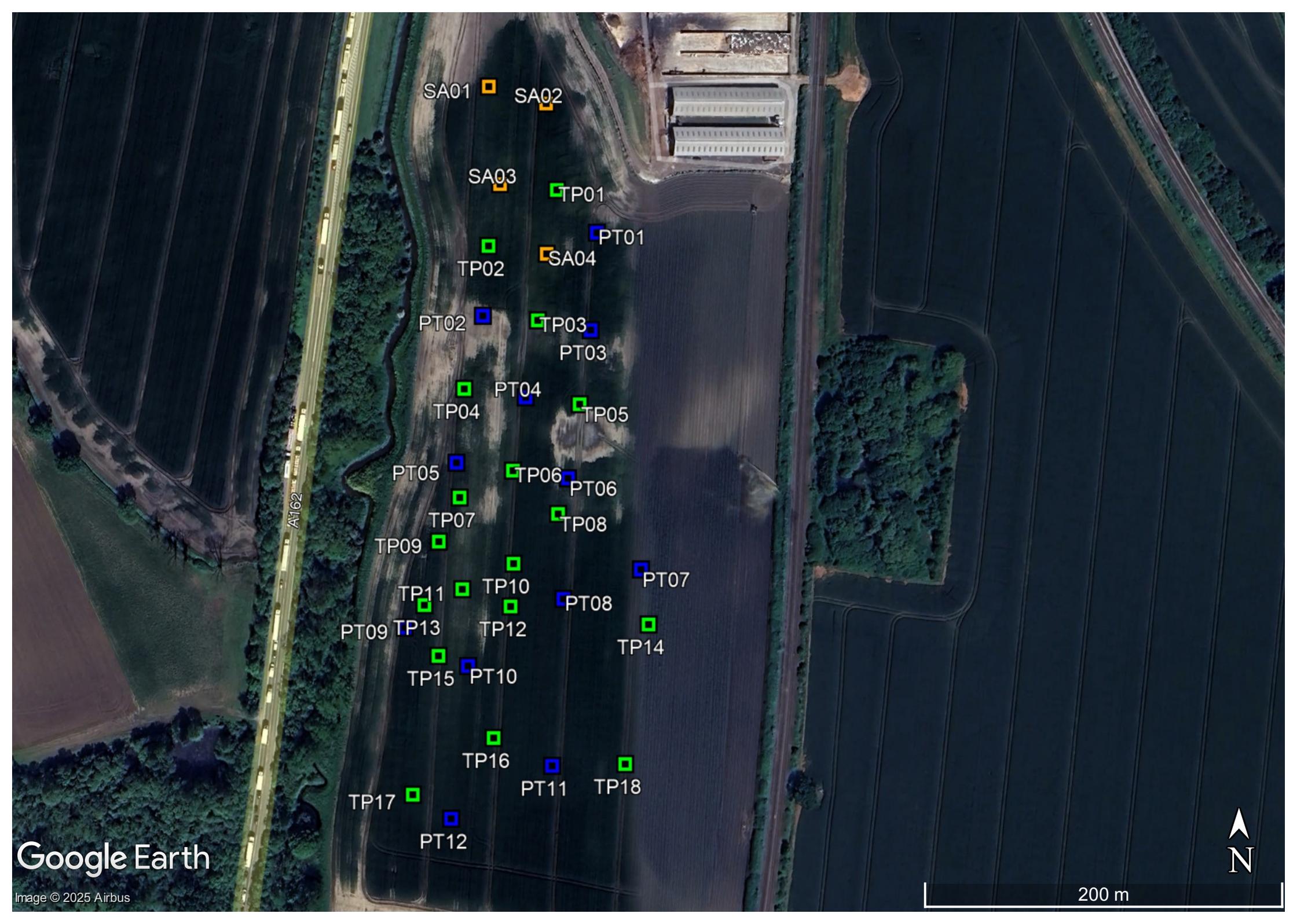






- ⑥ FEEDERS, No.2, 4m HIGH, 3m WIDE,
- ⑦ TANKS, No.3, Ø14m, 13.5m HIGH
- ⑧ INSTRUMENT & CONTROL ROOMS,
- ⑨ TANKS, No.4, Ø32m, 14.4m HIGH
- ⑩ COVERED LAGOON, 4.5m HIGH
- ⑪ CHP, No.2 CONTAINER 3m HIGH, ST
- ⑫ BUP, CONTAINER 3.5m HIGH, VENT
- ⑬ PROPANE TANKS, 2m HIGH
- ⑭ GEU, KIOSK 2.5m HIGH, VENT STAC
- ⑮ LV BOARD
- ⑯ TRANSFORMER
- ⑰ SUBSTATION
- ⑱ FLARE, COMBUSTION STACK 11m H
- ⑲ SITE OFFICE, 7m HIGH
- ⑳ PERIMETER FENCE, 2m HIGH
- ㉑ LIQUID FEED TANKS
- ㉒ LIGHTNING PROTECTION MASTS, N
- ㉓ DRAINAGE ATTENUATION POND, 42
- ㉔ FEEDSTOCK RECEPTION BUILDING HIGH
- ㉕ CAR PARK
- ㉖ GAS WASHING, No.1 WASHING TOV 8.4m HIGH
- ㉗ ODOUR CONTROL UNIT
- ㉘ TANKER FILLING LOCATION
- ㉙ GENERATORS
- ㉚ CO2. BUILDING, 6.1m HIGH, VENT S'





SA01 SA02

SA03 TP01

TP02 SA04 PT01

PT02 TP03 PT03

TP04 PT04 TP05

PT05 TP06 PT06

TP07 TP08

TP09 TP11 TP10 PT08 PT07

PT09 TP13 TP12 TP14

TP15 PT10

TP16 PT11 TP18

TP17 PT12

Google Earth

Image © 2025 Airbus

200 m



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## **Appendix 2**

# **Cable Percussive and Rotary Follow-on Borehole Records**

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# Borehole Log

Borehole No.

**BH01**

Sheet 1 of 2

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords:	Hole Type CP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level:		Scale 1:50
Client: Engie Renewable Gases UK Limited	Dates: 03/04/2025		Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 1.20	B		0.10 0.20		TOPSOIL (Sandy soil) (Drillers notes). Silty CLAY (Drillers notes). Greyish brown, thinly bedded, silty SAND (Drillers notes).		
		1.20 - 1.65 1.20 - 1.65 1.20	B D SPT	N=9 (1,2/2,2,3,2)				1	
		2.00 - 2.45	U					2	
		2.50	D		2.40		Grey, silty CLAY (Drillers notes).		
		3.00 - 3.45 3.00 - 3.45 3.00	B D SPT	N=8 (1,2/2,2,2,2)	2.90 3.40		Brown, silty CLAY (Drillers notes). Gravelly boulder CLAY (Drillers notes).	3	
		4.00 - 4.45	U					4	
		4.50	D						
		5.00 - 5.45 5.00 - 5.45	B D					5	
		5.90 6.00 - 6.45	D U		5.90		Firm, brown, sandy, gravelly, boulder CLAY (Drillers notes).	6	
		6.50	D		6.40		Reddish brown, silty, sandy, boulder CLAY (Drillers notes).		
		7.00	D					7	
		7.50 - 7.95 7.50 - 7.95 7.50	B D SPT	N=26 (3,3/5,5,7,9)	7.30		Light brown, thinly laminated, silty, sandy CLAY (Drillers notes).	8	
		8.60	D		8.60		Grey, weathered MUDSTONE (Drillers notes).		
		9.00 - 9.45	U					9	
		9.50	D						
		9.90	D		9.90			10	

Continued on Next Sheet

**Remarks**

1. Position scanned for services using CAT and Genny. 2. Inspection pit dug to 1.2m - 1 hour. 3. Water strikes recorded at 6.4m and 11.0m - Monitored for 20 mins each. 4. Chiselling - 1 hour. 5. Pulling casing - 25 mins. 6. No monitoring install due to artesian ground conditions, borehole sealed with bentonite - 1 hour.

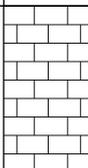




# Borehole Log

Borehole No.  
**BH01**  
Sheet 2 of 2

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords:	Hole Type CP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level:		Scale 1:50
Client: Engie Renewable Gases UK Limited	Dates: 03/04/2025		Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		9.90	SPT	60 (10,10/60 for 295mm)	11.10		 Cream, weathered LIMESTONE (Drillers notes).	11	
		10.50 - 10.95	B						
		10.50 - 10.95	D						
		11.00	SPT	50 (25 for 20mm/50 for 25mm)					
		11.10	D				End of Borehole at 11.100m	12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	

Remarks  
 1. Position scanned for services using CAT and Genny. 2. Inspection pit dug to 1.2m - 1 hour. 3. Water strikes recorded at 6.4m and 11.0m - Monitored for 20 mins each. 4. Chiselling - 1 hour. 5. Pulling casing - 25 mins. 6. No monitoring install due to artesian ground conditions, borehole sealed with bentonite - 1 hour.





# Borehole Log

Borehole No.

**BH02**

Sheet 1 of 2

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords:	Hole Type CP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level:		Scale 1:50
Client: Engie Renewable Gases UK Limited	Dates: 03/04/2025		Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 0.40	B		0.50		TOPSOIL (Brown, sandy, gravelly SOIL) (Drillers notes).	1	
		0.50 - 1.20	B				Soft to firm, yellowish brown, silty, sandy CLAY (Drillers notes).		
		1.20 - 1.65	B	N=10 (1,2/2,2,3,3)	5.40		SAND & GRAVEL with clay bands (Drillers notes).	2	
		1.20 - 1.65	D						
		1.20	SPT						
		2.00 - 2.45	U						3
		2.50	D						4
		3.00 - 3.45	B	N=9 (1,2/2,2,2,3)	5.40		Firm, reddish brown, gravelly CLAY (Drillers notes).	5	
		3.00 - 3.45	D						
		3.00	SPT						
		4.00 - 4.45	U						6
		4.50	D						7
		5.00 - 5.45	B	N=13 (1,1/2,2,2,7)	9.20		Firm, reddish brown, gravelly CLAY (Drillers notes).	8	
	5.00 - 5.45	D							
	5.00	SPT							
	6.00 - 6.45	B	N=18 (2,3/4,5,4,5)	9.20		Firm, reddish brown, gravelly CLAY (Drillers notes).	9		
	6.00	SPT							
	7.00	D							
	7.50 - 7.95	B	N=15 (2,3/3,4,4,4)	9.20		Firm, reddish brown, gravelly CLAY (Drillers notes).	10		
	7.50	SPT							
	8.00	D							
	9.00 - 9.45	B	N=23 (3,4/5,5,6,7)	9.20		Firm, reddish brown, gravelly CLAY (Drillers notes).	10		
	9.00	SPT							
	10.00	D							

Continued on Next Sheet

**Remarks**

1. Position scanned for services using CAT and Genny. 2. Inspection pit dug to 1.2m - 30 mins. 3. Water strike recorded at 5.4m - Monitored for 20 mins. 4. Chiselling - 1 hour. 5. Pulling casing and installing standpipe - 1 hour 30 mins.





# Borehole Log

Borehole No.  
**BH02**  
Sheet 2 of 2

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords:	Hole Type CP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level:		Scale 1:50
Client: Engie Renewable Gases UK Limited	Dates: 03/04/2025		Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50 - 10.95	B	50 (10,11/50 for 245mm)	10.50			Grey mottled yellow MUDSTONE and SILTSTONE (Drillers notes).	11
		10.50 - 10.95	D						
		10.50	SPT						
		11.50	D	50 (25 for 90mm/50 for 105mm)	12.00			End of Borehole at 12.000m	12
		12.00	D						
		12.00	SPT						13
		12.00	SPT						
									14
									15
									16
									17
									18
									19
									20

Remarks  
 1. Position scanned for services using CAT and Genny. 2. Inspection pit dug to 1.2m - 30 mins. 3. Water strike recorded at 5.4m - Monitored for 20 mins. 4. Chiselling - 1 hour. 5. Pulling casing and installing standpipe - 1 hour 30 mins.







# Borehole Log

Borehole No.

**BH03**

Sheet 2 of 2

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords:	Hole Type CP+RC
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level:		Scale 1:50
Client: Engie Renewable Gases UK Limited	Dates: 31/03/2025 - 03/04/2025		Logged By

Well	Water Strikes	Samples and In Situ Testing					Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results								
		10.50 - 10.95	B SPT	N=13 (2,3/3,3,3,4)					11.50		Firm, light grey, silty CLAY (Drillers notes).	11
		10.50										
		11.00	D									
		11.50	D									
		11.80	D									
		12.00	B SPT	50 (10,15/50 for 250mm)					12.00		Cream, weathered LIMESTONE recovered as a gravel (Drillers notes).	12
		12.00										
									15.00		End of Borehole at 15.00m	15
												16
												17
												18
												19
												20

Remarks  
 1. Position scanned for services using CAT and Genny. 2. Inspection pit dug to 1.2m - 1 hour. 3. Fetching water to assist drilling - 20 mins. 4. Water strike recorded at 6.1m - Monitored for 20 mins. 5. Chiselling - 1 hour. 6. Installing rotary casing and pulling casing - 45 mins. 7. Pulling rotary casing and backfilling borehole - 1 hour.





# Borehole Log

Borehole No.

**BH04**

Sheet 1 of 2

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords:	Hole Type CP+RC
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level:	Scale 1:50	
Client: Engie Renewable Gases UK Limited	Dates: 02/04/2025 - 03/04/2025	Logged By	

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.10	D		0.30		TOPSOIL (Drillers notes).			
		0.30	D							
		0.30 - 1.00	B				Brown, gravelly CLAY (Drillers notes).			
				0.40	D		1.00			Soft to firm, greyish brown, silty CLAY (Drillers notes).
				0.50	D					
				1.00	D					
				1.20 - 1.65	B		1.00			
				1.20 - 1.65	D					
				1.20	SPT	N=7 (1,1/1,2,2,2)				
				2.00 - 2.45	U		2.00			
				2.50	D					
				3.00 - 3.45	B					
				3.00 - 3.45	D		3.00			
				3.00	SPT	N=7 (1,2/1,2,2,2)				
				3.50	D					
				4.00 - 4.45	B		4.00			
				4.50	D					
				5.00 - 5.45	B					
		5.00 - 5.45	D		5.00					
		5.00	SPT	N=15 (2,2/3,4,4,4)						
		5.50	D							
		6.00 - 6.45	B		6.00		SAND & GRAVEL with clay bands (Drillers notes).			
		6.00	SPT	N=17 (2,3/4,4,4,5)						
		6.00	D							
		7.50 - 7.95	B		7.50					
		7.50	SPT	N=19 (2,3/4,3,6,6)						
		8.50	D							
		9.00 - 9.45	B		9.00					
		9.00	SPT	N=11 (2,3/3,2,3,3)						
		10.00	D							

Remarks  
 1. Position scanned for services using CAT and Genny. 2. Inspection pit dug to 1.2m - 1 hour. 3. Water strike recorded at 6.0m - Monitored for 20 mins. 4. Chiselling - 1 hour. 5. Installing rotary casing and pulling casing - 1 hour. 6. Pulling rotary casing and backfilling borehole - 1 hour.





# Borehole Log

Borehole No.

**BH04**

Sheet 2 of 2

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords:	Hole Type CP+RC
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level:		Scale 1:50
Client: Engie Renewable Gases UK Limited	Dates: 02/04/2025 - 03/04/2025		Logged By

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results						
		10.50 - 10.95 10.50 10.80	B SPT D	N=27 (4,5/5,6,8,8)		10.80			SAND & GRAVEL with clay bands (Drillers notes).	11
		11.80 - 12.00 11.80	D SPT	50 (25 for 125mm/50 for 25mm)						
						12.00			LIMESTONE (Drillers notes).	12
										13
										14
						15.00				15
									End of Borehole at 15.00m	16
										17
										18
										19
										20

Remarks  
 1. Position scanned for services using CAT and Genny. 2. Inspection pit dug to 1.2m - 1 hour. 3. Water strike recorded at 6.0m - Monitored for 20 mins. 4. Chiselling - 1 hour. 5. Installing rotary casing and pulling casing - 1 hour. 6. Pulling rotary casing and backfilling borehole - 1 hour.





# Borehole Log

Borehole No.

**BH05**

Sheet 1 of 2

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords:	Hole Type CP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level:	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 03/04/2025	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	D		0.30		TOPSOIL (Drillers notes).	1 2 3 4 5 6 7 8 9 10	
		0.30	D						
		0.30 - 1.00	B		1.00		Soft to firm, brown, silty CLAY (Drillers notes).		
		1.00	D						
		1.20 - 1.65	B						
		1.20 - 1.65	D		2.00		Firm, grey, silty CLAY (Drillers notes).		
		1.20	SPT	N=8 (1,1/2,2,2,2)					
		2.00 - 2.45	U		2.50		Firm, grey, silty CLAY (Drillers notes).		
		2.50	D						
		3.00 - 3.45	B						
		3.00 - 3.45	D		3.00		Firm, grey, silty CLAY (Drillers notes).		
		3.00	SPT	N=8 (1,1/2,2,2,2)					
		3.50	D		4.00 - 4.45		Firm, grey, silty CLAY (Drillers notes).		
		4.00 - 4.45	U						
		4.50	D						
	5.00 - 5.45	B		5.00		Firm, grey, silty CLAY (Drillers notes).			
	5.00 - 5.45	D							
	5.00	SPT	N=16 (3,3/4,3,4,5)	6.00 - 6.45		Firm, grey, silty CLAY (Drillers notes).			
	6.00 - 6.45	U							
	6.45								
	7.00	D		7.50 - 7.95		SAND & GRAVEL with clay bands (Drillers notes).			
	7.50	SPT	N=20 (4,4/5,4,5,6)						
	8.50	D		9.00 - 9.45		SAND & GRAVEL with clay bands (Drillers notes).			
	9.00	SPT	N=13 (2,3/2,2,4,5)						
	10.00	D					Continued on Next Sheet		

Remarks  
 1. Position scanned for services using CAT and Genny. 2. Inspection pit dug to 1.2m - 40 mins. 3. Water strike recorded at 6.45m - Monitored for 20 mins. 4. Chiselling - 1 hour. 5. Pulling casing and installing standpipe - 1 hour 30 mins.





# Borehole Log

Borehole No.

**BH05**

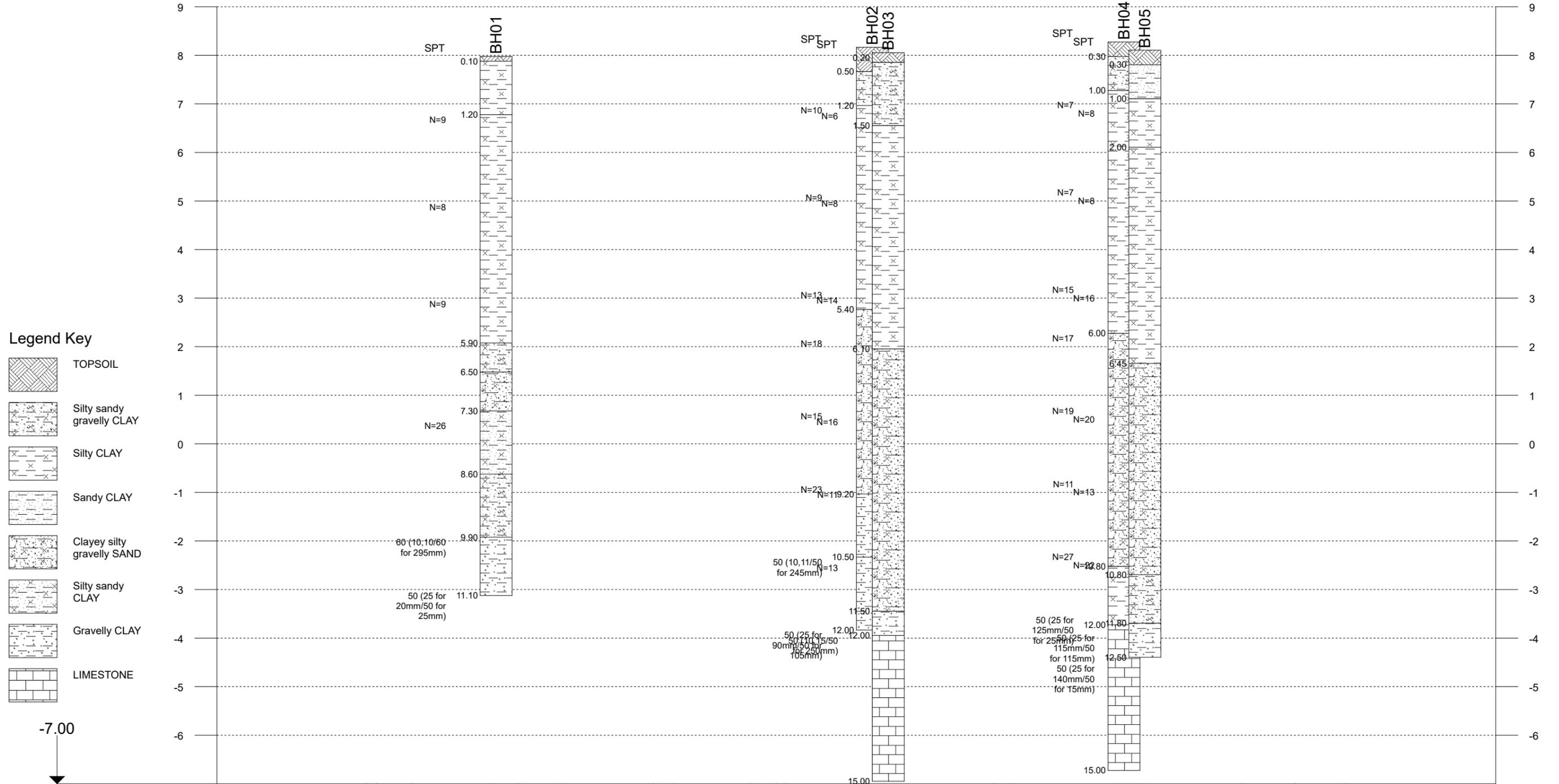
Sheet 2 of 2

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords:	Hole Type CP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level:		Scale 1:50
Client: Engie Renewable Gases UK Limited	Dates: 03/04/2025		Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50 - 10.95	B	N=22 (3,4/4,5,6,7)	10.80		Firm to stiff, reddish brown, silty CLAY (Drillers notes).	11	
		10.50	SPT						
		10.80	D						
			11.40	D					
			11.80	D		11.80			
			12.00 - 12.45	B	50 (25 for 115mm/50 for 115mm)			Grey, weathered SILTSTONE (Drillers notes).	12
		12.00	SPT						
		12.50	D		12.50				
		12.50	SPT	50 (25 for 140mm/50 for 15mm)					
		End of Borehole at 12.500m							13
									14
									15
									16
									17
									18
									19
									20

Remarks  
 1. Position scanned for services using CAT and Genny. 2. Inspection pit dug to 1.2m - 40 mins. 3. Water strike recorded at 6.45m - Monitored for 20 mins. 4. Chiselling - 1 hour. 5. Pulling casing and installing standpipe - 1 hour 30 mins.





- Legend Key**
- TOPSOIL
  - Silty sandy gravelly CLAY
  - Silty CLAY
  - Sandy CLAY
  - Clayey silty gravelly SAND
  - Silty sandy CLAY
  - Gravelly CLAY
  - LIMESTONE

-7.00

Chainage (m)	0.00	1.59	7.47	20.31	24.56	31.74	46.47	49.76	62.31	66.44	67.87	81.28	83.83	101.50	104.22	122.02	124.22	125.40	141.77	150.39	158.52
Offset (m)	5.21	17.75	6.18	8.67	18.93	18.58	18.57	17.43	1.16	18.80	19.57	22.78	4.09	14.49	2.10	8.28					
Elevation (mAOD)	7.91	7.95	7.98	8.03	8.01	8.00	8.00	8.05	8.00	8.06	8.05	8.16	7.94	8.28	8.21	8.14	8.28				

---

## Appendix 3

### Windowless Sample Borehole Records

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# Borehole Log

Borehole No.

**WS01**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450385.02E - 432128.70N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 7.90m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 03/04/2025		

Well	Water Strikes	Samples and In Situ Testing					Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)	Results					
							0.30	7.60		TOPSOIL.	
		1.00	SPT	87	100	N=8 (1,1/2,2,2,2)				CLAY (Driller's notes).	1
		2.00	SPT	77	90	N=7 (1,1/1,2,2,2)					2
		3.00	SPT	67	90	N=8 (2,2/2,2,2,2)	3.00	4.90			3
										End of Borehole at 3.00m	4
											5
											6
											7
											8
											9
											10

Remarks





# Borehole Log

Borehole No.  
**WS02**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450423.86E - 432127.98N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 7.82m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 04/05/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.30		87	100		7.52		TOPSOIL.	
		1.00	SPT	77	100	N=8 (1,2/2,2,2,2)			CLAY (Driller's notes).	1
	▼	2.00 2.00 2.00	SPT	67	100	N=7 (1,2/2,1,2,2)				2
		3.00	SPT			N=8 (2,2/2,2,2,2)	3.00		End of Borehole at 3.00m	3
										4
										5
										6
										7
										8
										9
										10

Remarks





# Borehole Log

Borehole No.

**WS03**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450363.12E - 432111.75N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.10m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 03/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Dia. (mm)	TCR (%)						Results
		0.30		87	100		7.80		TOPSOIL.		
		1.00	SPT			N=8 (2,1/2,2,2,2)			CLAY (Driller's notes).	1	
		2.00	SPT	77	90					2	
						N=7 (1,1/2,1,2,2)					
		3.00	SPT	67	100					3	
						N=12 (2,2/3,3,3,3)	3.00	5.10		End of Borehole at 3.00m	4
										5	
										6	
										7	
										8	
										9	
										10	

Remarks





# Borehole Log

Borehole No.

**WS04**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450457.49E - 432101.66N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 7.95m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 03/04/2025		

Well	Water Strikes	Samples and In Situ Testing					Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Dia. (mm)	TCR (%)	Results				
		0.30		87	100		7.65		TOPSOIL	
		1.00	SPT			N=7 (1,1/1,2,2,2)			CLAY (Driller's notes).	
		2.00	SPT	77	100					
		2.00	SPT			N=8 (1,2/2,2,2,2)				
		3.00	SPT	67	100					
		3.00	SPT			N=8 (2,2/2,2,2,2)	3.00	4.95	End of Borehole at 3.00m	

Remarks





# Borehole Log

Borehole No.

**WS05**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450367.50E - 432081.88N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.00m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 02/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.30		87	100		7.70		TOPSOIL.	
		1.00	SPT			N=8 (2,1/1,2,3,2)			CLAY (Driller's notes).	1
		2.00	SPT	77	100					2
		3.00	SPT	67	100	N=8 (2,2/2,2,2,2)	5.00			3
									End of Borehole at 3.00m	4
										5
										6
										7
										8
										9
										10

Remarks





# Borehole Log

Borehole No.

**WS06**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450404.80E - 432081.92N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.00m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 02/04/2025		

Well	Water Strikes	Samples and In Situ Testing					Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)	Results					
						0.30	7.70		TOPSOIL.		
		1.00	SPT	87	100	N=9 (1,2/2,2,2,3)			CLAY (Driller's notes).	1	
		2.00	SPT	77	100		N=8 (2,2/2,2,2,2)				2
		3.00	SPT	67	100	N=8 (2,2/2,2,2,2)	3.00	5.00		End of Borehole at 3.00m	3
											4
											5
											6
											7
											8
											9
											10

Remarks





# Borehole Log

Borehole No.  
**WS07**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450347.09E - 432053.81N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.24m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 02/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.30		87	100		7.94		TOPSOIL.	
		1.00	SPT			N=7 (1,1/1,2,2,2)			CLAY (Driller's notes).	1
		2.00	SPT	77	100					2
		3.00	SPT	67	100	N=8 (2,2/2,2,2,2)				3
						N=9 (2,2/2,2,2,3)	3.00	5.24	End of Borehole at 3.00m	4
										5
										6
										7
										8
										9
										10

Remarks





# Borehole Log

Borehole No.

**WS08**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450415.35E - 432042.41N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.00m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 01/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.30		87	100		7.70		TOPSOIL.	
		1.00	SPT			N=9 (2,2/2,2,2,3)			CLAY (Driller's notes).	1
		2.00	SPT	77	90					2
		3.00	SPT	67	90	N=8 (1,2/2,2,2,2)				3
						N=8 (2,2/2,2,2,2)	3.00		End of Borehole at 3.00m	4
										5
										6
										7
										8
										9
										10

Remarks





# Borehole Log

Borehole No.

**WS09**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450448.81E - 432036.84N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 7.90m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 01/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
						0.30	7.60		TOPSOIL.	
		1.00	SPT	87	90	N=6 (1,2/1,2,1,2)			CLAY (Driller's notes).	1
				77	80					
		2.00	SPT			N=8 (2,2/2,2,2,2)				2
				67	80					
		3.00	SPT			N=8 (2,2/2,2,2,2)	3.00	4.90	End of Borehole at 3.00m	3
										4
										5
										6
										7
										8
										9
										10

Remarks





# Borehole Log

Borehole No.

**WS10**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450443.36E - 432001.03N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 7.89m aOD		Scale 1:50
Client: Engie Renewable Gases UK Limited	Dates: 01/04/2025		Logged By SH

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
				87	100	0.10	7.79		TOPSOIL (Soft, brown, sandy, silty CLAY. Sand is fine to medium). Soft to firm, greyish brown, thinly laminated, slightly sandy, silty CLAY. Sand is fine to medium. Rare gravel.	1
				77	85				2	
				67	90				3	
						3.45	4.44		End of Borehole at 3.45m	4
										5
										6
										7
										8
										9
										10

Remarks  
 1. Position scanned for services using CAT and Genny. 2. Target depth achieved.





# Borehole Log

Borehole No.  
**WS11**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450340.88E - 432012.60N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.32m aOD	Scale 1:50	Logged By SH
Client: Engie Renewable Gases UK Limited	Dates: 01/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
				87	90	0.10	8.22		TOPSOIL (Soft, brown, sandy, silty CLAY. Sand is fine to medium).	
				77	95	1.00	7.32		Soft to firm, greyish brown, thinly laminated, slightly gravelly, silty CLAY. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies.	1
				67	95				Soft to firm, greyish brown, thinly laminated, slightly sandy silty CLAY. Sand is fine to medium. Silt and sand partings.	2
						3.45	4.87		End of Borehole at 3.45m	3
										4
										5
										6
										7
										8
										9
										10

Remarks  
1. Position scanned for services using CAT and Genny. 2. Target depth achieved.





# Borehole Log

Borehole No.

**WS12**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450410.15E - 432000.95N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.02m aOD	Scale 1:50	Logged By SH
Client: Engie Renewable Gases UK Limited	Dates: 01/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
				87	90	0.10	7.92		<p>TOPSOIL (Soft, brown, sandy, silty CLAY. Sand is fine to medium).</p> <p>Soft to firm, greyish brown, thinly laminated, slightly gravelly, silty CLAY. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies.</p>	1
				77	95	1.42	6.60		<p>Loose, brown, clayey, silty, slightly gravelly, fine to coarse SAND. Gravel is sub-angular and fine to medium of various lithologies.</p> <p>Soft to firm, greyish brown, thinly laminated, silty CLAY. Sand is fine to medium. Rare gravel.</p>	2
				67	95					3
						3.45	4.57		End of Borehole at 3.45m	4
										5
										6
										7
										8
										9
										10

Remarks  
 1. Position scanned for services using CAT and Genny. 2. Target depth achieved.





# Borehole Log

Borehole No.

**WSA**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450407.45E - 432378.11N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 7.53m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 17/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					Results
						0.30	7.23		TOPSOIL	
				128	100		1.20	6.33		Firm brownish grey streaked orangish brown slightly sandy slightly gravelly silty CLAY. Sand is fine. Gravel is sub-angular fine limestone.
				101	100					Soft to firm hinly laminated greyish brown silty CLAY with silt and fine sand partings.
				87	100					
				87	100					
				77	100					
				67	0		5.00	2.53		No core recovery; sample fell from sampling tube. Inferred SAND.
				57	100		6.00	1.53		Brown silty fine SAND.
							6.60	0.93		Firm thinly laminated greyish brown silty CLAY with silt and fine sand partings.
							7.00	0.53		End of Borehole at 7.00m

Remarks





# Borehole Log

Borehole No.

**WSA2**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450410.00E - 432000.00N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.00m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 14/05/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
								TOPSOIL.		
				87	100	0.30	7.70		Firm brownish grey streaked orangish brown slightly sandy slightly gravelly silty CLAY. Sand is fine. Gravel is sub-angular fine limestone.	
				87	100	1.00	7.00		Firm thinly laminated greyish brown silty CLAY with silt and fine sand partings.	1
				77	100				2m: 200m fine SAND lens.	2
				67	100				End of Borehole at 4.00m	4
						4.00	4.00			5
										6
										7
										8
										9
										10

Remarks  
 Installed 1m south of WSA. Shorter standpipe installed.





# Borehole Log

Borehole No.

**WSB**

Sheet 1 of 1

Project Name: Home Farm

Project No.  
C4826/24/E/7379

Co-ords: 450412.07E - 432309.94N

Hole Type  
WLS

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW

Level: 7.72m aOD

Scale  
1:50

Client: Engie Renewable Gases UK Limited

Dates: 17/04/2025

Logged By  
RP

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
						0.30	7.42		TOPSOIL.	
				128	100				Soft to firm brownish grey slightly sandy slightly gravelly silty CLAY. Sand is fine. Gravel is sub-angular fine limestone.	
				101	100	1.00	6.72		Firm thinly laminated greyish brown silty CLAY with silt and fine sand partings.	1
				87	100					2
				87	100					3
				77	100					4
				67	100					5
				67	100	5.50	2.22		Brown very silty fine SAND.	
		6.00		57	0	6.00	1.72		No recovery and borehole collapsed back to 7; inferred to be waterlogged granular strata.	6
						7.00	0.72		End of Borehole at 7.00m	7
										8
										9
										10

Remarks





# Borehole Log

Borehole No.

**WSC**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450468.99E - 432146.26N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 7.52m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 04/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.15				7.37		TOPSOIL (Firm dark brown organic slightly sandy CLAY).		
		1.00	SPT	87	100	0.80	6.72	Firm dark greyish brown streaked orangish brown slightly sandy silty CLAY. Sand is fine. Rare limestone gravel.	1	
		1.30	D					Firm thinly laminated greyish brown silty CLAY with silt and fine sand partings.		
		1.50 - 2.00	C	87	100					
		2.00	SPT						2	
		2.00	D							
		2.30	D	77	85					
		3.00	SPT						3	
		3.00	D					3m: 0.1m lens of clayey sandy sub-rounded fine and medium GRAVEL of various lithologies.		
		3.30	D	67	60					
		4.00	SPT						4	
			D							
			D	57	100					
		5.00	SPT						5	
			D							
		5.45				5.45	2.07	End of Borehole at 5.45m	6	
									7	
									8	
									9	
									10	

Remarks





# Borehole Log

Borehole No.

**WSD**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450393.54E - 432136.89N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 7.83m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 04/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.30				7.53		TOPSOIL		
		1.00	SPT	87	100	N=7 (1,1/1,2,2,2)		Soft grey and greyish brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is sub-angular and rounded of flint and ironstone.	1	
		2.00	SPT	87	100	N=6 (1,1/1,1,2,2)		Soft to firm locally firm thinly laminated greyish brown silty CLAY with silt and fine sand partings	2	
		3.00	SPT	77	100	N=9 (2,2/2,2,2,3)			3	
		4.00	SPT	67	100	N=8 (2,2/2,2,2,2)			4	
		5.00	SPT	57	100	N=21 (2,3/4,4,6,7)			5	
		5.45					2.38	End of Borehole at 5.45m	6	
									7	
									8	
									9	
									10	

Remarks





# Borehole Log

Borehole No.

**WSE**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450423.53E - 432090.99N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 7.91m aOD	Scale 1:50	Logged By
Client: Engie Renewable Gases UK Limited	Dates: 03/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.25				7.66		TOPSOIL		
		1.00	SPT	87	100	N=9 (2,1/2,2,2,3)		Soft grey and greyish brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is sub-angular and rounded of flint and ironstone.	1	
		2.00	SPT	87	90	N=7 (2,1/2,1,2,2)		Soft to firm locally firm thinly laminated greyish brown silty CLAY with silt and fine sand partings	2	
		3.00	SPT	77	90	N=8 (2,2/2,2,2,2)			3	
		4.00	SPT	67	80	N=8 (2,2/2,2,2,2)			4	
		5.00	SPT	57	80	N=12 (2,2/2,3,4,3)		4.4m: 100mm dark grey SILT lens.	5	
		5.45				2.46		End of Borehole at 5.45m	6	
									7	
									8	
									9	
									10	

Remarks





# Borehole Log

Borehole No.

**WSF**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450403.14E - 432060.58N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.06m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 02/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.15				7.91		TOPSOIL (Soft to firm organic dark brown sandy CLAY).		
		1.00	SPT	87	100	N=8 (1,1/2,2,2,2)	7.16	Firm dark greyish brown streaked orangish brown slightly sandy silty CLAY. Sand is fine.		
		1.30	D				7.01	Greyish brown and orangish brown clayey silty very gravelly fine to coarse SAND. Gravel is sub-rounded to angular fine to coarse of limestone flint and various lithologies.	1	
		1.50 - 2.00	C	87	100			Soft to firm thinly laminated greyish brown silty CLAY with silt and fine sand partings	2	
		2.00	SPT			N=8 (2,2/2,2,2,2)				
		2.50		77	90		5.56	Firm thinly laminated greyish brown silty CLAY with silt and fine sand partings	3	
		3.00	SPT			N=7 (2,2/2,1,2,2)				
		4.00	SPT	67	80	N=8 (2,2/2,2,2,2)			4	
		5.00	SPT	57	0	N=12 (2,2/3,3,3,3)			5	
		5.45					2.61	End of Borehole at 5.45m	6	
									7	
									8	
									9	
									10	

Remarks





# Borehole Log

Borehole No.

**WSG**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450381.50E - 432049.18N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.08m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 02/04/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.25				7.83		TOPSOIL		
		1.00	SPT	87	100	N=9 (1,2/2,2,2,3)		Soft grey and greyish brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is sub-angular and rounded of flint and ironstone.	1	
		2.00	SPT	87	100	N=8 (1,2/2,2,2,2)		Firm thinly laminated greyish brown silty CLAY with silt and fine sand partings	2	
		3.00	SPT	77	70	N=9 (1,2/2,2,2,3)		Loose to medium dense clayey silty gravelly fine and medium SAND. Gravel is sub-angular fine chalk and flint. Moist.	3	
		4.00	SPT	67	100	N=9 (2,2/3,2,2,2)		Firm thinly laminated greyish brown silty CLAY with silt and fine sand partings	4	
		5.00	SPT	57	0	N=9 (2,2/2,2,2,3)		No sample recovery in sampling tube. Firm grey silty CLAY inferred from SPT samples.	5	
		5.45				2.63		End of Borehole at 5.45m	6	
									7	
									8	
									9	
									10	

Remarks





# Borehole Log

Borehole No.

**WSH**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450359.44E - 432030.66N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.16m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 31/03/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.20				7.96		TOPSOIL (Firm dark brown organic slightly sandy CLAY).		
		0.70	D	87	100	0.70	7.46	Greyish brown fine and medium silty SAND.		
		1.00	SPT			1.00	7.16	Greyish brown and orangish brown clayey silty very gravelly fine to coarse SAND. Gravel is sub-rounded to angular fine to coarse of limestone flint and various lithologies.	1	
		1.30	D					Firm thinly laminated greyish brown silty CLAY with silt and fine sand partings		
		1.50 - 2.00	C	87	100					
		2.00	SPT						2	
		2.30	D							
		2.50 - 3.00	C	77	90					
		3.00	SPT						3	
		3.00						3m: 0.1m lens of clayey sandy sub-rounded fine and medium GRAVEL of various lithologies.		
				67	100					
		4.00	SPT						4	
				57	65					
		5.00	SPT			5.00	3.16	End of Borehole at 5.00m	5	
									6	
									7	
									8	
									9	
									10	

Remarks





# Borehole Log

Borehole No.

**WSI**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450375.42E - 432006.45N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.21m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 31/03/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
		0.40	ES	87	100	0.30	7.91	TOPSOIL		
						0.55	7.66	Loose brown silty SAND.		
		1.00	SPT			0.95	7.26	Soft to firm brown slightly gravelly silty CLAY. Gravel is sub-angular fine and medium of flint and chalk.	1	
				87	90	1.20	7.01	Loose grey very clayey very sandy sub-rounded and rounded GRAVEL of chalk and flint.		
		2.00	SPT			2.00	6.21	Soft thinly laminated greyish brown silty CLAY with silt and fine sand partings	2	
		2.00		77	90			Firm thinly laminated greyish brown silty CLAY with silt and fine sand partings		
		2.00								
		3.00	SPT						3	
				67	85					
		4.00	SPT						4	
				57	100					
		5.00	SPT			5.00	3.21	End of Borehole at 5.00m	5	
									6	
									7	
									8	
									9	
									10	

Remarks





# Borehole Log

Borehole No.

**WSJ**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450392.39E - 431987.34N	Hole Type WLS
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Level: 8.14m aOD	Scale 1:50	Logged By RP
Client: Engie Renewable Gases UK Limited	Dates: 31/03/2025		

Well	Water Strikes	Samples and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Dia. (mm)	TCR (%)					
						0.15	7.99		TOPSOIL (Soft to firm organic dark brown sandy CLAY).	
						0.60	7.54		Firm dark greyish brown streaked orangish brown slightly sandy silty CLAY. Sand is fine.	
		1.00	SPT	87	100	0.75	7.39		Greyish brown and orangish brown silty very sandy sub-rounded to angular fine to coarse GRAVEL of flint limestone and various lithologies. Sand is fine to coarse.	1
						1.00	7.14		Greyish brown fine and medium silty SAND.	
		2.00	SPT	87	100				Soft thinly laminated greyish brown silty CLAY with silt and fine sand partings	2
						2.00	6.14		Firm thinly laminated greyish brown silty CLAY with silt and fine sand partings	
		3.00	SPT	77	80					3
						3.00				
		4.00	SPT	67	80					4
						4.00				
		5.00	SPT	57	0					5
						5.00				
						5.45	2.69		End of Borehole at 5.45m	6
										7
										8
										9
										10

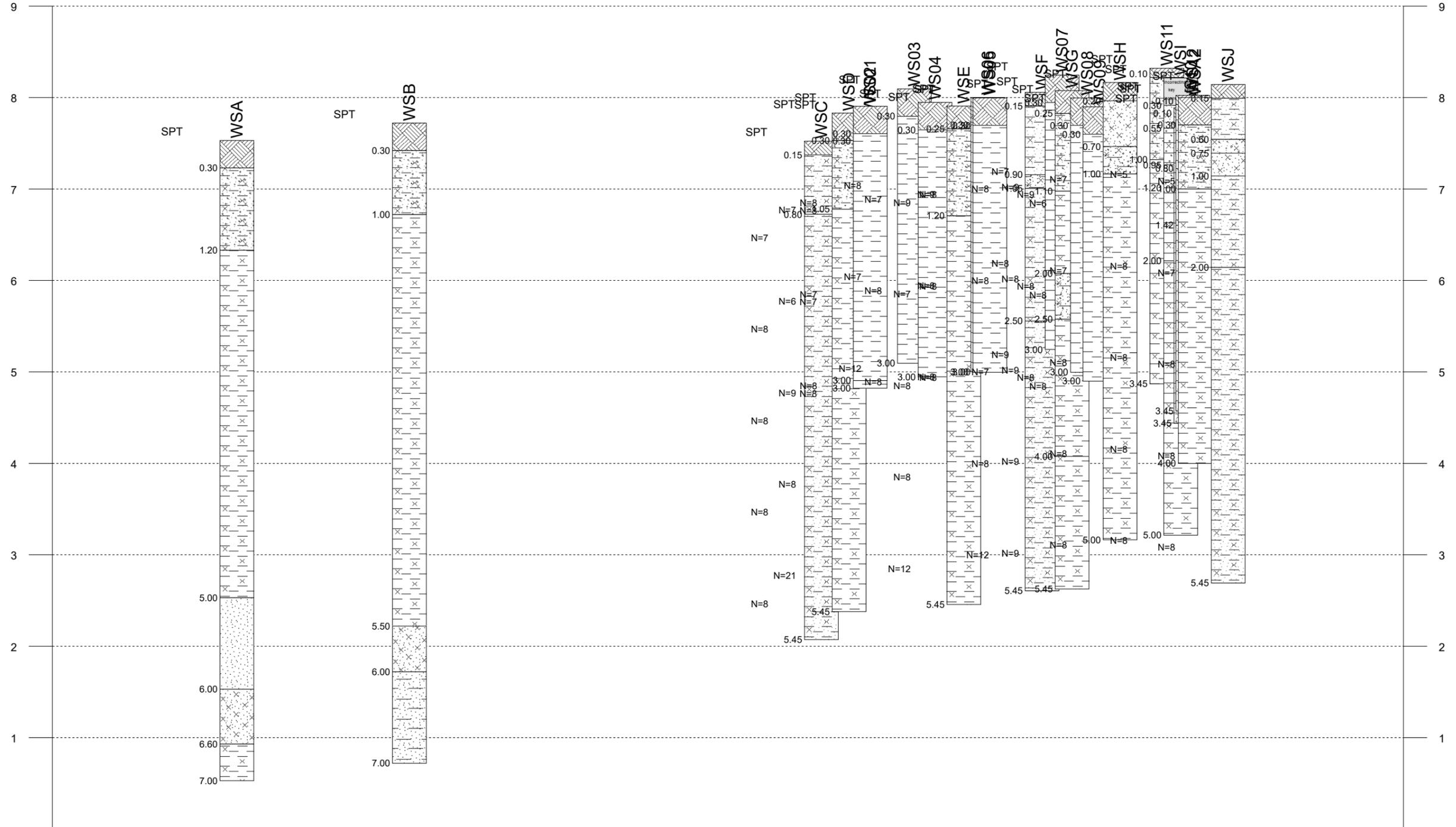
Remarks





Legend Key

-  TOPSOIL
-  Silty sandy gravelly CLAY
-  Silty sandy CLAY
-  Silty SAND
-  CLAY
-  Silty gravelly CLAY
-  Silty sandy GRAVEL
-  Clayey silty gravelly SAND
-  Silty CLAY
-  Clayey sandy GRAVEL
-  SAND
-  Clayey SAND



Chainage (m)	Offset (m)	Elevation (mAOD)
0.00		
5.30	14.06	7.40
8.65	0.91	7.53
12.39	15.91	7.68
23.53		7.91
59.16	6.01	7.72
76.71	46.20	7.73
82.45	13.94	7.64
91.42	18.72	7.60
94.76		
139.69	15.65	7.48
136.25	44.54	7.71
171.53		
177.31	23.56	7.65
211.75	39.81	7.66
211.62		
218.52	34.04	7.67
230.52	25.71	7.89
237.99	68.48	7.92
250.11	8.97	7.83
255.20	36.57	7.91
258.30		
265.87	5.20	7.95
275.86	38.87	8.18
281.15	22.31	8.03
284.92	66.66	7.86
290.46	48.74	8.04
295.38	21.95	7.91
303.48	58.67	8.00
318.22	33.58	8.05
323.40	17.62	8.06
326.40		
334.12	53.71	8.25
336.62	38.61	8.12
344.19	14.97	8.06
349.00	48.34	7.90
357.01	40.89	8.16
362.35	1.95	7.94
375.44	59.97	8.33
380.89	24.71	8.21
386.81	48.59	8.09
395.08	46.41	8.33
399.64	7.06	8.14
407.86	24.19	8.28

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## Appendix 4

### Dynamic Probe Records

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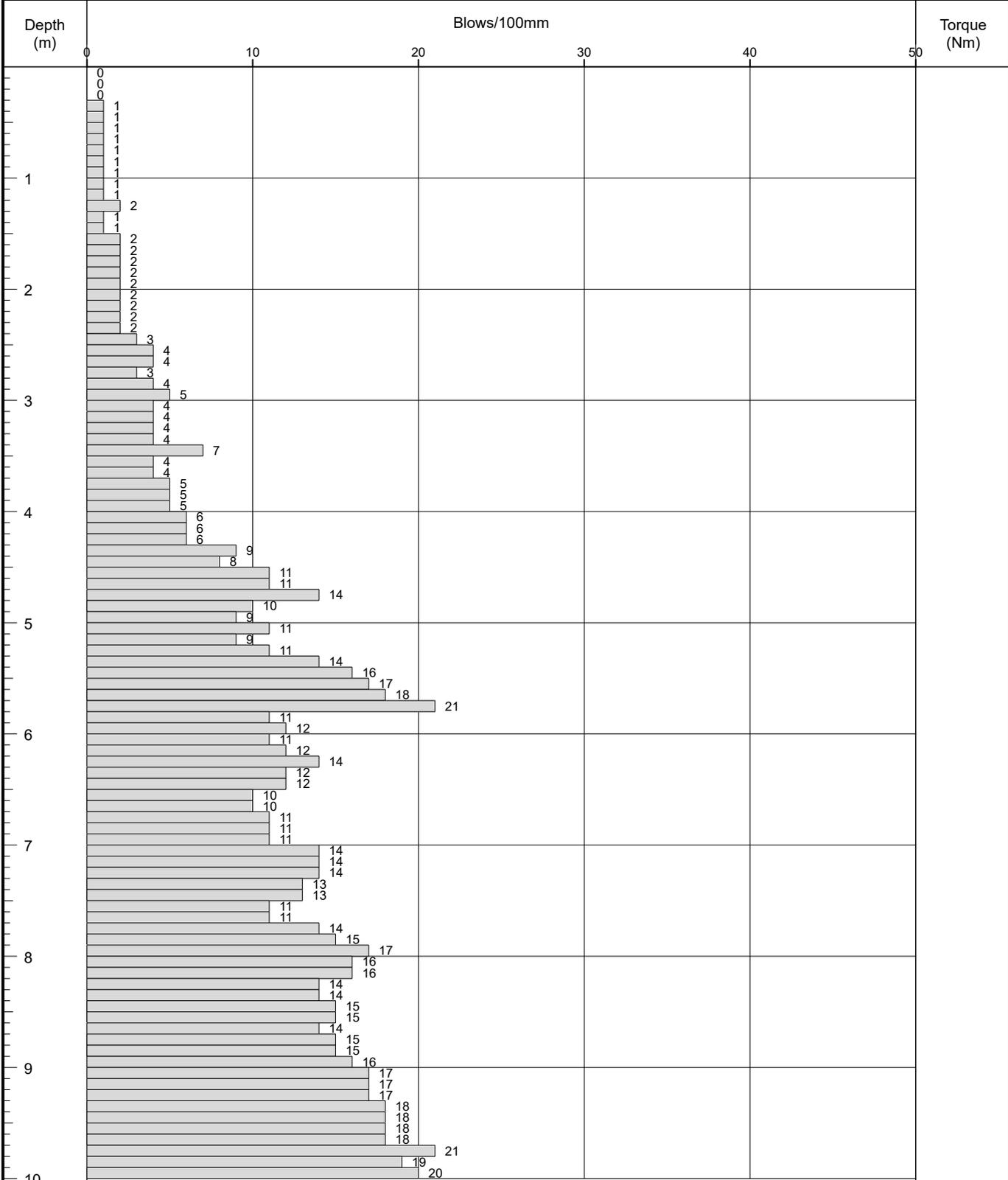
# Probe Log

Probe No.

**DP01**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450385.02E - 432128.70N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 7.91m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 03/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		





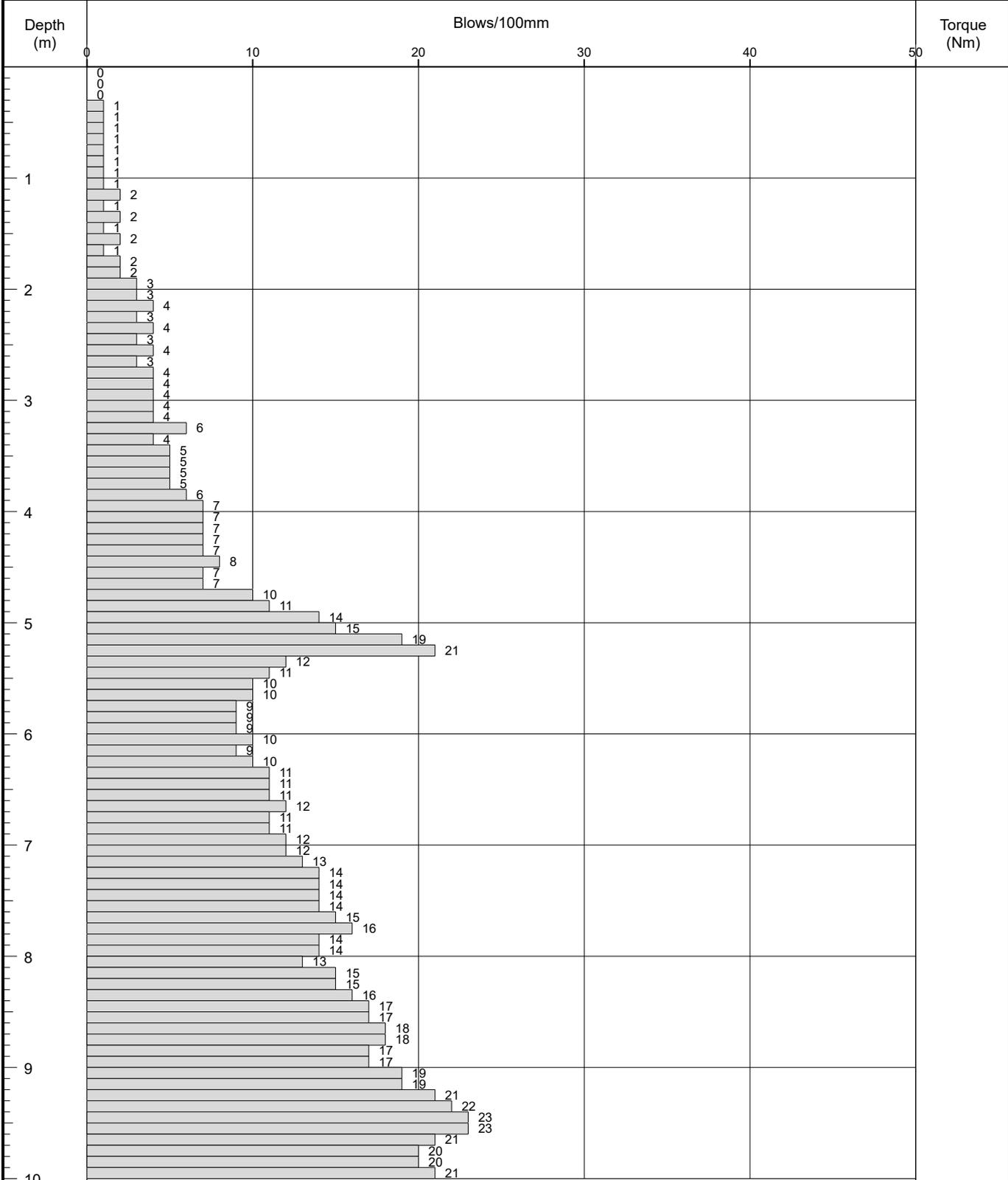
# Probe Log

Probe No.

**DP02**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450423.86E - 432127.98N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 7.82m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 04/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		





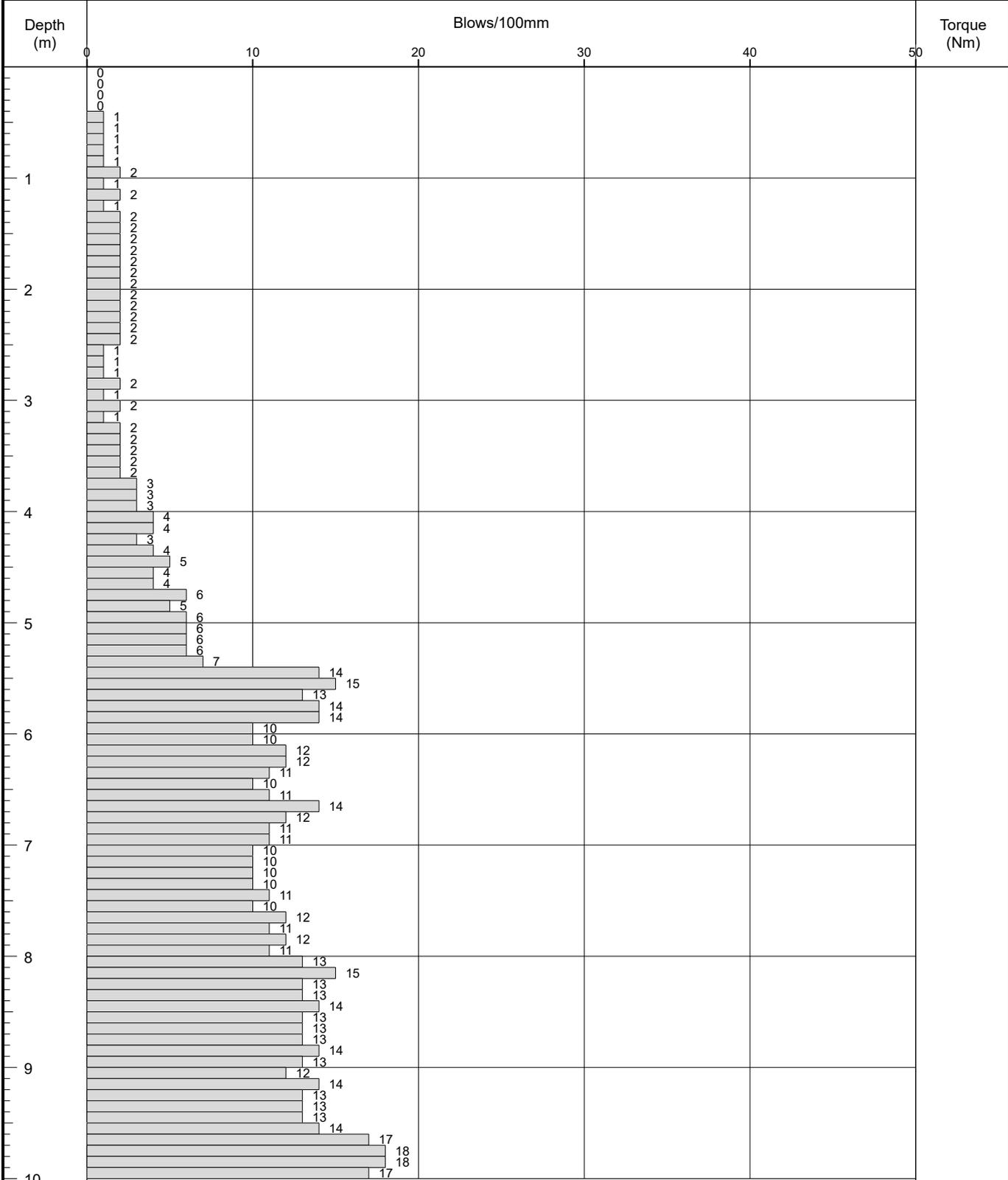
# Probe Log

Probe No.

**DP03**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450363.12E - 432111.75N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 8.10m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 03/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		





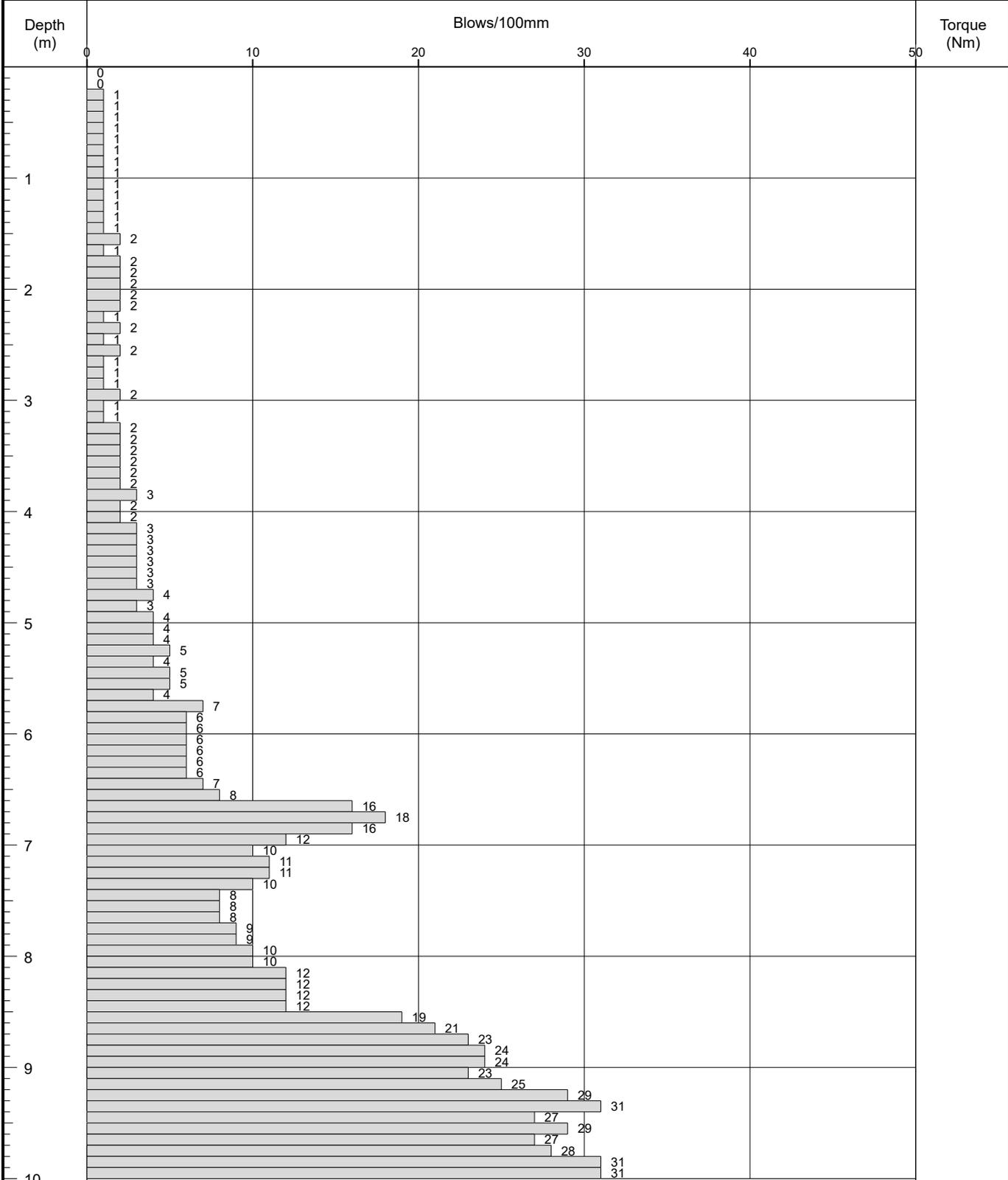
# Probe Log

Probe No.

**DP04**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450457.49E - 432101.66N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 7.95m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 04/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		





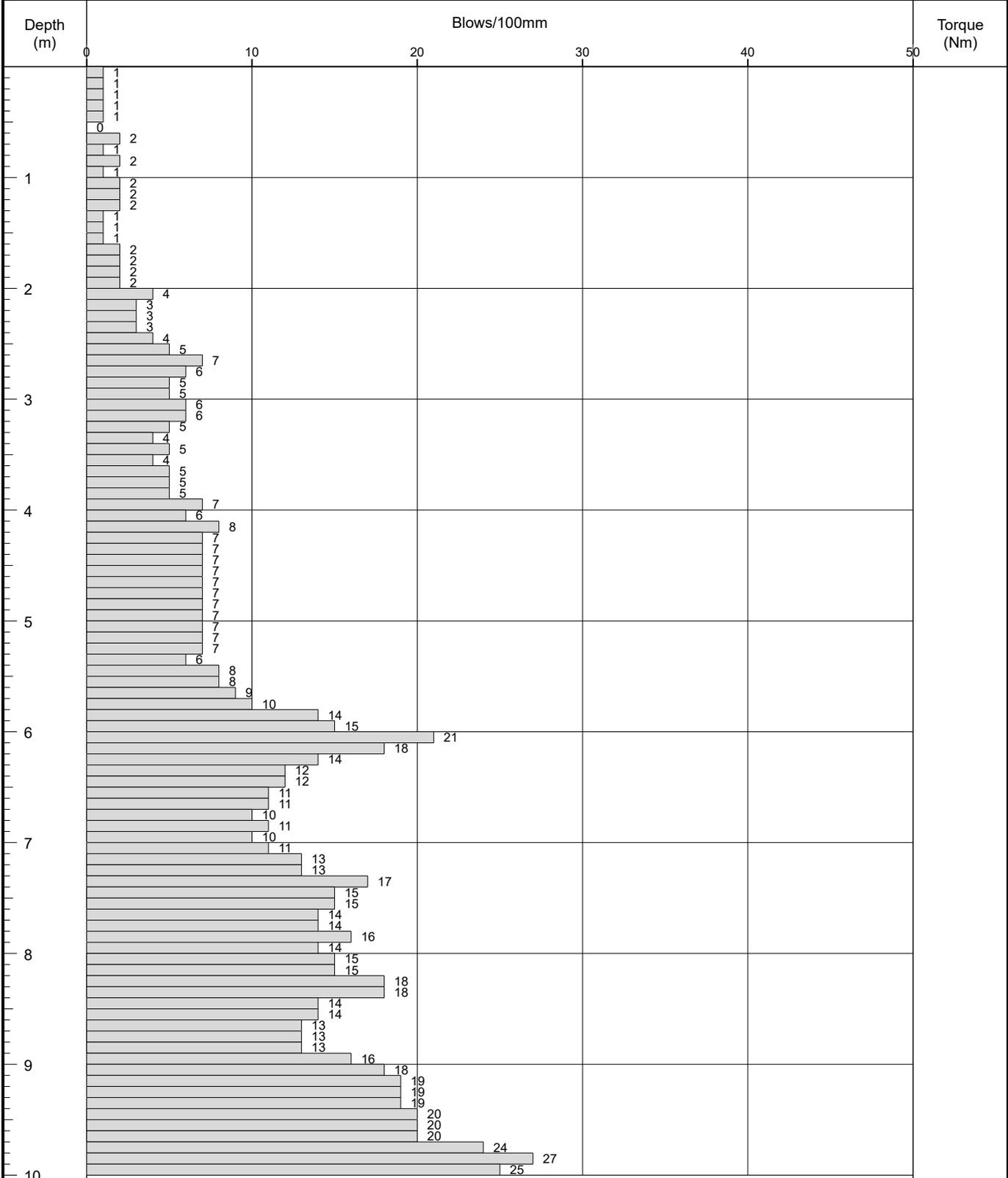
# Probe Log

Probe No.

**DP05**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450367.50E - 432081.88N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 8.00m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 02/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		



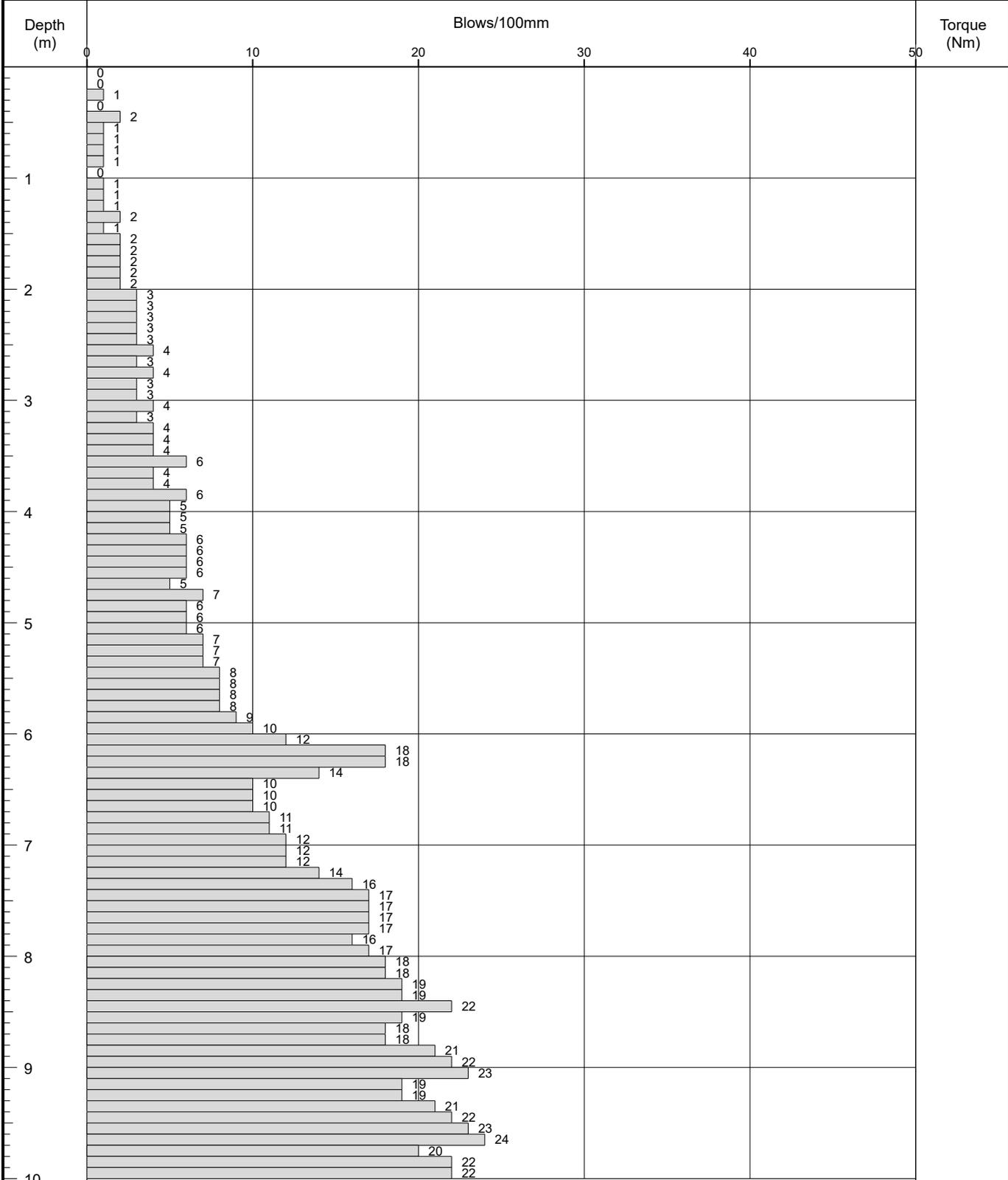


# Probe Log

Probe No.  
**DP06**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450404.80E - 432081.92N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 8.00m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 02/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		





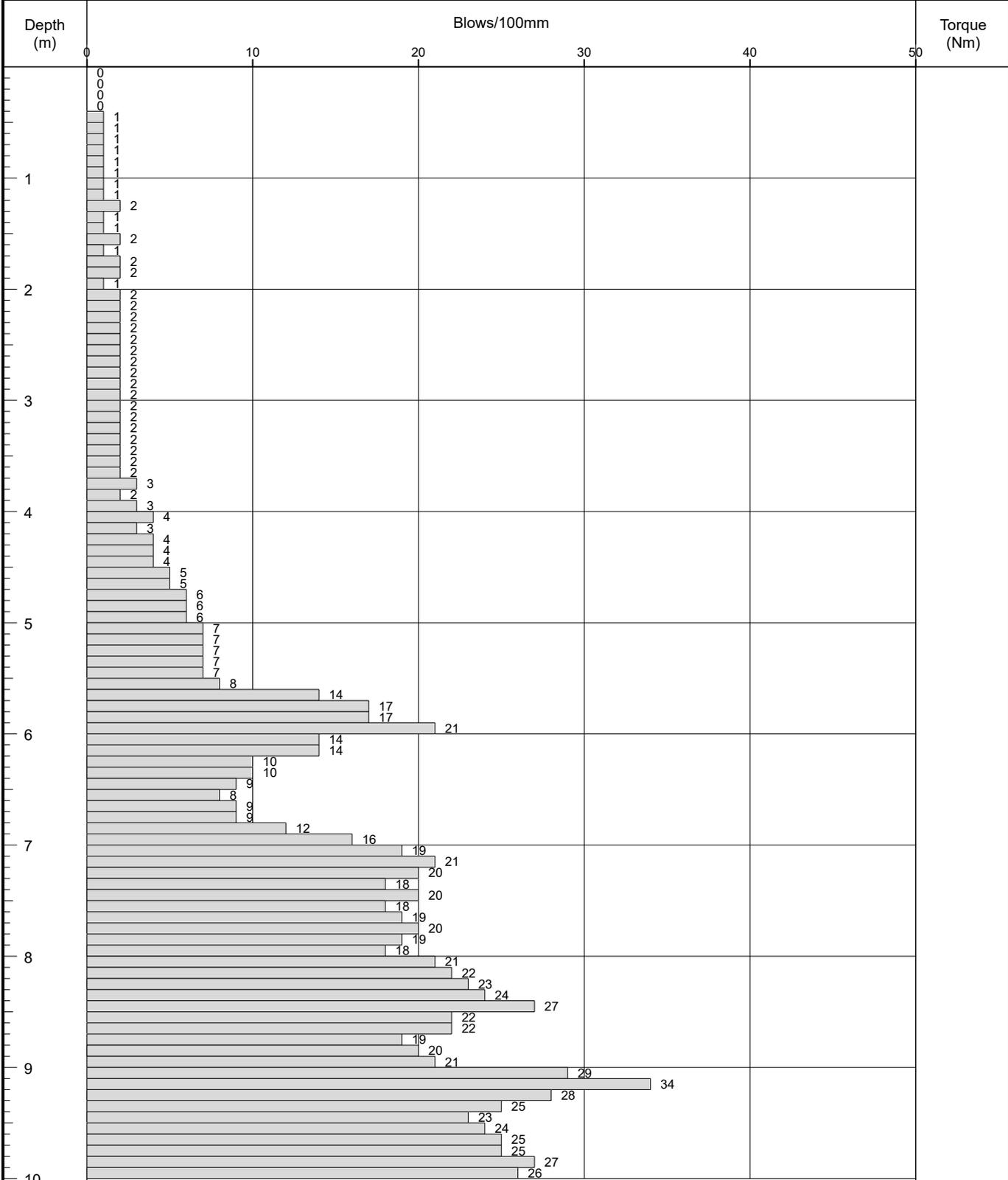
# Probe Log

Probe No.

**DP07**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450347.09E - 432053.81N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 8.25m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 02/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		





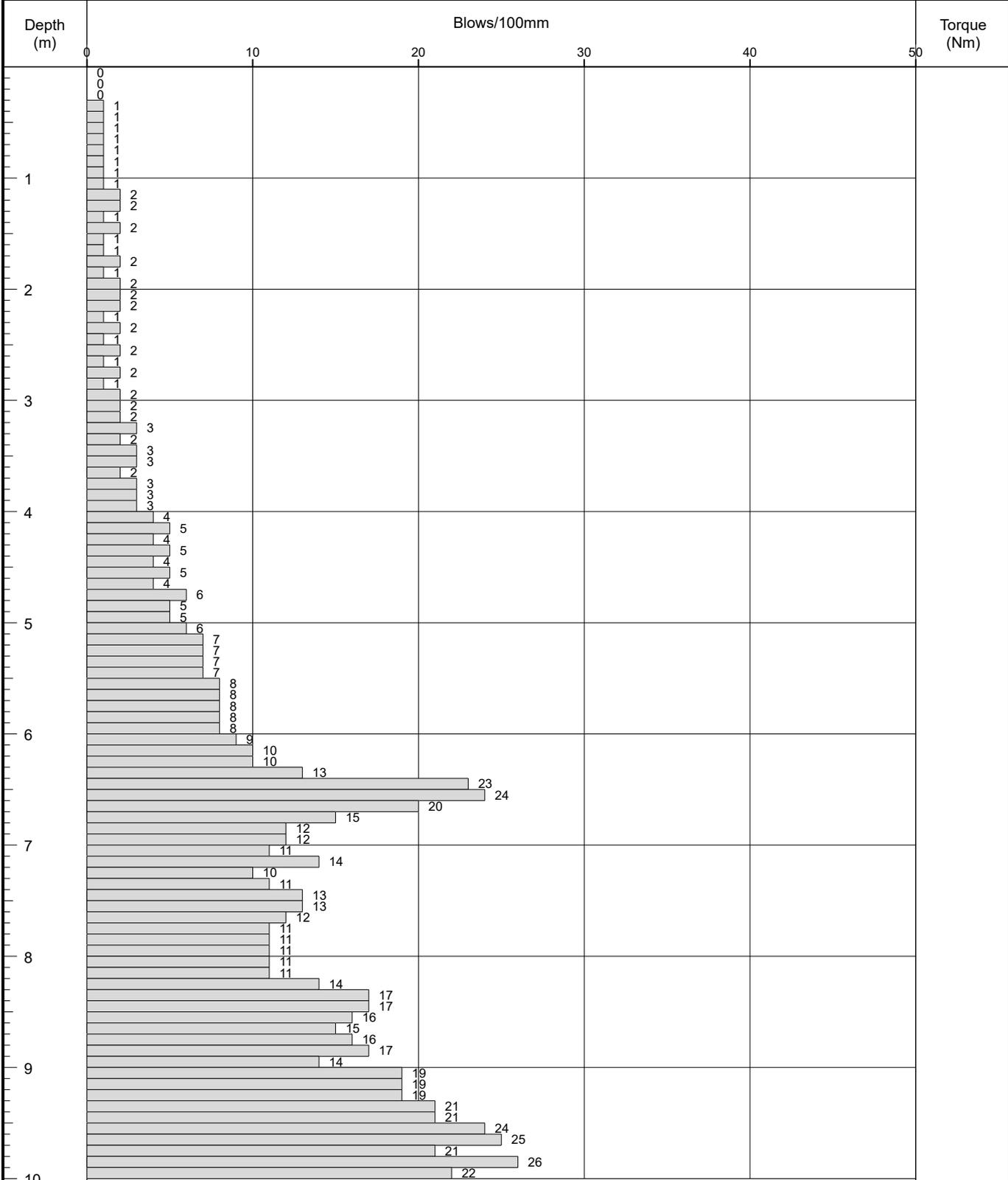
# Probe Log

Probe No.

**DP08**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450415.35E - 432042.41N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 8.00m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 01/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		





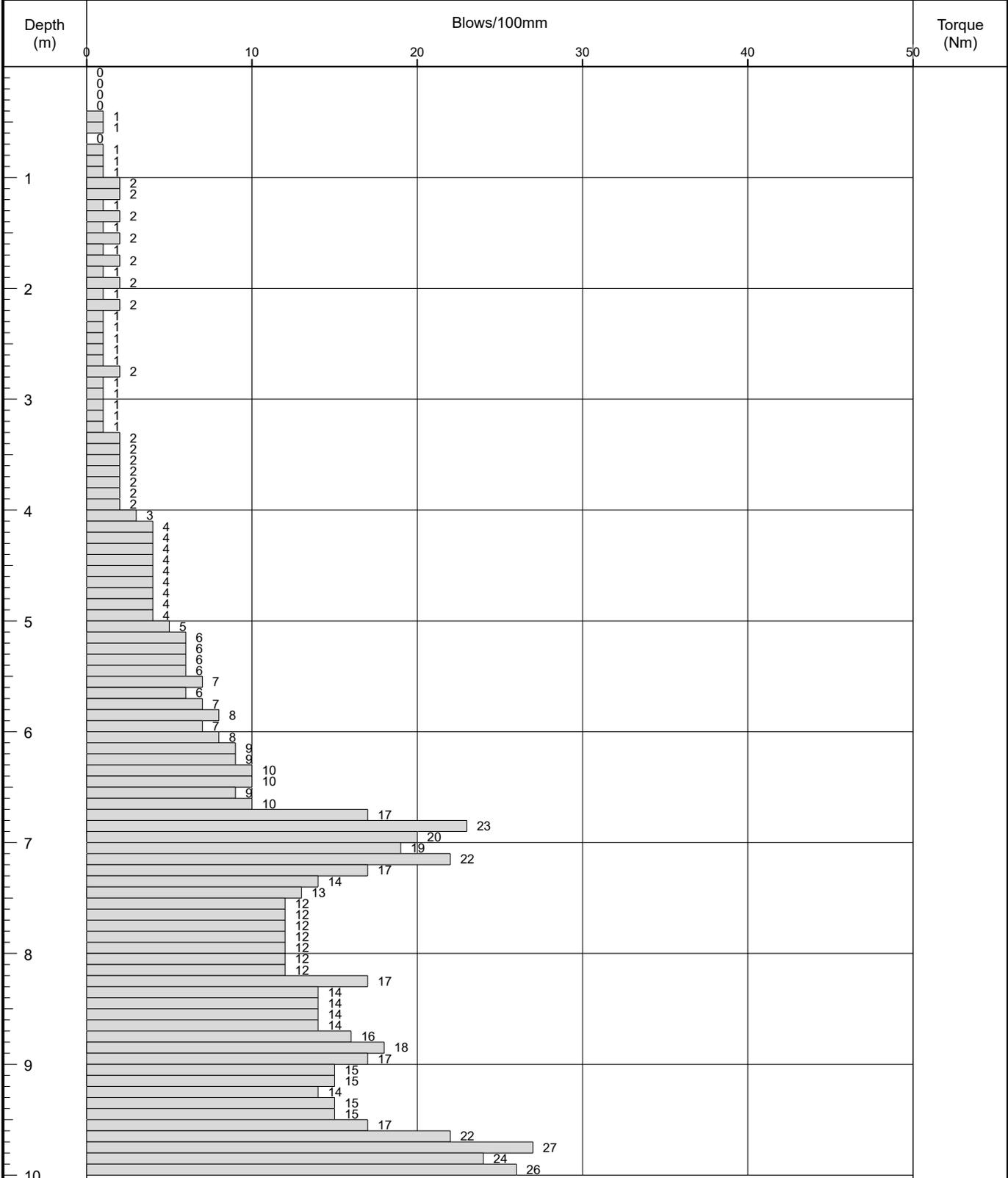
# Probe Log

Probe No.

**DP09**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450448.81E - 432036.84N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 7.90m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 01/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		

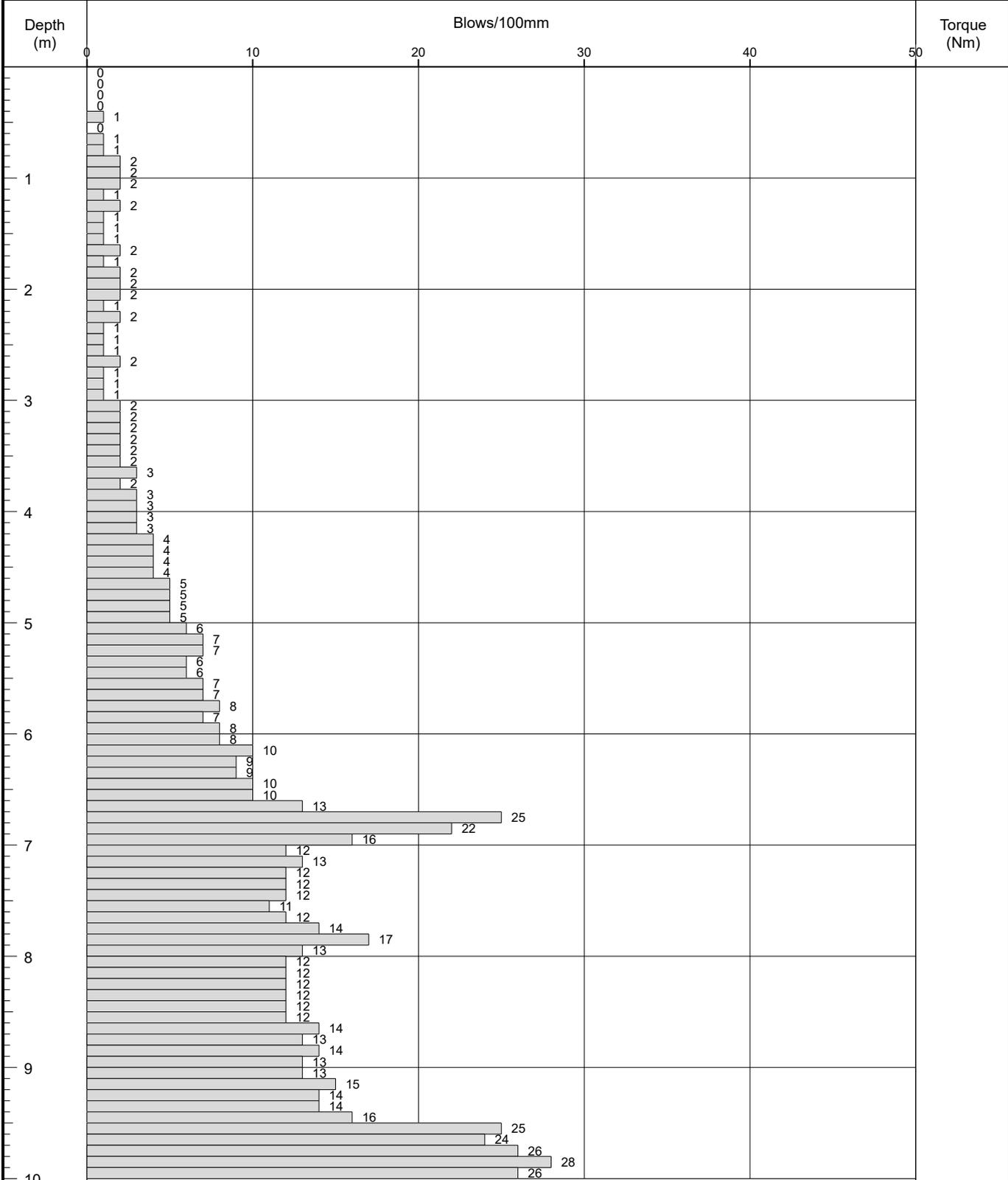




# Probe Log

Probe No.  
**DP10**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450443.36E - 432001.03N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 7.89m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 01/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		





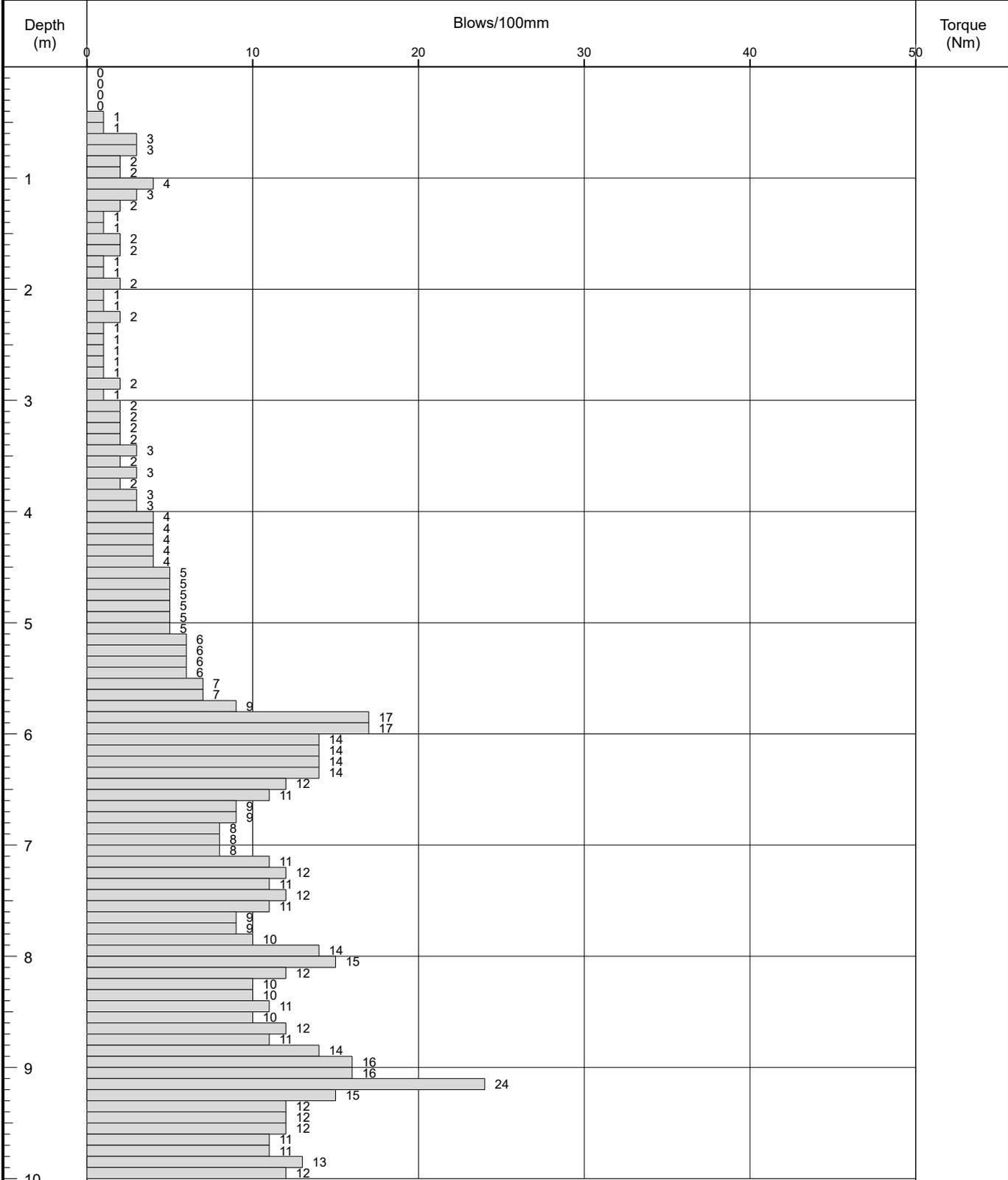
# Probe Log

Probe No.

**DP11**

Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: 450340.88E - 432012.60N	Hole Type DP
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW		Level: 8.32m aOD	Scale 1:50
Client: Engie Renewable Gases UK Limited		Dates: 01/04/2025	Logged By AB & GH



Remarks: 1. Drilled adjacent to equivalent WS	Fall Height	750mm	Cone Base Diameter	50.5mm
	Hammer Wt	63.5kg	Final Depth	10m
	Probe Type	DPSH-B		





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## Appendix 5

### Trial Pit Records

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# Trial Pit Log

Trialpit No  
**TP01**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 14/04/2025  
Level:

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 2.8  
Depth 3.00      Scale 1:25

Client: Engie Renewable Gases UK Limited      Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.25			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).
	1.00	B		1.40			Firm, brown mottled grey, slightly sandy, silty CLAY. Sand is fine to medium.
	2.00	B		2.50			Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.
	3.00	B		3.00			Firm, brown, sandy, silty CLAY. Sand is fine to medium.
							----- End of pit at 3.00 m

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP02**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 14/04/2025  
Level:

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 3  
Depth 3.00

Client: Engie Renewable Gases UK Limited      Scale 1:25  
Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).
	1.00	B		1.20			Firm, brown mottled grey, slightly sandy, silty CLAY. Sand is fine to medium.
	2.00	B		2.40			Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.
	3.00	B		3.00			Firm, brown, sandy, silty CLAY. Sand is fine to medium.
							End of pit at 3.00 m

Remarks:

Stability: Stable





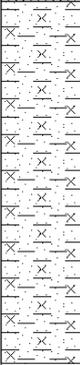
# Trial Pit Log

Trialpit No  
**TP03**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 14/04/2025  
 Level:      Level:

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 2.4      Scale 1:25

Client: Engie Renewable Gases UK Limited      Depth 1.50      Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.50	B		0.30		 TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).	 Firm, grey streaked brown, slightly sandy, silty CLAY. Sand is fine to medium.
				1.50		End of pit at 1.50 m	

Remarks:

Stability: Stable





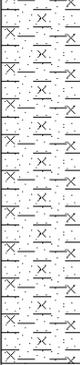
# Trial Pit Log

Trialpit No  
**TP04**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 14/04/2025  
 Level:      Level:

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 2.5  
 Depth 1.50      Scale 1:25

Client: Engie Renewable Gases UK Limited      Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.50	B		0.25		 TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).	 Firm, grey streaked brown, slightly sandy, silty CLAY. Sand is fine to medium.
				1.50		 End of pit at 1.50 m	

Remarks:

Stability: Stable





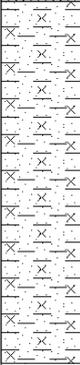
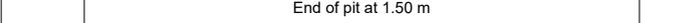
# Trial Pit Log

Trialpit No  
**TP05**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 14/04/2025  
Level:

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 2.2  
Depth 1.50      Scale 1:25

Client: Engie Renewable Gases UK Limited      Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.50	B		0.30		 TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).  Firm, grey streaked brown, slightly sandy, silty CLAY. Sand is fine to medium.	
				1.50		 End of pit at 1.50 m	

Remarks:

Stability: Stable





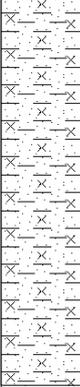
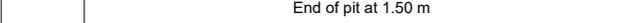
# Trial Pit Log

Trialpit No  
**TP06**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 14/04/2025  
 Level:      Dimensions (m): 2.1

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Depth 1.50      Scale 1:25

Client: Engie Renewable Gases UK Limited      Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.50	B		0.20		 	TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies). Firm, grey streaked brown, slightly sandy, silty CLAY. Sand is fine to medium.
				1.50		 End of pit at 1.50 m	

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP07**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 14/04/2025  
Level:      Level:

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 2.5  
Depth 2.00      Scale 1:25

Client: Engie Renewable Gases UK Limited      Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).
	1.00	B		1.10			Firm, grey streaked brown, slightly sandy, silty CLAY. Sand is fine to medium.
	2.00	B		2.00			Firm, brown streaked greyish brown, sandy, clayey SILT. Sand is fine to medium.
----- End of pit at 2.00 m -----							

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP08**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 14/04/2025  
Level:      Dimensions (m): 2.6

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Depth 2.00      Scale 1:25

Client: Engie Renewable Gases UK Limited      Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).
	1.00	B		1.15			Firm, grey streaked brown, slightly sandy, silty CLAY. Sand is fine to medium.
	2.00	B		2.00			Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.
----- End of pit at 2.00 m -----							

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP09**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 15/04/2025  
Level:

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 2.8  
Depth 3.00      Scale 1:25

Client: Engie Renewable Gases UK Limited      Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
			HVP=105 HVP=75 HVP=73	0.20			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies). Firm, brown streaked grey, slightly sandy, silty CLAY. Sand is fine to medium.
	1.00	B		1.30			Firm, brown streaked greyish brown, thinly laminated, slightly sandy, clayey SILT. Sand is fine to medium.
	2.00	B		2.50			Firm, greyish brown, thinly laminated, sandy, silty CLAY. Sand is fine to medium.
	3.00	B		3.00			End of pit at 3.00 m

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP10**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 15/04/2025  
Level:      Dimensions (m): 3.1

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Depth 3.00      Scale 1:25

Client: Engie Renewable Gases UK Limited      Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	1.00	B	HVP=86 HVP=84 HVP=110	0.30			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).
				1.40			Firm, grey streaked brown, slightly sandy, silty CLAY. Sand is fine to medium.
	2.00	B	HVP=79 HVP=114 HVP=94				Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.
	3.00	B	HVP=58 HVP=56 HVP=75	3.00			End of pit at 3.00 m

Remarks:  
Stability: Stable





# Trial Pit Log

Trialpit No  
**TP11**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: - Level:	Date 15/04/2025
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Dimensions (m): Depth 3.00		Scale 1:25 Logged SH
Client: Engie Renewable Gases UK Limited		2.7	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	1.00	B	HVP=97 HVP=125 HVP=157	0.20			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies). Firm, brown streaked grey, slightly sandy, silty CLAY. Sand is fine to medium.
	2.00	B	HVP=76 HVP=77 HVP=76	1.10			Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.
	3.00	B	HVP=60 HVP=87 HVP=65	2.30			Firm, greyish brown, , thinly laminated, sandy, silty CLAY. Sand is fine to medium.
				3.00			End of pit at 3.00 m

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP12**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: - Level:	Date 15/04/2025
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Dimensions (m): Depth 3.00		Scale 1:25 Logged SH
Client: Engie Renewable Gases UK Limited		2.9	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.30			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).	
				0.45			Light brown, silty, fine to coarse SAND.	
			HVP=70 HVP=83 HVP=91				Firm, grey streaked brown, slightly sandy, silty CLAY. Sand is fine to medium.	1
	1.00	B						
			HVP=91 HVP=124 HVP=101	1.90			Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.	2
	2.00	B						
			HVP=84 HVP=104 HVP=86	2.50			Firm, grey streaked brown, thinly laminated, slightly sandy, silty CLAY. Sand is fine to medium.	
	3.00	B		3.00			End of pit at 3.00 m	3
								4
								5

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP13**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: - Level:	Date 15/04/2025
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Dimensions (m): Depth 3.00		Scale 1:25 Logged SH
Client: Engie Renewable Gases UK Limited		2.8	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.20			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).	
	1.00	B	HVP=90 HVP=91 HVP=80	1.00			Firm, brown streaked grey, slightly sandy, silty CLAY. Sand is fine to medium.	1
	2.00	B	HVP=96 HVP=82 HVP=112	2.40			Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.	2
	3.00	B	HVP=70 HVP=70 HVP=91	3.00			Firm, greyish brown, thinly laminated, sandy, silty CLAY. Sand is fine to medium.	3
							End of pit at 3.00 m	3
								4
								5

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP14**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: - Level:	Date 17/04/2025
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Dimensions (m): Depth 3.00		Scale 1:25 Logged SH
Client: Engie Renewable Gases UK Limited		2.6	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	1.00	B	HVP=84 HVP=83 HVP=97	0.30			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).
				1.10			Firm, brown streaked grey, slightly sandy, silty CLAY. Sand is fine to medium.
	2.00	B	HVP=125 HVP=141 HVP=115				Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.
	3.00	B	HVP=51 HVP=41 HVP=46	3.00			End of pit at 3.00 m

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP15**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: -      Date 15/04/2025  
Level:

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 2.8  
Depth 3.00      Scale 1:25

Client: Engie Renewable Gases UK Limited      Logged SH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.20			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).
	1.00	B	HVP=82 HVP=80 HVP=79	1.10			Firm, brown streaked grey, slightly sandy, silty CLAY. Sand is fine to medium.
	2.00	B	HVP=112 HVP=98 HVP=93	2.45			Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.
	3.00	B	HVP=59 HVP=65 HVP=60	3.00			Firm, greyish brown, thinly laminated, sandy, silty CLAY. Sand is fine to medium.
							End of pit at 3.00 m

Remarks:  
Stability: Stable





# Trial Pit Log

Trialpit No  
**TP16**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: - Level:	Date 17/04/2025
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Dimensions (m): Depth 3.00		Scale 1:25 Logged SH
Client: Engie Renewable Gases UK Limited		2.9	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	1.00	B	HVP=105 HVP=97 HVP=103	0.30			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).
	2.00	B	HVP=87 HVP=86 HVP=104	2.30			Firm, brown streaked grey, slightly sandy, silty CLAY. Sand is fine to medium.
	3.00	B	HVP=48 HVP=56 HVP=42	3.00			Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.
							End of pit at 3.00 m

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP17**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: - Level:	Date 17/04/2025
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Dimensions (m): Depth 3.00		Scale 1:25 Logged SH
Client: Engie Renewable Gases UK Limited		2.9	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).
	1.00	B		1.50			Orangish brown, clayey, silty, slightly gravelly, fine to coarse SAND. Gravel is sub-angular to sub-rounded and fine to medium of various lithologies.
	2.00	B	HVP=112 HVP=112 HVP=112	2.30			Firm, brown streaked grey, thinly laminated, slightly sandy, silty CLAY. Sand is fine to medium.
	3.00	B	HVP=67 HVP=73 HVP=96	3.00			Firm, brown streaked greyish brown, thinly laminated sandy, clayey SILT. Sand is fine to medium.
							End of pit at 3.00 m

Remarks:

Stability: Stable





# Trial Pit Log

Trialpit No  
**TP18**  
Sheet 1 of 1

Project Name: Home Farm	Project No. C4826/24/E/7379	Co-ords: - Level:	Date 17/04/2025
Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW	Dimensions (m): Depth 3.00		Scale 1:25 Logged SH
Client: Engie Renewable Gases UK Limited		2.8	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	1.00	B	HVP=93 HVP=105 HVP=90	0.30			TOPSOIL (Soft, dark brown, slightly sandy, slightly gravelly, clayey SILT. Sand is fine to medium. Gravel is sub-angular and fine to coarse of various lithologies).
	2.00	B	HVP=107 HVP=127 HVP=142	2.10			Firm, brown streaked grey, slightly sandy, silty CLAY. Sand is fine to medium.
	3.00	B	HVP=66 HVP=49 HVP=63	3.00			Firm, brown streaked greyish brown, thinly laminated, sandy, clayey SILT. Sand is fine to medium.
							End of pit at 3.00 m

Remarks:

Stability: Stable



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## Appendix 6

### Trial Pit Soakaway Records

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# Trial Pit Log

Trialpit No  
**SA01**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: 450393.46 - 432381.75      Date 22/04/2025  
 Level: 7.40

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 0.45 x 1.8

Client: Engie Renewable Gases UK Limited      Depth 3.10      Scale 1:50  
 Logged RP

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30	7.10		TOPSOIL
				1.00	6.40		Grey slightly sandy slightly gravelly silty CLAY.
				3.10	4.30		Brown thinly laminated sandy silty CLAY.
							End of pit at 3.10 m



Remarks:  
 Stability:





# Trial Pit Log

Trialpit No  
**SA02**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: 450423.27 - 432374.05      Date 22/04/2025  
 Level: 7.68

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 1.7

Client: Engie Renewable Gases UK Limited      Depth 3.05      0.45      Scale 1:50  
 Logged RP

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30	7.38		TOPSOIL.
				1.20	6.48		Grey slightly sandy slightly gravelly silty CLAY.
				3.05	4.63		Brown thinly laminated sandy silty CLAY.
							End of pit at 3.05 m



Remarks:  
Stability:





# Trial Pit Log

Trialpit No  
**SA03**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: 450397.95 - 432329.80      Date 22/04/2025  
 Level: 7.61

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 1.8  
 Depth 3.50      0.45

Client: Engie Renewable Gases UK Limited      Scale 1:50  
 Logged RP

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30	7.31		TOPSOIL.
							Grey slightly sandy slightly gravelly silty CLAY.
				1.00	6.61		Brown thinly laminated sandy silty CLAY.
				3.50	4.11		End of pit at 3.50 m



Remarks:  
 Stability:



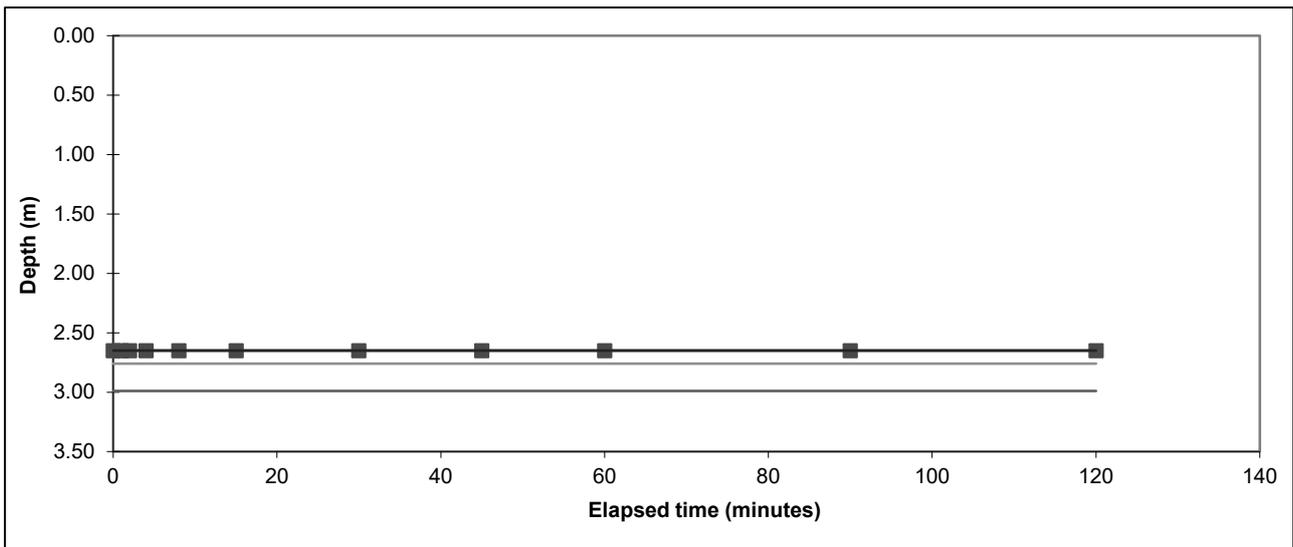
# Rogers Geotechnical Services L

## Soakaway Test

Trial Pit No:	SA01	Test No:	1	Date:	22/04/2025
Length (m):	1.800	Datum Height:			0.00 m agl
Width (m):	0.45	Granular infill:	None		
Depth (m):	3.10	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	2.650		
1	2.650		
2	2.650		
4	2.650		
8	2.650		
15	2.650		
30	2.650		
45	2.650		
60	2.650		
90	2.650		
120	2.650		



Start water depth for analysis (mbgl):	2.65	Elapsed time (mins):	#N/A
75% effective depth (mbgl):	2.76	Elapsed time (mins):	#N/A
50% effective depth (mbgl):	2.88		
25% effective depth (mbgl):	2.99	Elapsed time (mins):	#N/A
Base of soakage zone (mbgl):	3.10		
Volume outflow between 75% and 25% effective depth (m <sup>3</sup> ):			
Mean surface area of outflow (m <sup>2</sup> ):			1.80
(side area at 50% effective depth + base area)			
Time for outflow between 75% and 25% effective depth (mins):			

<b>Soil infiltration rate (m/s):</b>	<b>Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate.</b>
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<b>Remarks</b>	Results processed following BRE 365 (2007).
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<b>Client:</b>	Engie	<b>Job No:</b>	C4826/24/E
<b>Site:</b>	Home Farm		

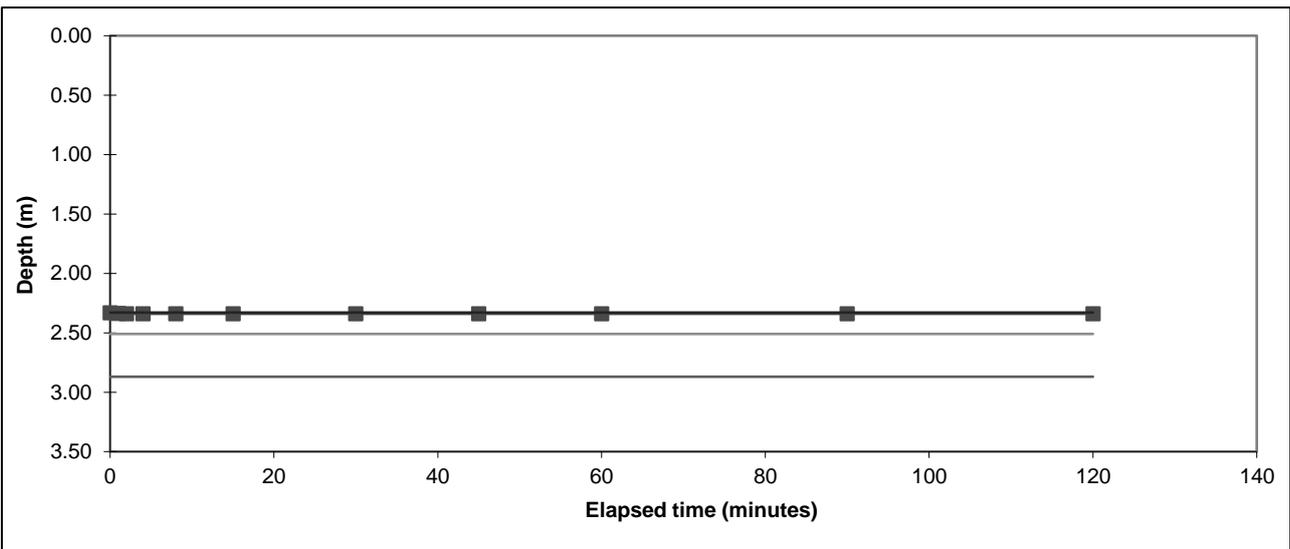
# Rogers Geotechnical Services L

## Soakaway Test

Trial Pit No:	SA02	Test No:	1	Date:	22/04/2025
Length (m):	1.700	Datum Height:			0.00 m agl
Width (m):	0.45	Granular infill:	None		
Depth (m):	3.05	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	2.330		
1	2.335		
2	2.340		
4	2.340		
8	2.340		
15	2.340		
30	2.340		
45	2.340		
60	2.340		
90	2.340		
120	2.340		



Start water depth for analysis (mbgl):	2.33	Elapsed time (mins):	#N/A
75% effective depth (mbgl):	2.51	Elapsed time (mins):	#N/A
50% effective depth (mbgl):	2.69		
25% effective depth (mbgl):	2.87		
Base of soakage zone (mbgl):	3.05		
Volume outflow between 75% and 25% effective depth (m <sup>3</sup> ):			
Mean surface area of outflow (m <sup>2</sup> ):		2.31	
(side area at 50% effective depth + base area)			
Time for outflow between 75% and 25% effective depth (mins):			

<b>Soil infiltration rate (m/s):</b>	<b>Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate.</b>
--------------------------------------	--

<b>Remarks</b>	Results processed following BRE 365 (2007).
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<b>Client:</b>	Engie	<b>Job No:</b>	C4826/24/E
<b>Site:</b>	Home Farm		

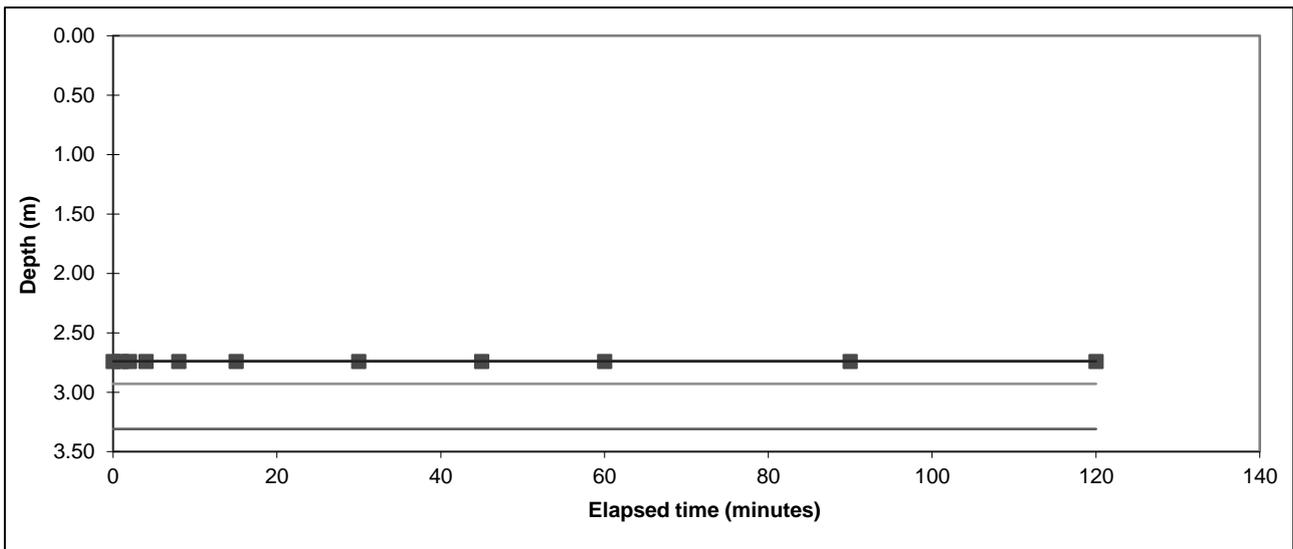
# Rogers Geotechnical Services L

## Soakaway Test

Trial Pit No:	SA03	Test No:	1	Date:	22/04/2025
Length (m):	1.800	Datum Height:			0.00 m agl
Width (m):	0.45	Granular infill:	None		
Depth (m):	3.50	Porosity of infill:	1		(assumed)

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	2.740		
1	2.740		
2	2.740		
4	2.740		
8	2.740		
15	2.740		
30	2.740		
45	2.740		
60	2.740		
90	2.740		
120	2.740		



Start water depth for analysis (mbgl):	2.74	Elapsed time (mins):	#N/A
75% effective depth (mbgl):	2.93	Elapsed time (mins):	#N/A
50% effective depth (mbgl):	3.12		
25% effective depth (mbgl):	3.31		
Base of soakage zone (mbgl):	3.50		
Volume outflow between 75% and 25% effective depth (m <sup>3</sup> ):			
Mean surface area of outflow (m <sup>2</sup> ):			2.52
(side area at 50% effective depth + base area)			
Time for outflow between 75% and 25% effective depth (mins):			

<b>Soil infiltration rate (m/s):</b>	<b>Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate.</b>
--------------------------------------	--

<b>Remarks</b>	Results processed following BRE 365 (2007).
----------------	---

<b>Client:</b>	Engie	<b>Job No:</b>	C4826/24/E
<b>Site:</b>	Home Farm		

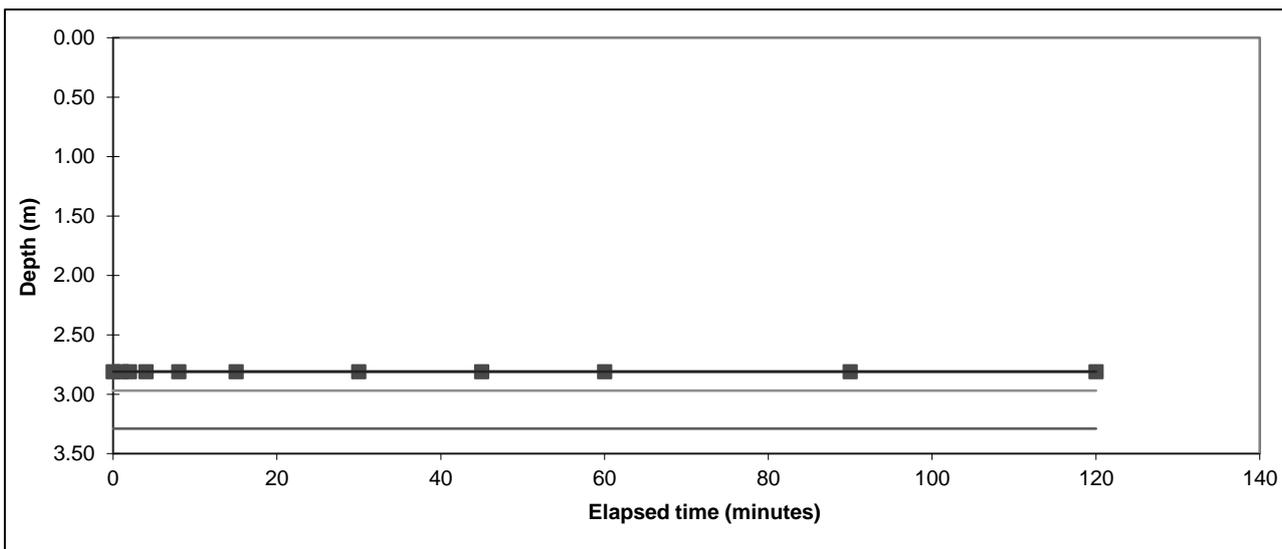
# Rogers Geotechnical Services L

## Soakaway Test

Trial Pit No:	SA04	Test No:	1	Date:	22/04/2025
Length (m):	1.800	Datum Height:			0.00 m agl
Width (m):	0.45	Granular infill:	None		
Depth (m):	3.45	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	2.810		
1	2.810		
2	2.810		
4	2.810		
8	2.810		
15	2.810		
30	2.810		
45	2.810		
60	2.810		
90	2.810		
120	2.810		



Start water depth for analysis (mbgl):	2.81	Elapsed time (mins):	#N/A
75% effective depth (mbgl):	2.97	Elapsed time (mins):	#N/A
50% effective depth (mbgl):	3.13		
25% effective depth (mbgl):	3.29		
Base of soakage zone (mbgl):	3.45		

Volume outflow between 75% and 25% effective depth (m<sup>3</sup>):

Mean surface area of outflow (m<sup>2</sup>): 2.25  
(side area at 50% effective depth + base area)

Time for outflow between 75% and 25% effective depth (mins):

<b>Soil infiltration rate (m/s):</b>	<b>Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate.</b>
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<b>Remarks</b>	Results processed following BRE 365 (2007).
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<b>Client:</b>	Engie	<b>Job No:</b>	C4826/24/E
<b>Site:</b>	Home Farm		



# Trial Pit Log

Trialpit No  
**SA04**  
Sheet 1 of 1

Project Name: Home Farm      Project No. C4826/24/E/7379      Co-ords: 450424.80 - 432291.61      Date 22/04/2025  
 Level: 7.60

Location: Bond Ings Rise, Sherburn in Elmet, Leeds, North Yorkshire, LS25 6FW      Dimensions (m): 0.45 x 1.8

Client: Engie Renewable Gases UK Limited      Depth 3.40      Scale 1:50      Logged RP

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30	7.30		TOPSOIL.
							Grey slightly sandy slightly gravelly silty CLAY.
				1.00	6.60		Brown thinly laminated sandy silty CLAY.
				3.40	4.20		End of pit at 3.40 m



Remarks:  
Stability:



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## Appendix 7

### Plate Load Test Results

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**TEST REPORT  
 PLATE LOADING TEST**

<b>Project</b>	Home Farm	<b>Test No:</b>	01
<b>Client</b>	Engie - Matthew Sargeant	<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	22.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT01	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 8.9", N 53° 47' 4.7"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		

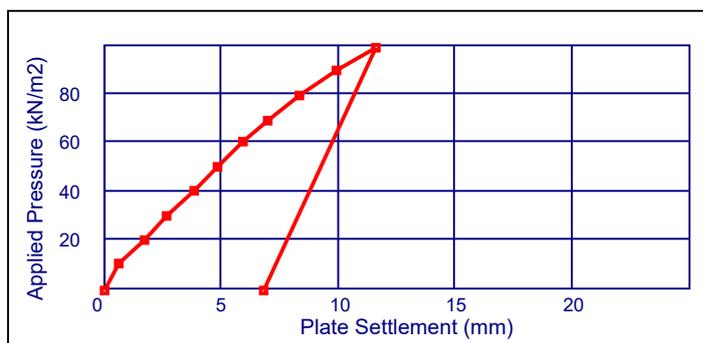


Plate Settlement (mm)	Applied Pressure (kN/m2)
0.00	0.0
0.60	11.1
1.70	20.8
2.64	30.7
3.83	41.0
4.82	50.9
5.91	61.2
6.97	69.8
8.33	80.2
9.90	90.5
11.59	99.8
6.80	0.0



<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	101
<b>Modulus of subgrade reaction K (MN/m3):</b>	11.59
<b>K762 (MN/m3):</b>	13.4
<b>Estimated CBR (%):</b>	8.4
	0.4

**Comments:**

*Handwritten signature*

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project</b>	Home Farm	<b>Test No:</b>	02
<b>Client</b>	Engie	<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	28.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT02	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 11.9", N 53° 47' 3.2"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		



Plate Settlement (mm)	Applied Pressure (kN/m²)
0.00	0.0
0.96	9.9
1.91	20.6
2.94	31.6
4.02	42.4
5.02	52.1
3.35	0.0

<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	<b>53</b>
<b>Modulus of subgrade reaction K (MN/m3):</b>	<b>5.02</b>
<b>K762 (MN/m3):</b>	<b>10.5</b>
<b>Estimated CBR (%):</b>	<b>6.6</b>
	<b>0.3</b>

**Comments:**

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project Client</b>	Home Farm, Bond Ings Rise, Leeds Engie - Matthew Sargeant	<b>Test No:</b>	03
		<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	22.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT03	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	N/A, N/A	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		



Plate Settlement (mm)	Applied Pressure (kN/m2)
0.00	0.0
2.26	10.5
4.16	20.4
6.05	31.3
7.41	39.5
8.77	50.8
6.56	0.0



<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	<b>52</b>
<b>Modulus of subgrade reaction K (MN/m3):</b>	<b>8.77</b>
<b>K762 (MN/m3):</b>	<b>4.7</b>
<b>Estimated CBR (%):</b>	<b>2.9</b>
	<b>0.1</b>

**Comments:**

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project</b>	Home Farm	<b>Test No:</b>	04
<b>Client</b>	Engie	<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	28.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>		<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT04	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 10.9", N 53° 47' 1.9"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		



Plate Settlement (mm)	Applied Pressure (kN/m <sup>2</sup> )
0.00	0.0
1.02	10.1
2.09	20.9
2.85	29.5
3.78	42.1
4.81	52.6
3.09	0.0

<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	<b>53</b>
<b>Modulus of subgrade reaction K (MN/m<sup>3</sup>):</b>	<b>4.81</b>
<b>K762 (MN/m<sup>3</sup>):</b>	<b>9.9</b>
<b>Estimated CBR (%):</b>	<b>6.2</b>
	<b>0.2</b>

**Comments:**

*[Handwritten signature]*

**Approved Signature** Plate Load - Tested in accordance with BS 1377 : Part 9 C  
**Rogers Geotechnical Services** Moisture Content - Tested in accordance with BS 1377 : P  
 Mr H J Letch *Opinions and interpolations expressed herein are outside*  
 Technical Laboratory Manager *the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project</b>	Home Farm	<b>Test No:</b>	05
<b>Client</b>	Engie	<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	28.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT05	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 13.0", N 53° 47' 0.5"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		



Plate Settlement (mm)	Applied Pressure (kN/m²)
0.00	0.0
1.15	10.1
2.49	20.4
3.73	31.1
4.93	40.6
6.07	49.9
4.73	0.0

<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	<b>51</b>
<b>Modulus of subgrade reaction K (MN/m3):</b>	<b>6.07</b>
<b>K762 (MN/m3):</b>	<b>8.7</b>
<b>Estimated CBR (%):</b>	<b>5.4</b>
	<b>0.2</b>

**Comments:**

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project</b>	Home Farm	<b>Test No:</b>	06
<b>Client</b>	Engie	<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	28.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT06	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 9.4", N 53° 47' 0.3"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		



Plate Settlement (mm)	Applied Pressure (kN/m²)
0.00	0.0
0.40	10.7
0.78	20.1
1.37	30.9
1.97	41.2
2.62	51.2
1.78	0.0

<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	<b>52</b>
<b>Modulus of subgrade reaction K (MN/m3):</b>	<b>2.62</b>
<b>K762 (MN/m3):</b>	<b>22.9</b>
<b>Estimated CBR (%):</b>	<b>14.3</b>
	<b>1.0</b>

**Comments:**

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project</b>	Home Farm	<b>Test No:</b>	07
<b>Client</b>	Engie	<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	28.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT07	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 7.5", N 53° 46' 58.9"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		



Plate Settlement (mm)	Applied Pressure (kN/m²)
0.00	0.0
0.42	10.5
1.26	20.3
2.36	30.6
3.32	40.3
4.41	53.0
2.96	0.0

<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	<b>54</b>
<b>Modulus of subgrade reaction K (MN/m³):</b>	<b>4.41</b>
<b>K762 (MN/m³):</b>	<b>16.1</b>
<b>Estimated CBR (%):</b>	<b>10.0</b>
	<b>0.5</b>

**Comments:**

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside  
 the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project</b>	Home Farm	<b>Test No:</b>	08
<b>Client</b>	Engie	<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	28.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT08	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 9.6", N 53° 46' 58.2"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		

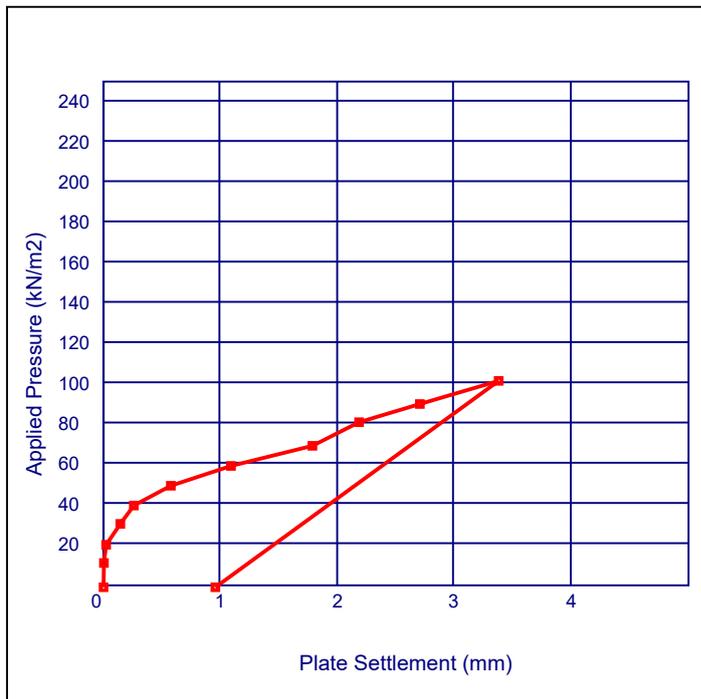


Plate Settlement (mm)	Applied Pressure (kN/m²)
0.00	0.0
0.00	12.0
0.02	21.1
0.14	31.4
0.26	40.6
0.57	50.4
1.09	60.2
1.78	70.2
2.18	81.9
2.70	91.0
3.38	102.4
0.96	0.0

<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	<b>103</b>
<b>Modulus of subgrade reaction K (MN/m³):</b>	<b>3.38</b>
<b>K762 (MN/m³):</b>	<b>50.0</b>
<b>Estimated CBR (%):</b>	<b>31.1</b>
	<b>3.7</b>

**Comments:**

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project Client</b>	Home Farm Engie	<b>Test No:</b>	9
		<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	28.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT09	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 14.6", N 53° 46' 57.7"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		



Plate Settlement (mm)	Applied Pressure (kN/m²)
0.00	0.0
0.82	10.7
2.18	20.3
3.51	31.7
4.74	41.1
6.14	53.2
4.74	0.0

<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	<b>54</b>
<b>Modulus of subgrade reaction K (MN/m3):</b>	<b>6.14</b>
<b>K762 (MN/m3):</b>	<b>11.0</b>
<b>Estimated CBR (%):</b>	<b>6.9</b>
	<b>0.3</b>

**Comments:**

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside  
 the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project</b>	Home Farm	<b>Test No:</b>	10
<b>Client</b>	Engie	<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	28.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT10	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 12.6", N 53° 46' 57.0"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		

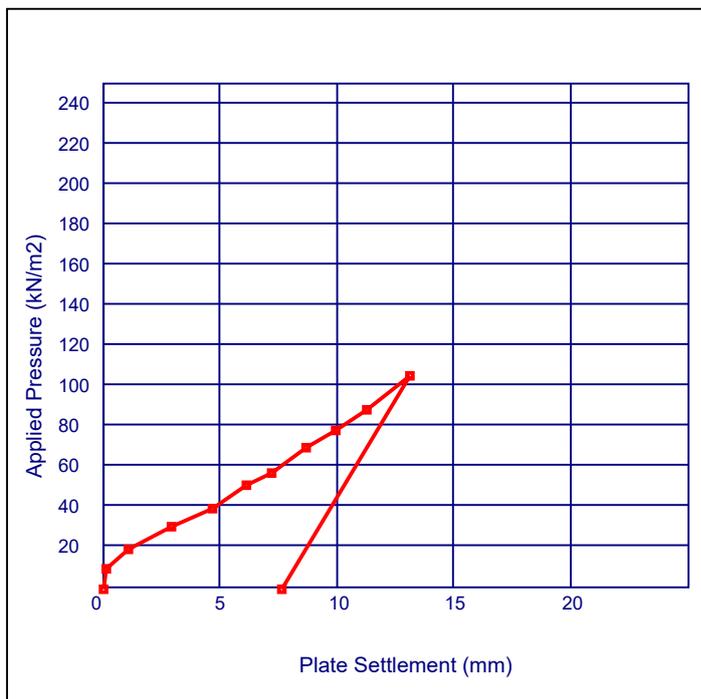


Plate Settlement (mm)	Applied Pressure (kN/m²)
0.00	0.0
0.11	10.1
1.06	19.8
2.90	31.0
4.65	40.0
6.10	51.7
7.18	57.7
8.65	70.2
9.92	78.8
11.25	89.0
13.09	105.9
7.61	0.0

<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	<b>107</b>
<b>Modulus of subgrade reaction K (MN/m3):</b>	<b>13.09</b>
<b>K762 (MN/m3):</b>	<b>16.8</b>
<b>Estimated CBR (%):</b>	<b>10.5</b>
	<b>0.6</b>

**Comments:**

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project</b>	Home Farm	<b>Test No:</b>	11
<b>Client</b>	Engie	<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	28.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT11	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 9.9", N 53° 46' 55.2"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		



Plate Settlement (mm)	Applied Pressure (kN/m²)
0.00	0.0
0.11	9.3
0.58	21.1
1.05	30.2
1.66	41.3
2.18	50.5
1.93	0.0

**Maximum Applied Pressure (kPa):**  
**Maximum deformation (mm):**  
**Modulus of subgrade reaction K (MN/m³):**  
**K762 (MN/m³):**  
**Estimated CBR (%):**

**Cycle 1**  
**51**  
**2.18**  
**27.1**  
**16.9**  
**1.3**

**Comments:**

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside the scope of UKAS accreditation*

**TEST REPORT  
 PLATE LOADING TEST**

<b>Project</b>	Home Farm	<b>Test No:</b>	12
<b>Client</b>	Engie	<b>Lab Ref No:</b>	C4826/24/E/7379
		<b>Date Reported</b>	28.04.25
		<b>Weather Conditions</b>	Wet
<b>Technician</b>	SH	<b>Air Temperature °C</b>	
<b>Date Tested</b>	15/04/2025	<b>Plate Dia (mm)</b>	450
<b>Location</b>	PLT12	<b>Depth (m)</b>	0
<b>GPS Coord's</b>	W 1° 14' 13.1", N 53° 46' 54.1"	<b>Reaction Type</b>	13T Excavator
<b>Material Type</b>	Existing ground	<b>App Weight (kg)</b>	13
<b>No Cycles</b>	1		



Plate Settlement (mm)	Applied Pressure (kN/m²)
0.00	0.0
1.54	10.0
1.98	19.5
2.86	30.4
3.62	40.3
4.26	52.7
4.95	63.1
5.71	71.1
6.32	75.8
7.21	89.3
8.40	103.9
7.18	0.0

<b>Maximum Applied Pressure (kPa):</b>	<b>Cycle 1</b>
<b>Maximum deformation (mm):</b>	<b>105</b>
<b>Modulus of subgrade reaction K (MN/m3):</b>	<b>8.40</b>
<b>K762 (MN/m3):</b>	<b>6.5</b>
<b>Estimated CBR (%):</b>	<b>4.0</b>
	<b>0.1</b>

**Comments:**

*Atch*

**Approved Signature**  
**Rogers Geotechnical Services**  
 Mr H J Letch  
 Technical Laboratory Manager

Plate Load - Tested in accordance with BS 1377 : Part 9 C  
 Moisture Content - Tested in accordance with BS 1377 : P  
*Opinions and interpolations expressed herein are outside the scope of UKAS accreditation*

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## Appendix 8

### Laboratory Testing

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8948

Environmental  
Geotechnical  
Specialists



< ENVIRONMENTAL > < GEOTECHNICAL >

# LABORATORY REPORT



job number		date	
site address			
date scheduled		date issued	
issued by			

Please consider the environment before printing this report.



**Rogers Geotechnical Services Ltd**  
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU  
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< ENVIRONMENTAL > < GEOTECHNICAL >



Environmental Geotechnical Specialists

Rogers Geotechnical Services Ltd  
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU  
☎ 01484 604354 Company No. 5130864



8948

## Schedule of UKAS Accredited Laboratory Tests



1. CLASSIFICATION OF SOIL	BS 1377-2:2022	BS EN ISO 17892	Accredited (A)	Unaccredited (U)
<b>1.1 Moisture / Water content determination</b>				
i. Oven drying	Pt 2	BS EN ISO 17892-1:2014+A1:2022	A	
ii. Saturation m/c of chalk	Pt 2 :			U
<b>1.2 Index Properties</b>				
i. Liquid limit – cone penetrometer	Pt 2	BS EN ISO 17892-12 2018+A2:2022	A	
ii. Plastic limit	Pt 2	BS EN ISO 17892-12 2018+A2:2022	A	
iii. Shrinkage limit	:			U
iv. Linear shrinkage	Pt 2		A	
<b>1.3 Particle Density</b>				
i. Gas jar	Pt 2 :		A	
ii. Large pycnometer	Pt 2			U
iii. Small pycnometer		BS EN SIO 17892-3:2015	A	
<b>1.4 Density Tests</b>				
i. Linear measurement	Pt 2	BS EN ISO 17892-2:2014	A	
ii. Immersion in water	Pt 2	Pt 2 : 2014 : 5.2		U
iii. Fluid / Water displacement	Pt 2	Pt 2 : 2014 : 5.3		U
iv. Sand replacement	Pt 9			U
v. Core cutter	Pt 9			U
<b>1.5 Particle Size Distribution</b>				
i. Dry Sieve	Pt 2	BS EN ISO 17892-4:2016	A	
ii. Wet Sieve	Pt 2	BS EN ISO 17892-4:2016	A	
iii. Sedimentation by pipette	Pt 2	BS EN ISO 17892-4:2016	A	
iv. Sedimentation by hydrometer	Pt 2			U
<b>2. CHEMICAL TESTS</b>				
ii. Mass loss on ignition	Pt 3 : 4			U
<b>3. COMPACTION RELATED TESTS</b>				
<b>3.1 Dry density/moisture relationship</b>				
i. 2.5kg rammer – 1 litre mould	Pt 2		A	
- CBR mould	Pt 2		A	
ii. 4.5kg rammer – 1 litre mould	Pt 2		A	
- CBR mould	Pt 2		A	
<b>3.2 Moisture Condition Value</b>				
i. Single point test	Pt 2			U
ii. MCV/moisture content relationship	Pt 2			U
<b>3.3 California Bearing Ratio</b>				
i. Undisturbed sample	Pt 2		A	
ii. Recompacted sample	Pt 2		A	
iii. Soaked, inc measurement of swell	Pt 2		A	
<b>4. COMPRESSIBILITY OF SOIL</b>				
<b>BS 1377-2:2022</b>				
i. One dimensional consolidation	Pt 2	BS EN ISO 17892-5:2017	A	
ii. Swelling pressure test	Pt 2			U
<b>5. SHEAR STRENGTH OF SOIL</b>				
<b>BS 1377-2:2022</b>				
i. Hand shear vane	Makers instructions			U
ii. Shear box (100mm square sample)	BS 1377 : Pt 7 : 4			U
iii. Triaxial – quick undrained	BS 1377 : Pt 2	BS EN ISO 17892-8:2018	A	
<b>6. PERMEABILITY</b>				
i. Falling head	K. H. Head Vol 2			U
ii. Constant head	BS 1377 : Pt 6 : 6			U
iii Triaxial cell	BS 1377 : Pt 6 : 6			U
<b>7. ROCK TESTS</b>				
<b>7.1 Classification Tests</b>				
i. Natural moisture content	-			U
ii. Saturated moisture content	-			U
iii. Natural density	-			U
iv. Porosity	-			U
<b>7.2 Strength Tests</b>				
i. Point load index	ISRM '85			U
ii. Uniaxial compression test	ISRM '81			U

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# GEOTECHNICAL TESTING RESULTS



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 HD8 8LU

## Classification of Index Properties

C4826/24/E/7379

Project Name: Home Farm

BS EN ISO 17892-12 2018+A2:2022

Fig. 2  
 Sheet. 1

Location:

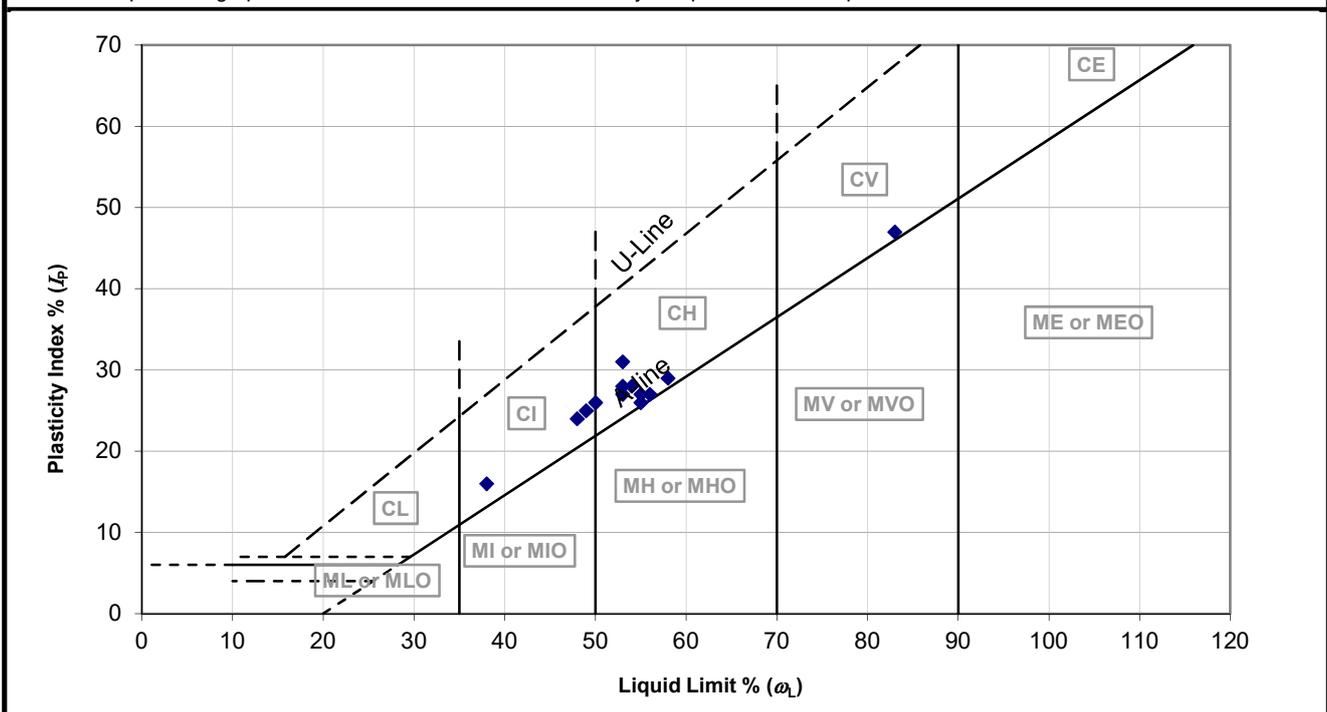
Input By: Harry

Client: Engie Renewable Gases UK Limited

Check By: EC

Location	Depth (m)	Water Content ( $\omega$ ) (%)	Liquid Limit ( $\omega_L$ ) (%)	Plastic Limit ( $\omega_P$ ) (%)	Plasticity Index ( $I_P$ ) (%)	Retained by 0.425mm (%)	Modified ( $\omega$ ) ( $\omega'$ ) (%)	Modified ( $I_P$ ) ( $I_P'$ ) (%)	Liquidity/Consistency		Casagrande Class	N.H.B.C Class (%)
									( $I_L$ ) (%)	( $I_c$ ) (%)		
WSC	1.30	29	55	28	27	0	29	27	0.0	1.0	C H	MEDIUM
WSC	2.30	30	53	22	31	0	30	31	0.3	0.7	C H	MEDIUM
WSC	3.30	32	55	29	26	0	32	26	0.1	0.9	C H	MEDIUM
WSD	0.60	37	83	36	47	0	37	47	0.0	1.0	C V	HIGH
WSD	1.60	31	53	26	27	0	31	27	0.2	0.8	C H	MEDIUM
WSE	1.30	31	58	29	29	0	31	29	0.1	0.9	C H	MEDIUM
WSE	2.30	35	49	24	25	0	35	25	0.4	0.6	C I	MEDIUM
WSE	3.30	33	53	25	28	0	33	28	0.3	0.7	C H	MEDIUM
WSF	1.30	32	56	29	27	1	32	27	0.1	0.9	C H	MEDIUM
WSH	1.30	30	54	26	28	0	30	28	0.1	0.9	C H	MEDIUM
WSH	2.30	33	50	24	26	0	33	26	0.3	0.7	C H	MEDIUM
WSJ	1.30	29	48	24	24	0	29	24	0.2	0.8	C I	MEDIUM
WSJ	2.30	29	38	22	16	0	29	16	0.4	0.6	C I	LOW

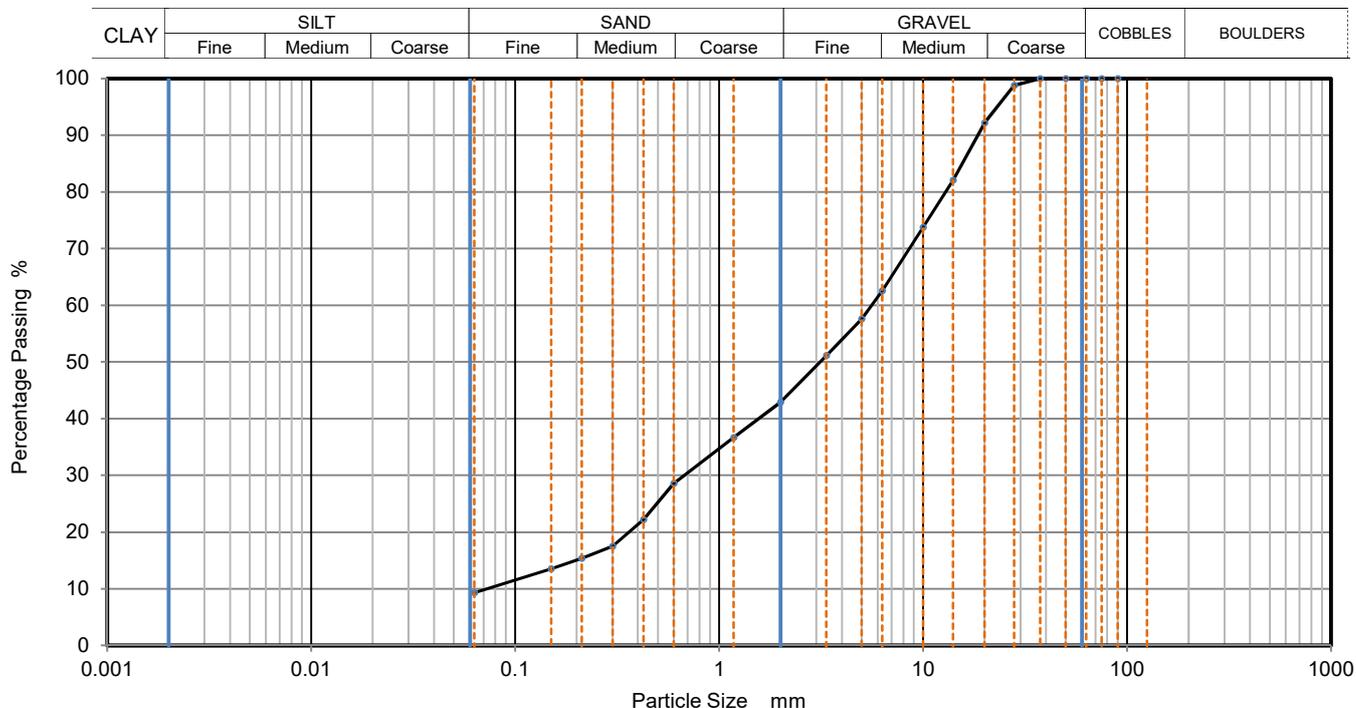
Interpretation graph based on BS EN ISO 14688-2:2018 any interpretations are expressed outside of our UKAS Accreditation.





# PARTICLE SIZE DISTRIBUTION

		Job Ref		C4826/24/E/7379					
		Borehole/Pit No.		BH03					
Site Name		Home Farm		Sample No.		18			
Soil Description		Brown clayey silty very gravelly SAND.		Depth, m		6.10			
Specimen Reference		18	Specimen Depth	6.1	m	Sample Type		D	
Test Method		ISO 17892 -4, by sieving on pre-dried or dry sample				KeyLAB ID		18	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	99		
20	92		
14	82		
10	74		
6.3	63		
5	58		
3.35	51		
2	43		
1.18	37		
0.6	29		
0.425	22		
0.3	18		
0.212	15		
0.15	14		
0.063	9		

Dry Mass of sample, g 3252

Sample Proportions	% dry mass
Very coarse	0
Gravel	57
Sand	34
Fines <0.063mm	9

Grading Analysis		
D100	mm	37.5
D60	mm	5.58
D30	mm	0.672
D10	mm	0.0726

Remarks

Preparation and testing in accordance with BS EN ISO 17892 - 4, unless noted below

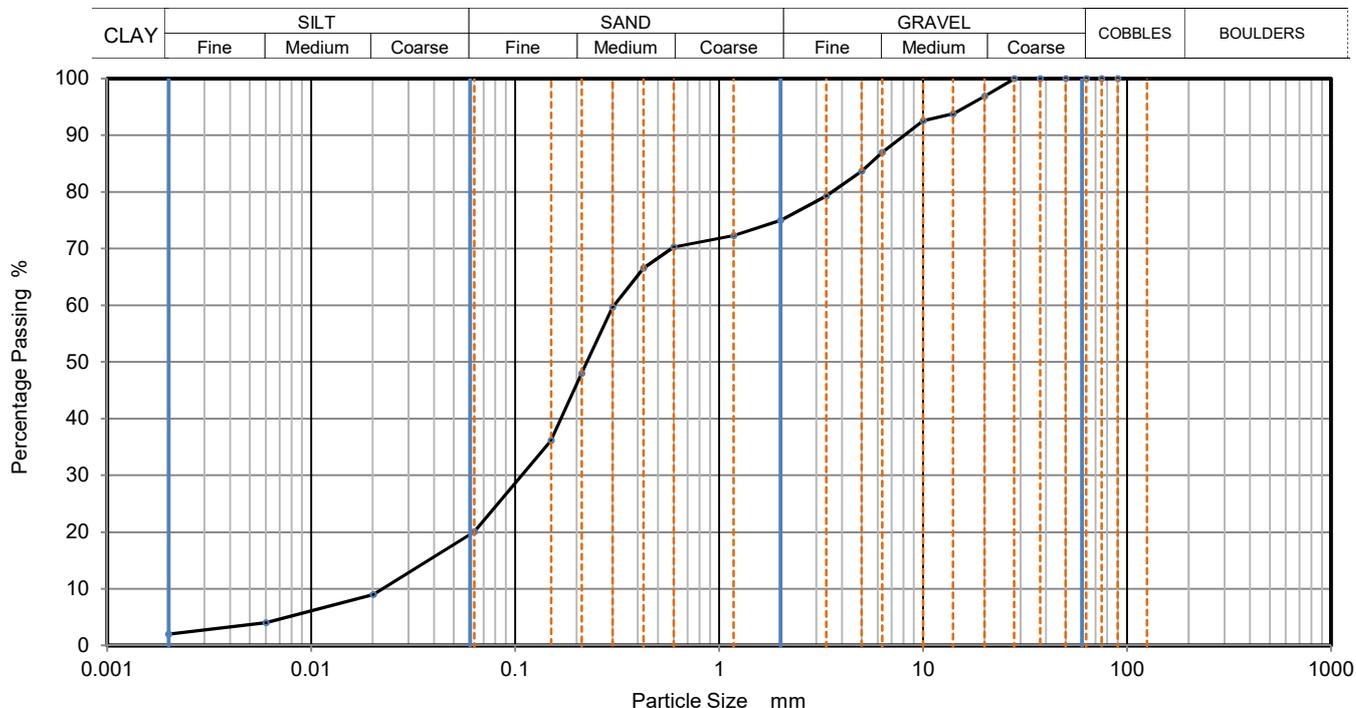
Test performance date: 23/5/2025

Operator	Checked	Approved	Sheet printed	
Mark Tuck	EC	Harry	04/06/2025	<b>Fig 3</b>
				Sheet 1



# PARTICLE SIZE DISTRIBUTION

		Job Ref		C4826/24/E/7379			
		Borehole/Pit No.		WSH			
Site Name		Home Farm		Sample No.		5	
Soil Description		Greyish brown/orangish brown clayey silty very gravelly SAND.		Depth, m		0.70	
Specimen Reference		5		Specimen Depth		0.7 m	
Test Method		ISO 17892 -4, by sieving and pipette sedimentation		KeyLAB ID		RGS_2025051911	
				Sample Type		D	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0201	9
90	100	0.0060	4
75	100	0.0020	2
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	94		
10	93		
6.3	87		
5	84		
3.35	79		
2	75		
1.18	72		
0.6	70		
0.425	67	Particle density (assumed) 2.65 Mg/m <sup>3</sup>	
0.3	60		
0.212	48		
0.15	36		
0.063	20		

Dry Mass of sample, g 1841

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	55
Silt	18
Clay	2

Grading Analysis		
D100	mm	28
D60	mm	0.304
D30	mm	0.107
D10	mm	0.0219

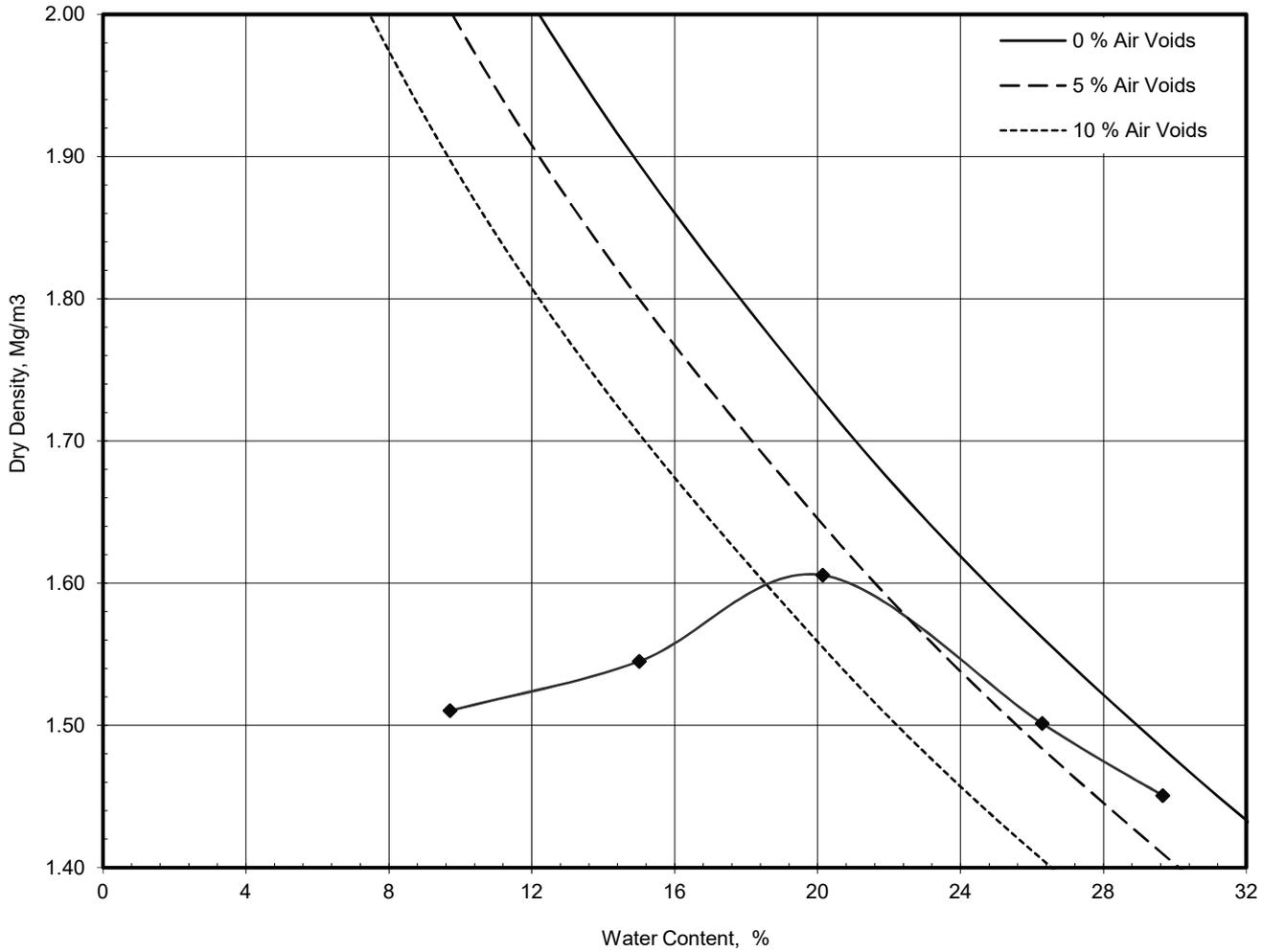
Remarks

Preparation and testing in accordance with BS EN ISO 17892 - 4, unless noted below

Test performance date: 23/5/2025

Operator	Checked	Approved	Sheet printed	<b>Fig 3</b>
EC	EC	Harry	04/06/2025	Sheet 2

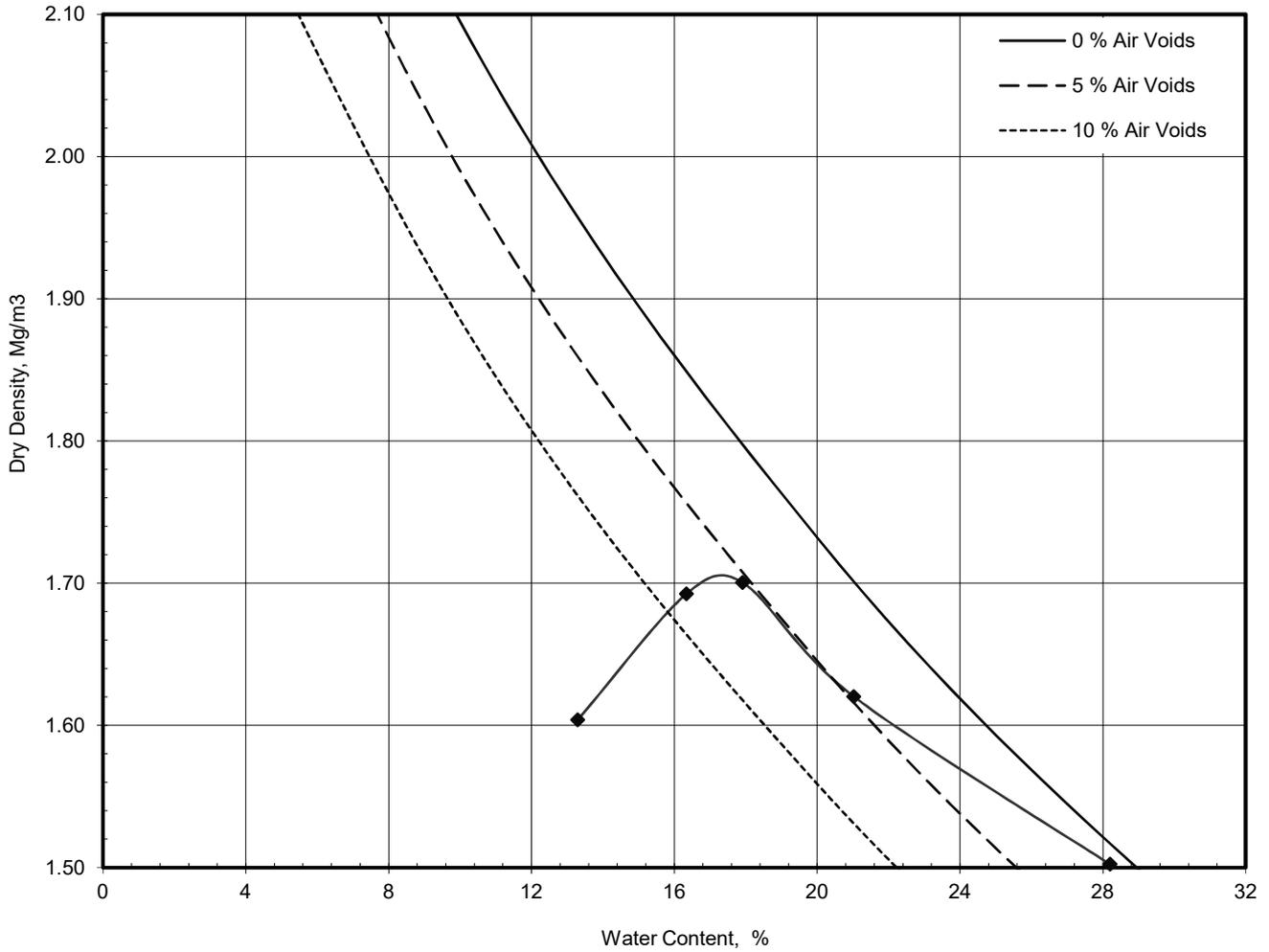
<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP01		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm brown mottled grey slightly sandy silty CLAY.		Depth	1.00 m	
Specimen Ref.	1	Specimen Depth	1 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer		Keylab ID	RGS_2025051925	
Compaction Test Reference/No.				1	



Preparation	Material used was natural	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65
Grading Zone	1	
<b>Maximum Dry Density</b>	<b>Mg/m³</b>	<b>1.61</b>
<b>Optimum Water Content</b>	<b>%</b>	<b>20</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		

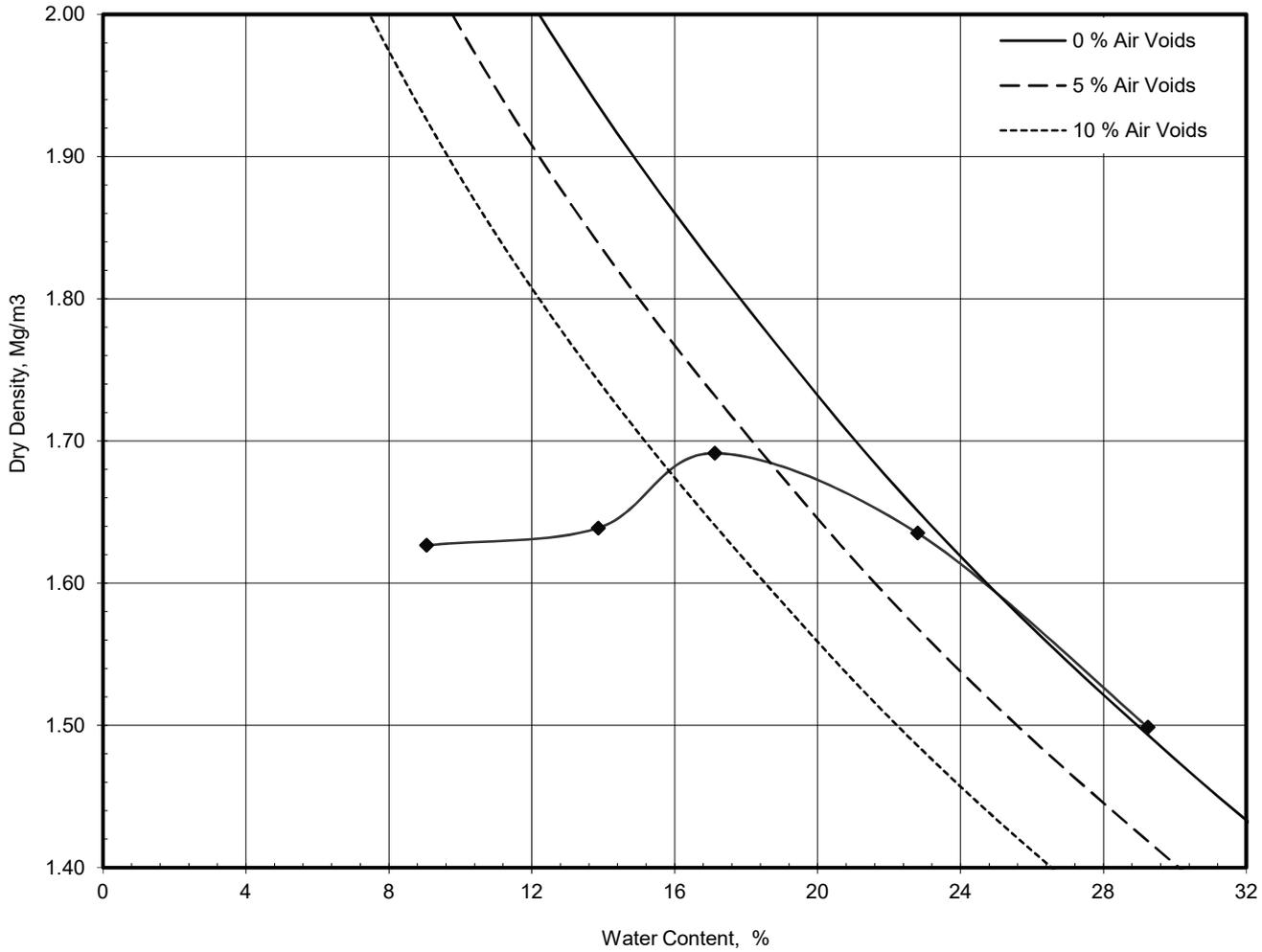
<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP03		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm greyish brown slightly sandy silty CLAY.		Depth	0.50 m	
Specimen Ref.	1	Specimen Depth	0.5 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer		Keylab ID	RGS_2025051926	
			Compaction Test Reference/No.	2	



Preparation	Material used was natural	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65
Grading Zone	1	
<b>Maximum Dry Density</b>	Mg/m³	<b>1.71</b>
<b>Optimum Water Content</b>	%	<b>17</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		

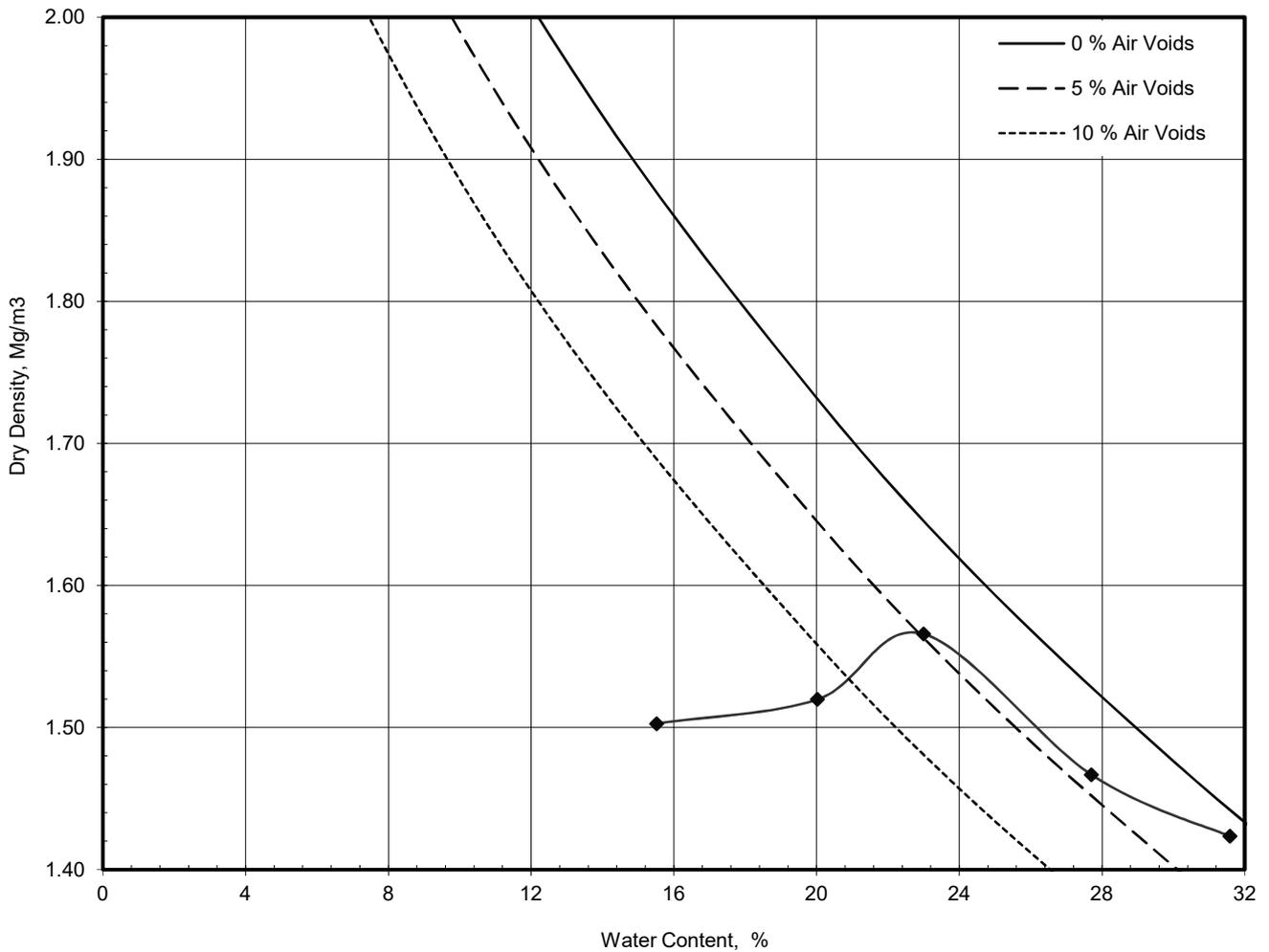
<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP04		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm grey slightly sandy silty CLAY.		Depth	0.50 m	
Specimen Ref.	1	Specimen Depth	0.5 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer		Keylab ID	RGS_2025051927	
			Compaction Test Reference/No.	3	



Preparation		Material used was natural
Mould Type		One Litre
Samples Used		Separate specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m <sup>3</sup>	2.65
Grading Zone		1
<b>Maximum Dry Density</b>	Mg/m <sup>3</sup>	<b>1.69</b>
<b>Optimum Water Content</b>	%	<b>17</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		

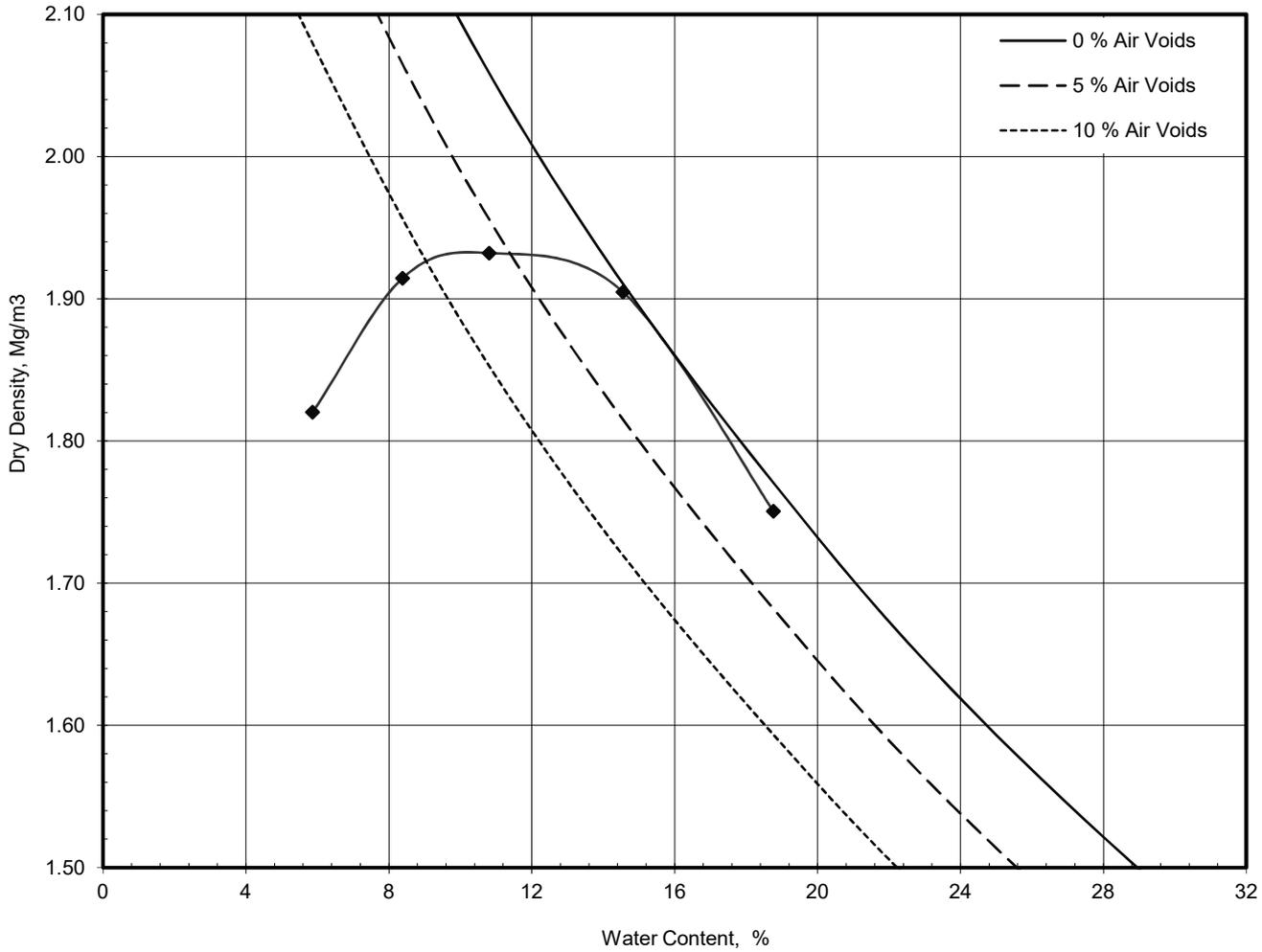
<b>Dry Density / Water Content Relationship Light Compaction</b>				Job Ref	<b>C4826/24/E/7379</b>
				Borehole / Pit No	TP05
Site Name	<b>Home Farm</b>			Sample No	1
Soil Description	Firm grey slightly sandy silty CLAY.			Depth	0.50 m
Specimen Ref.	1	Specimen Depth	0.5 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer			Keylab ID	RGS_2025051928
Compaction Test Reference/No.					4



Preparation	Material used was natural	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65
Grading Zone	1	
<b>Maximum Dry Density</b>	Mg/m³	<b>1.57</b>
<b>Optimum Water Content</b>	%	<b>23</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b>  Sheet 1 of 1
EC	EC	Harry		

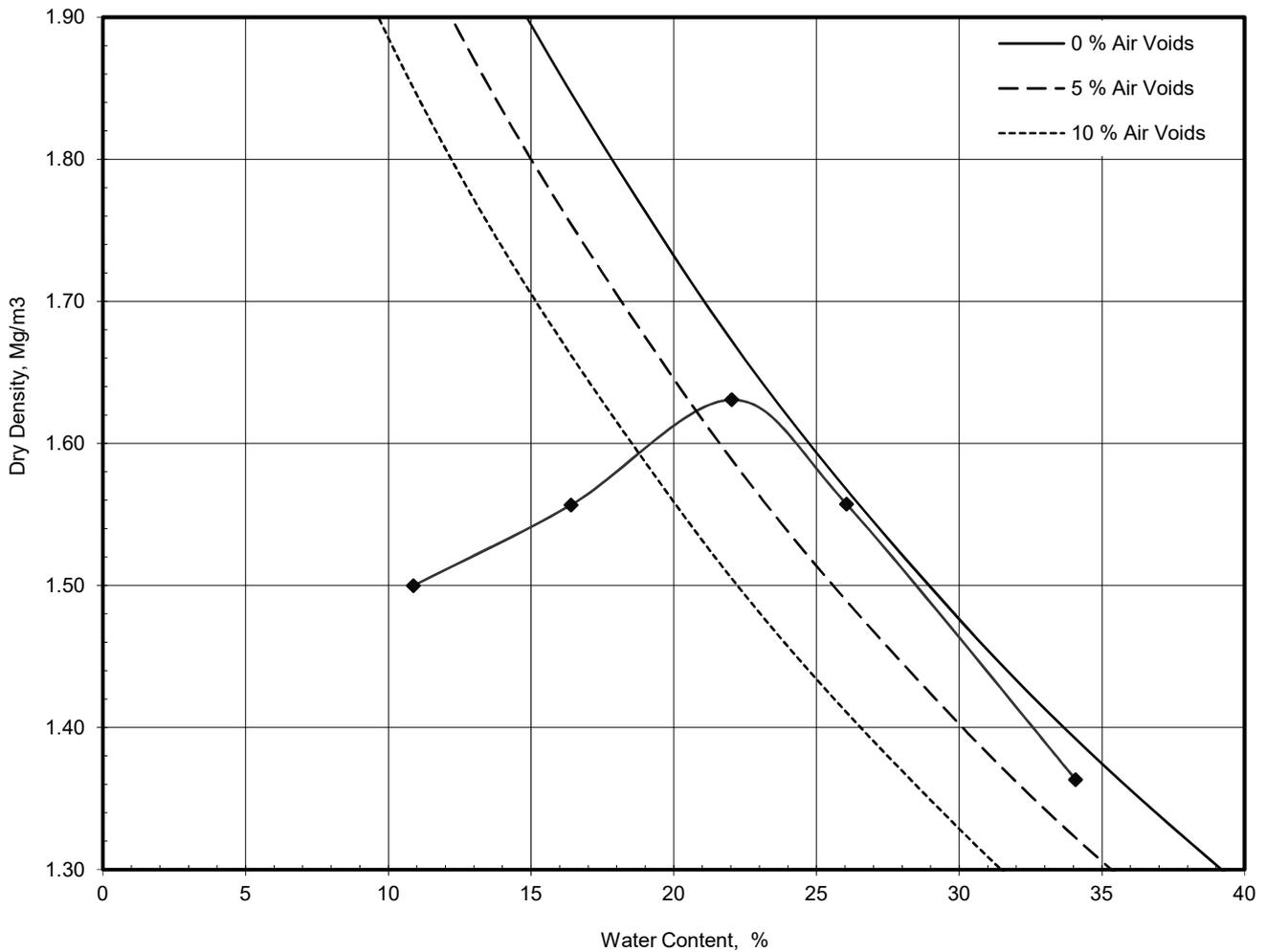
<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP06		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm grey slightly sandy silty CLAY.		Depth	0.50 m	
Specimen Ref.	1	Specimen Depth	0.5 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer		Keylab ID	RGS_2025051929	
			Compaction Test Reference/No.	5	



Preparation	Material used was natural	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	2
Particle Density - Assumed	Mg/m <sup>3</sup>	2.65
Grading Zone	2	
<b>Maximum Dry Density</b>	Mg/m <sup>3</sup>	<b>1.93</b>
<b>Optimum Water Content</b>	%	<b>11</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		

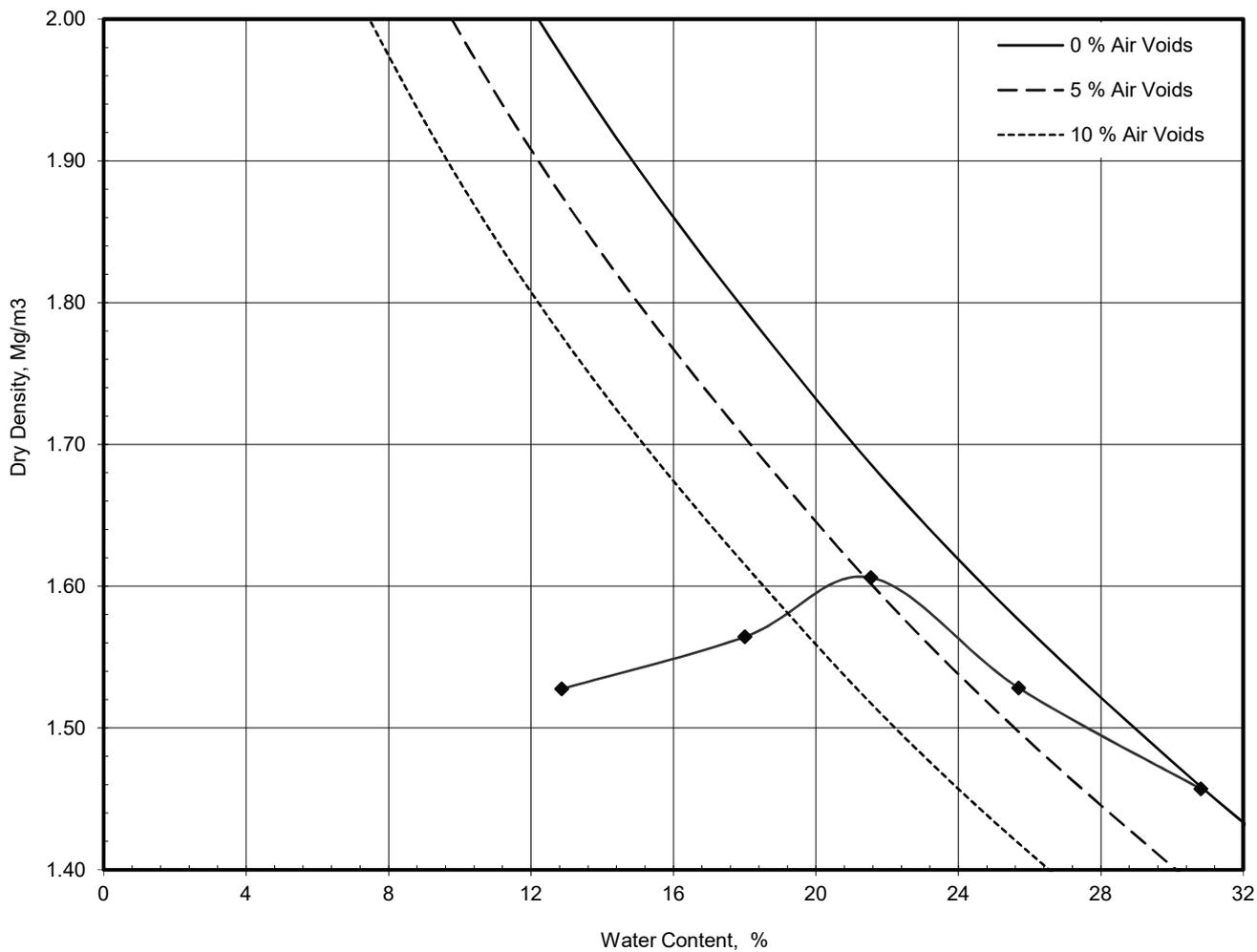
<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP07		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm grey slightly sandy silty CLAY.		Depth	1.00 m	
Specimen Ref.	1	Specimen Depth	1 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.4, 2.5kg rammer		Keylab ID	RGS_2025051930	
			Compaction Test Reference/No.	6	



Preparation	Material used was natural	
Mould Type	CBR	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m <sup>3</sup>	2.65
Grading Zone	1	
<b>Maximum Dry Density</b>	Mg/m <sup>3</sup>	<b>1.63</b>
<b>Optimum Water Content</b>	%	<b>22</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		

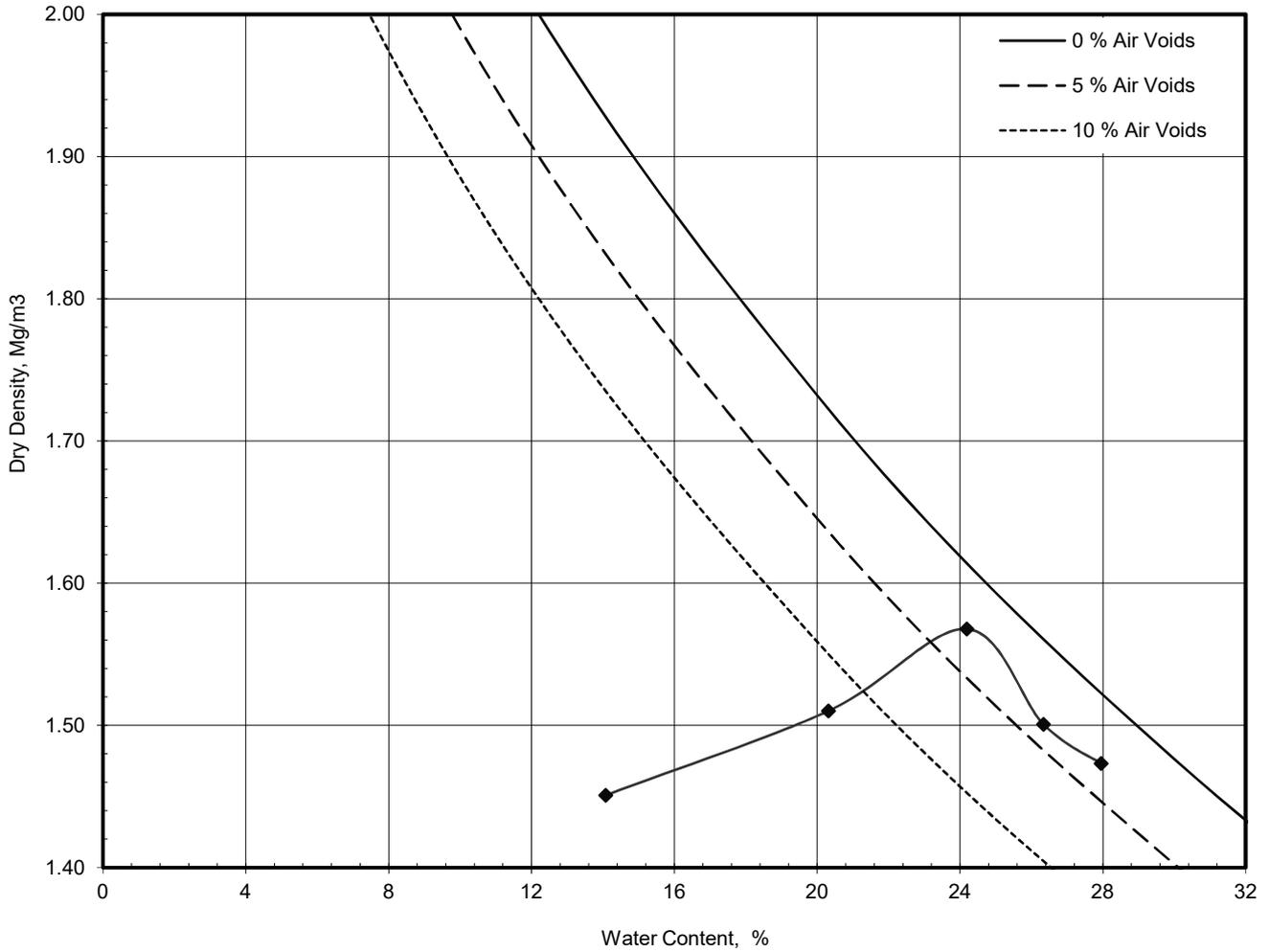
<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP08		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm grey slightly sandy silty CLAY.		Depth	1.00 m	
Specimen Ref.	1	Specimen Depth	14 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer		Keylab ID	RGS_2025051931	
			Compaction Test Reference/No.	7	



Preparation	Material used was natural	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m <sup>3</sup>	2.65
Grading Zone	1	
<b>Maximum Dry Density</b>	Mg/m <sup>3</sup>	<b>1.61</b>
<b>Optimum Water Content</b>	%	<b>21</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		

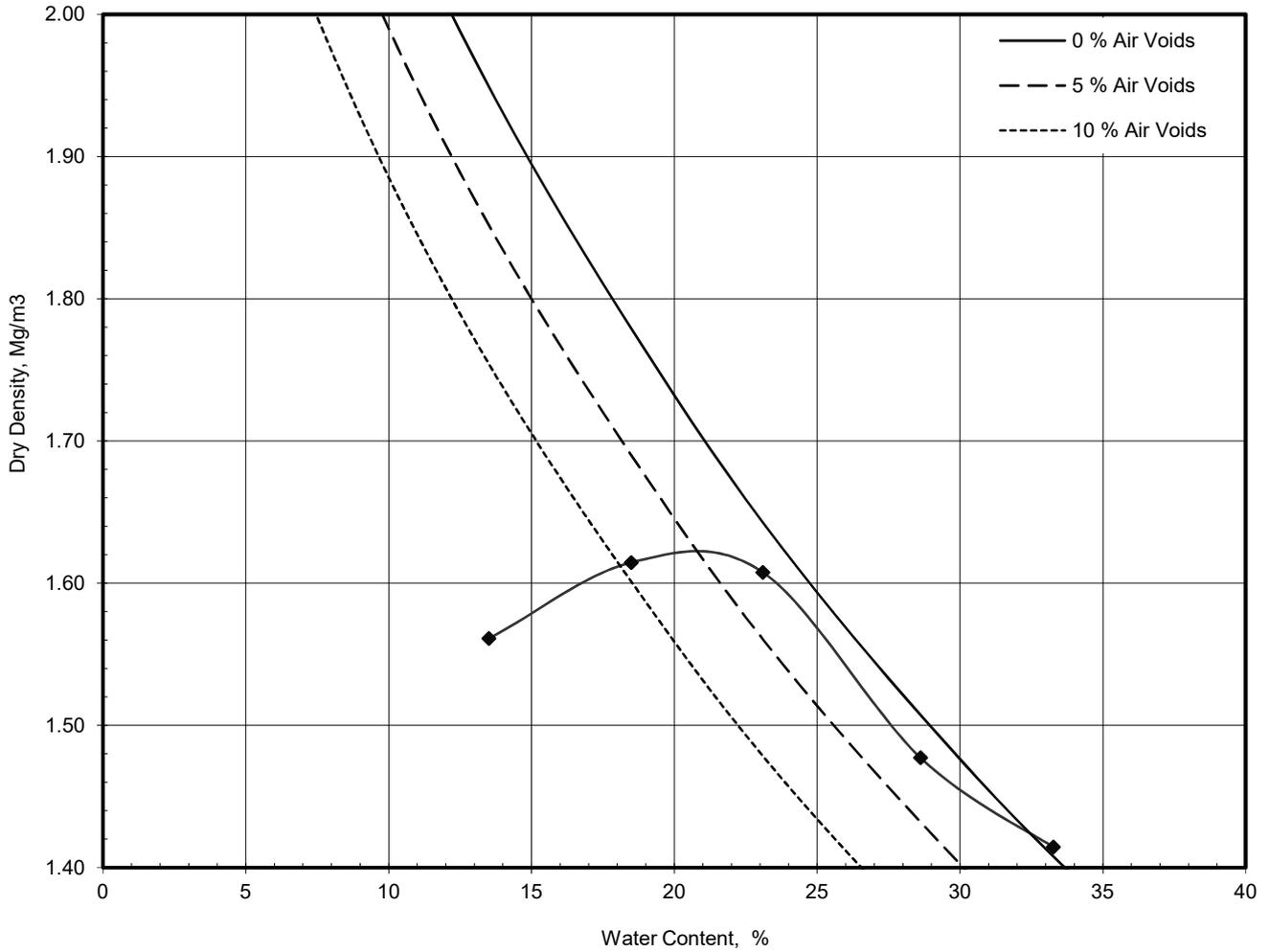
<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP14		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm grey slightly sandy silty CLAY.		Depth	1.00 m	
Specimen Ref.	1	Specimen Depth	1 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer		Keylab ID	RGS_2025051932	
			Compaction Test Reference/No.	8	



Preparation	Material used was natural	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m <sup>3</sup>	2.65
Grading Zone	1	
<b>Maximum Dry Density</b>	Mg/m <sup>3</sup>	<b>1.57</b>
<b>Optimum Water Content</b>	%	<b>24</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		

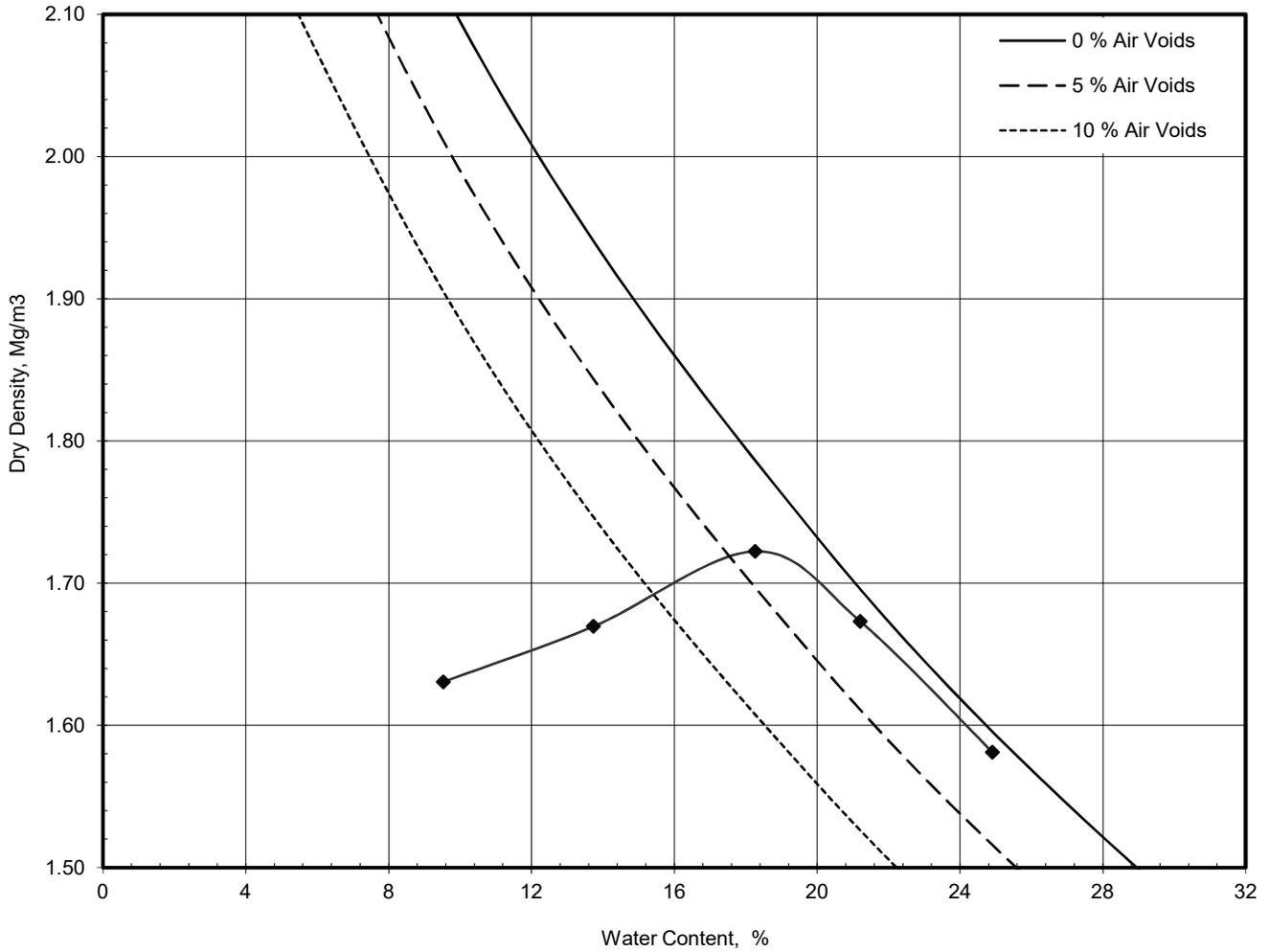
<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP15		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm grey slightly sandy silty CLAY.		Depth	1.00 m	
Specimen Ref.	1	Specimen Depth	1 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer		Keylab ID	RGS_2025051933	
			Compaction Test Reference/No.	9	



Preparation	Material used was natural	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured	Mg/m³	2.65
Grading Zone	1	
<b>Maximum Dry Density</b>	Mg/m³	<b>1.62</b>
<b>Optimum Water Content</b>	%	<b>21</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		

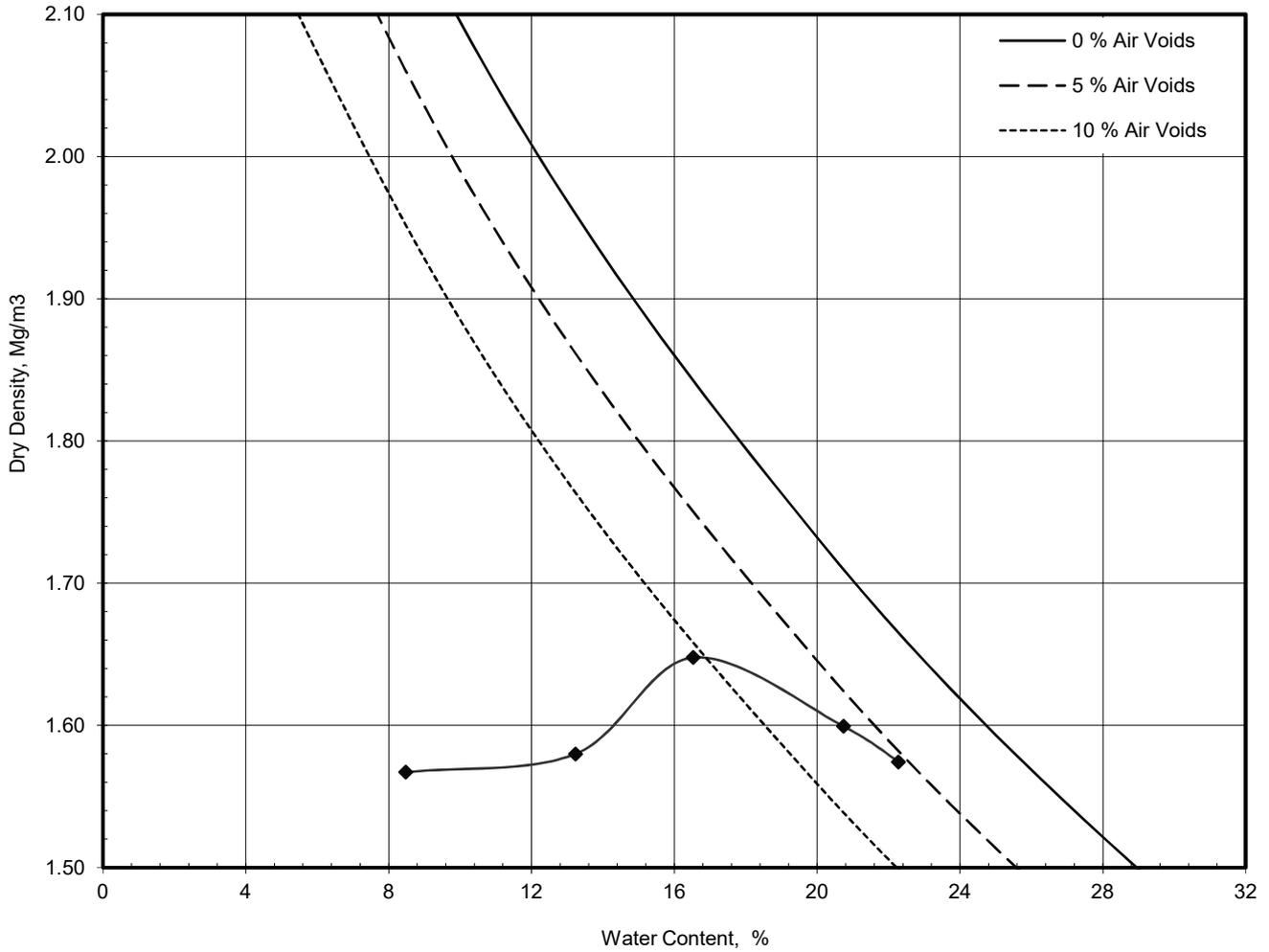
<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP16		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm grey slightly sandy silty CLAY.		Depth	1.00 m	
Specimen Ref.	1	Specimen Depth	1 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer		Keylab ID	RGS_2025051934	
			Compaction Test Reference/No.	10	



Preparation	Material used was natural	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65
Grading Zone	1	
<b>Maximum Dry Density</b>	Mg/m³	<b>1.72</b>
<b>Optimum Water Content</b>	%	<b>18</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		

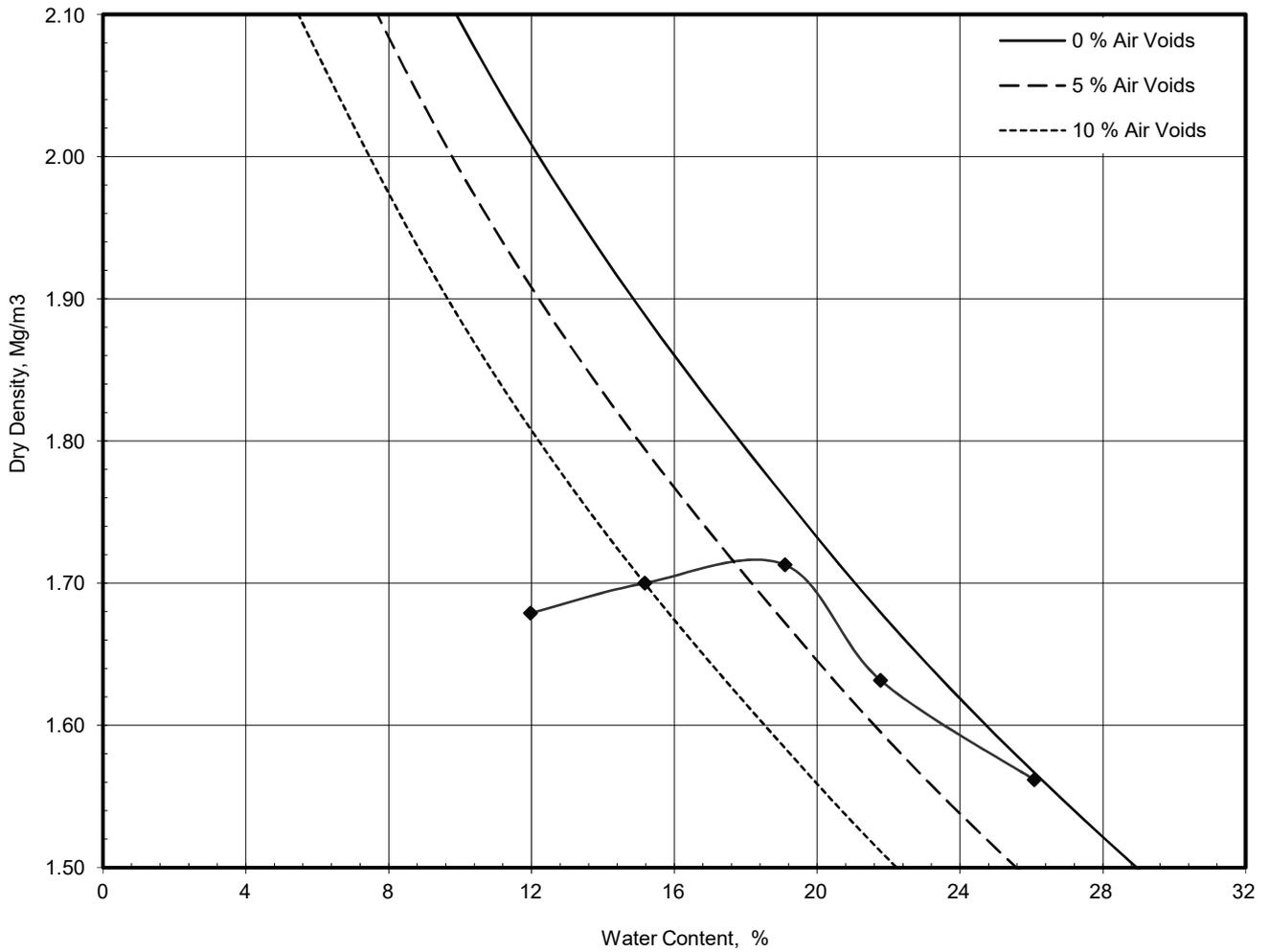
<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP17		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm grey slightly sandy silty CLAY.		Depth	1.00 m	
Specimen Ref.	1	Specimen Depth	1 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer		Keylab ID	RGS_2025051935	
Compaction Test Reference/No.				11	



Preparation	Material used was natural	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m <sup>3</sup>	2.65
Grading Zone		1
<b>Maximum Dry Density</b>	<b>Mg/m<sup>3</sup></b>	<b>1.65</b>
<b>Optimum Water Content</b>	<b>%</b>	<b>17</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		

<b>Dry Density / Water Content Relationship Light Compaction</b>		Job Ref	<b>C4826/24/E/7379</b>		
		Borehole / Pit No	TP18		
Site Name	<b>Home Farm</b>		Sample No	1	
Soil Description	Firm grey slightly sandy silty CLAY.		Depth	1.00 m	
Specimen Ref.	1	Specimen Depth	1 m	Sample Type	B
Test Method	BS1377-2:2022, clause 11.3, 2.5kg rammer		Keylab ID	RGS_2025051936	
Compaction Test Reference/No.				12	



Preparation	Material used was natural	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65
Grading Zone	1	
<b>Maximum Dry Density</b>	Mg/m³	<b>1.72</b>
<b>Optimum Water Content</b>	%	<b>18</b>

Operator	Checked	Approved	Remarks	<b>Fig 4</b> Sheet 1 of 1
EC	EC	Harry		



## California Bearing Ratio ( CBR )

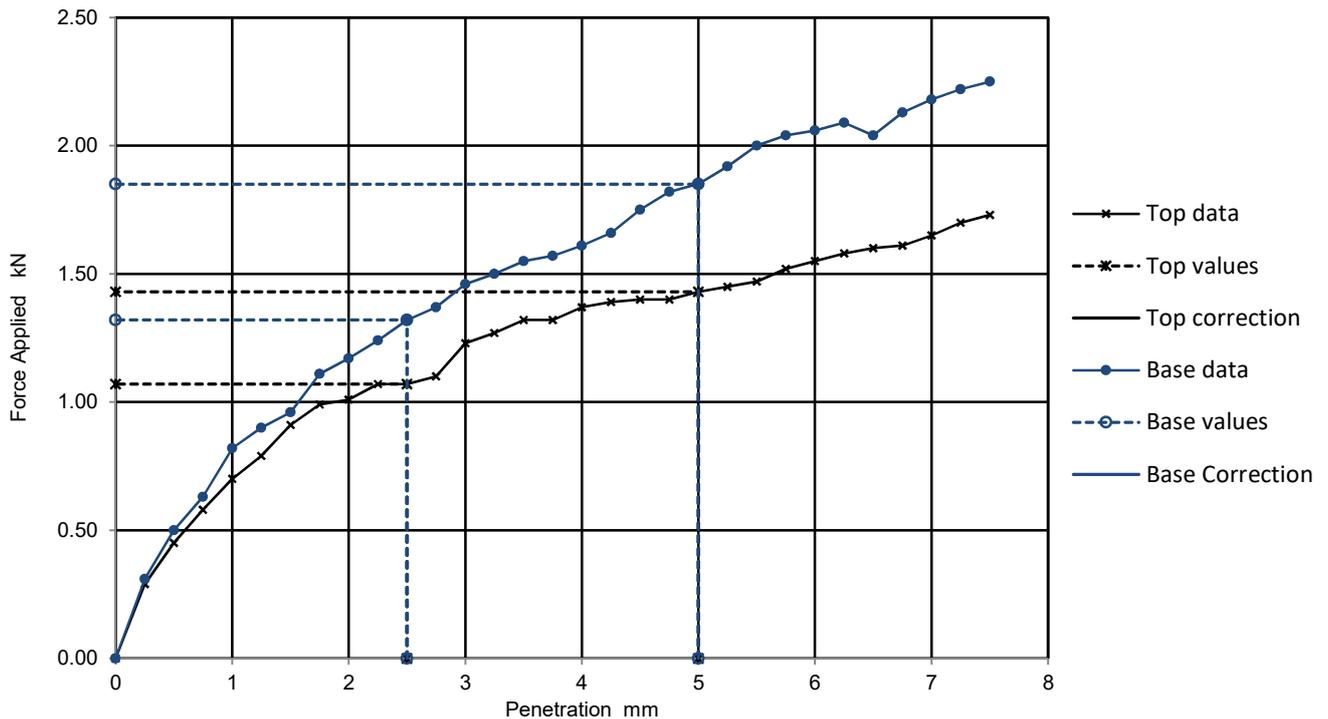
Job Ref	C4826/24/E/7379
Borehole/Pit No.	TP01

Site Name	Home Farm	Sample No.	1
Soil Description	Firm brown mottled grey slightly sandy silty CLAY.	Depth m	1.00
Specimen Reference	1	Specimen Depth	1.00 m
Specimen Description	Firm brown mottled grey slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051925
		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	1.93 Mg/m3	Surcharge applied
	Dry density	1.58 Mg/m3	2 kg
	Moisture content	22.3 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		8.1	7.2	8.1		22.5
BASE		10.0	9.3	10.0		23.3

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	1

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

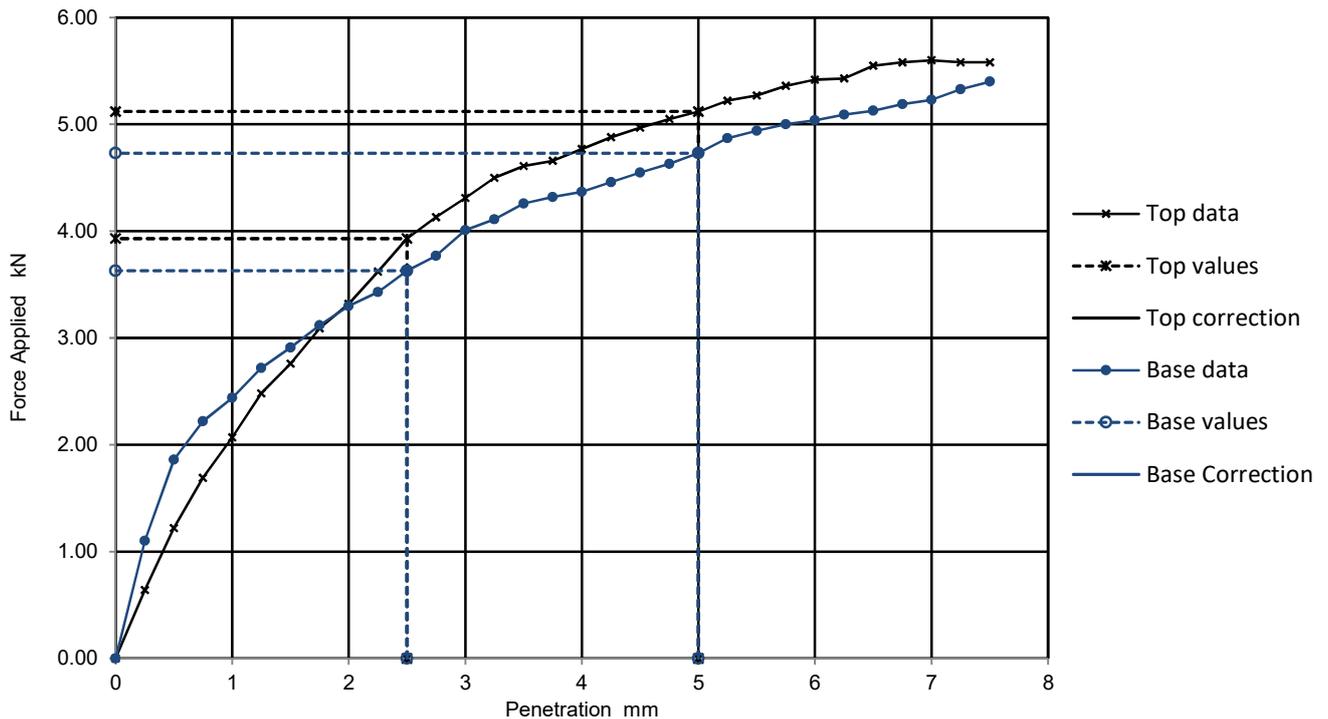
Job Ref C4826/24/E/7379  
Borehole/Pit No. TP03

Site Name	Home Farm	Sample No.	1
Soil Description	Firm greyish brown slightly sandy silty CLAY.	Depth m	0.50
Specimen Reference	2	Specimen Depth	0.50 m
Specimen Description	Firm greyish brown slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051926
		CBR Test Number	1

### Specimen Preparation

Condition	REMOULDED	Soaking details	Not soaked
Details	Recompacted to specified density 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	2.00 Mg/m3	Surcharge applied
	Dry density	1.71 Mg/m3	2 kg
	Moisture content	17.0 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	30.0	26.0	30.0	29.0	17.0
BASE	No	28.0	24.0	28.0		17.0

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	2

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

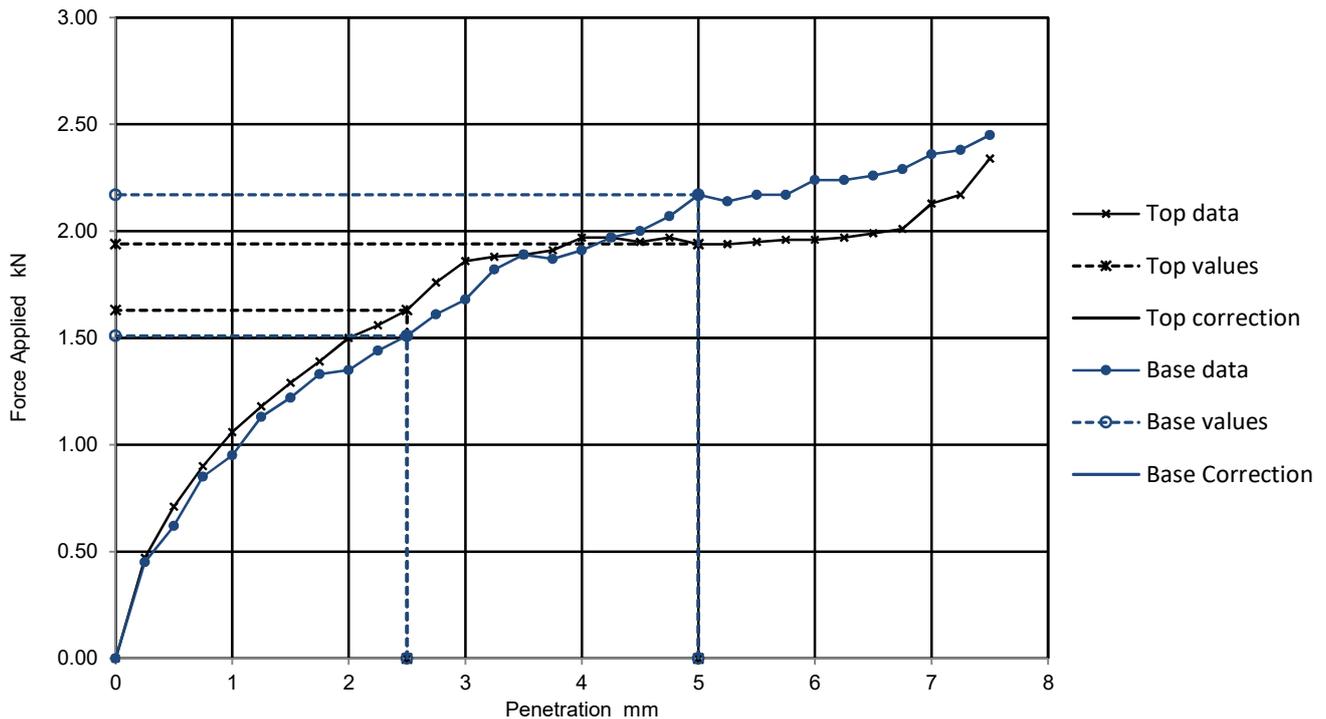
Job Ref	C4826/24/E/7379
Borehole/Pit No.	TP04

Site Name	Home Farm	Sample No.	1
Soil Description	Firm grey slightly sandy silty CLAY.	Depth m	0.50
Specimen Reference	1	Specimen Depth	0.50 m
Specimen Description	Firm grey slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051927
		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	1.98 Mg/m3	Surcharge applied
	Dry density	1.65 Mg/m3	2 kg
	Moisture content	19.7 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		12.0	9.7	12.0	12.0	18.1
BASE		11.0	11.0	11.0		19.6

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	3

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

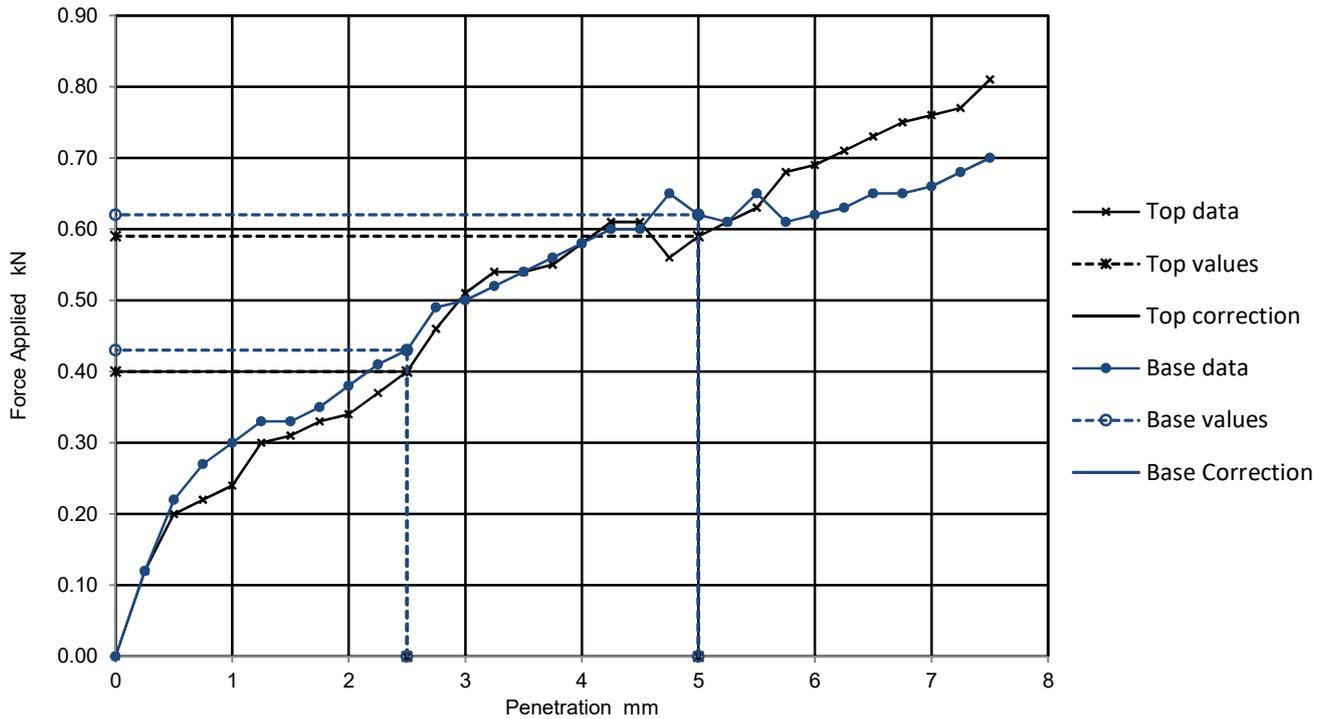
Job Ref	C4826/24/E/7379
Borehole/Pit No.	TP05

Site Name	Home Farm	Sample No.	1
Soil Description	Firm grey slightly sandy silty CLAY.	Depth m	0.50
Specimen Reference	2	Specimen Depth	0.50 m
Specimen Description	Firm grey slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051928
		CBR Test Number	1

### Specimen Preparation

Condition	REMOULDED	Soaking details	Not soaked
Details	Recompacted to specified density 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	1.93 Mg/m3	Surcharge applied
	Dry density	1.56 Mg/m3	2 kg
	Moisture content	23.5 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	3.0	3.0	3.0	3.1	24.4
BASE	No	3.3	3.1	3.3		25.2

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	4

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

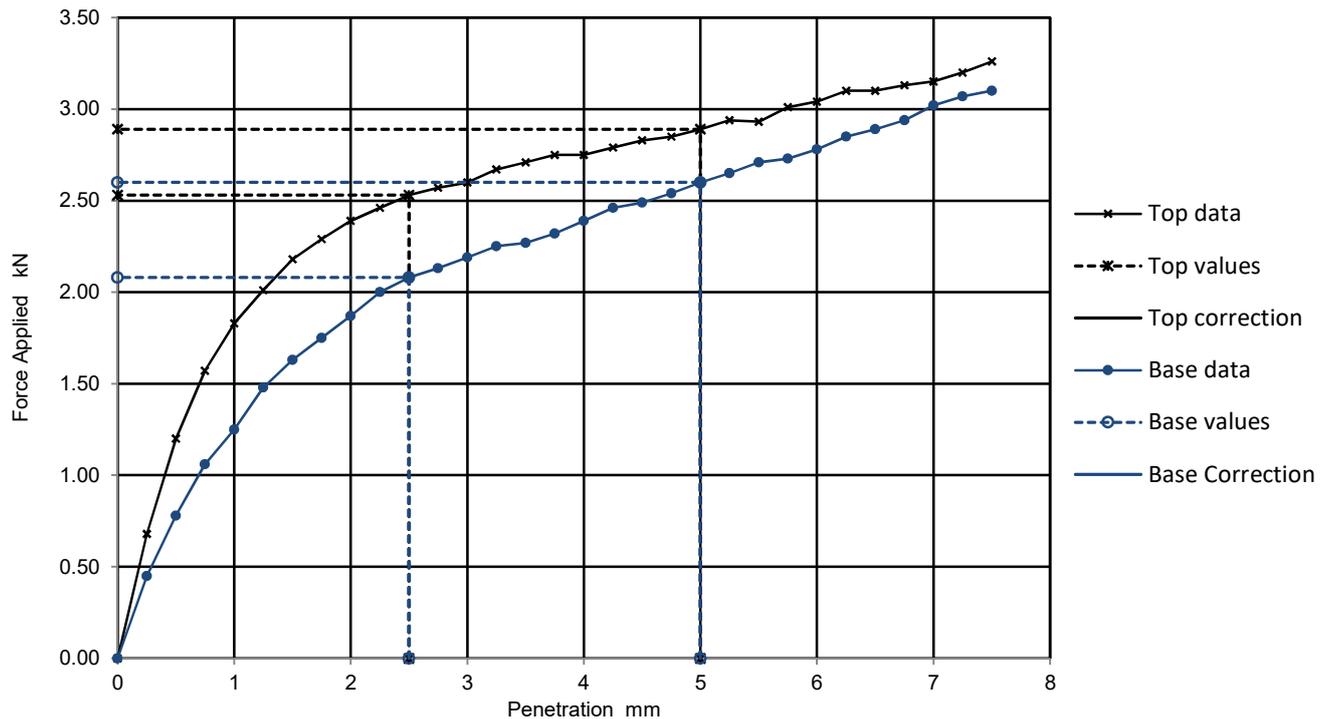
Job Ref C4826/24/E/7379  
Borehole/Pit No. TP06

Site Name	Home Farm	Sample No.	1
Soil Description	Firm grey slightly sandy silty CLAY.	Depth m	0.50
Specimen Reference	1	Specimen Depth	0.50 m
Specimen Description	Firm grey slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051929
		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	1.93 Mg/m3	Surcharge applied
	Dry density	1.62 Mg/m3	2 kg
	Moisture content	18.9 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		19.0	14.0	19.0	17.0	18.7
BASE		16.0	13.0	16.0		18.2

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	5

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

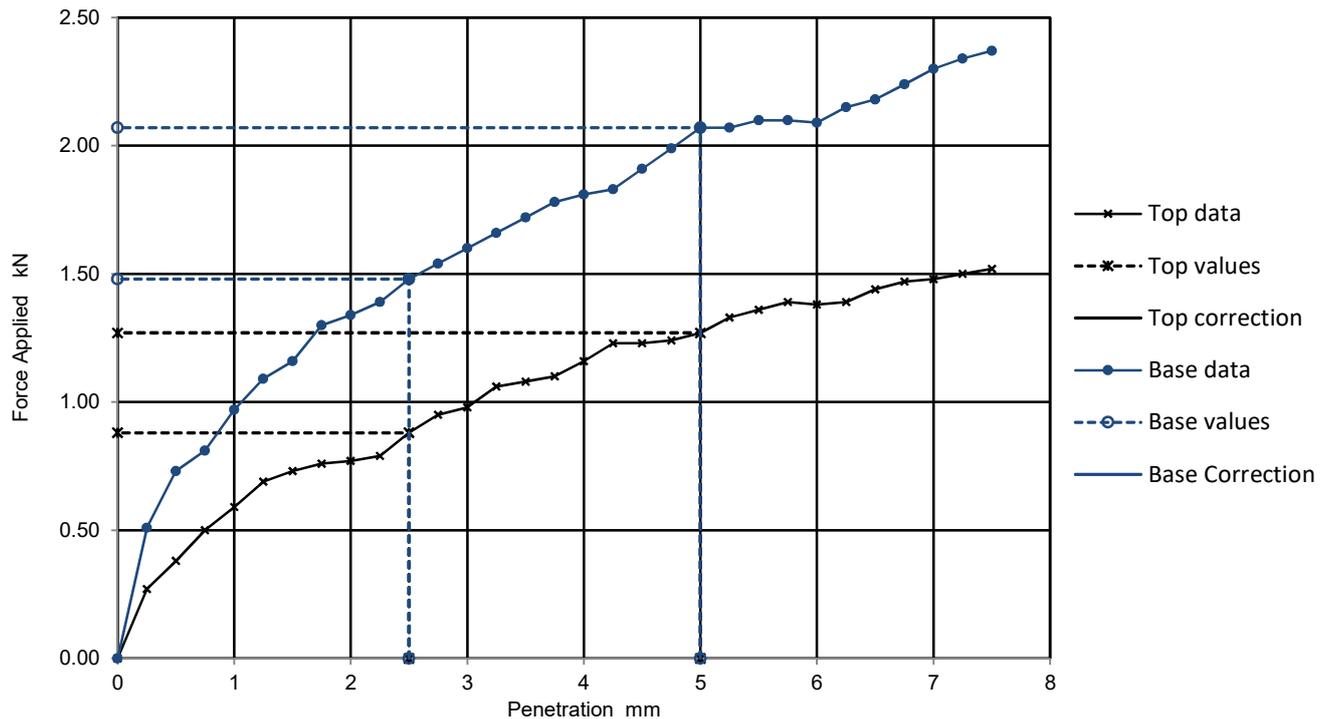
Job Ref C4826/24/E/7379  
Borehole/Pit No. TP07

Site Name	Home Farm	Sample No.	1
Soil Description	Firm grey slightly sandy silty CLAY.	Depth m	1.00
Specimen Reference	1	Specimen Depth	1.00 m
Specimen Description	Firm grey slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051930
		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	1.99 Mg/m3	Surcharge applied
	Dry density	1.62 Mg/m3	2 kg
	Moisture content	22.5 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		6.7	6.4	6.7		22.1
BASE		11.0	10.0	11.0		21.3

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	6

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

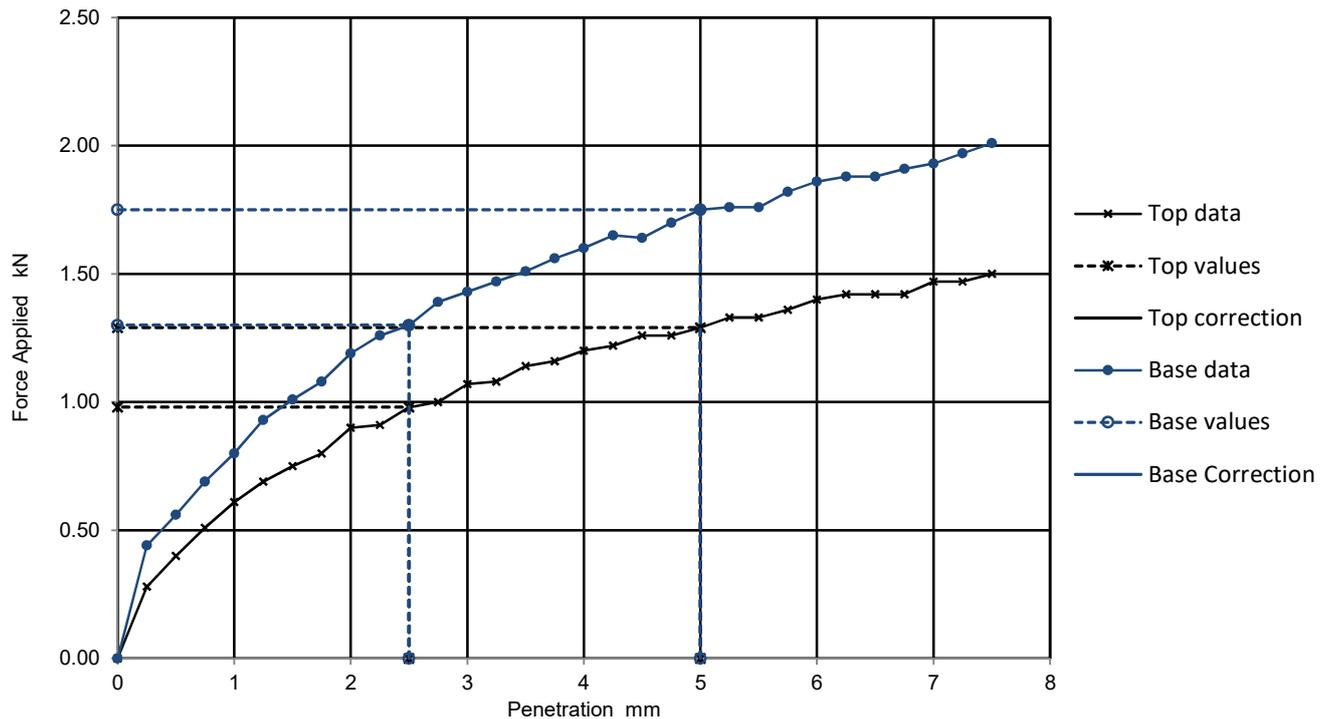
Job Ref	C4826/24/E/7379
Borehole/Pit No.	TP08

Site Name	Home Farm	Sample No.	1
Soil Description	Firm grey slightly sandy silty CLAY.	Depth m	1.00
Specimen Reference	1	Specimen Depth	1.00 m
Specimen Description	Firm grey slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051931
		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	1.94 Mg/m3	Surcharge applied
	Dry density	1.57 Mg/m3	2 kg
	Moisture content	23.8 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		7.4	6.5	7.4	24.6	
BASE		9.8	8.8	9.8		
					24.1	

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	7

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

Job Ref C4826/24/E/7379

Borehole/Pit No. TP14

Site Name Home Farm

Sample No. 1

Soil Description Firm grey slightly sandy silty CLAY.

Depth m 1.00

Specimen Reference 2 Specimen Depth 1.00 m

Sample Type B

Specimen Description Firm grey slightly sandy silty CLAY.

KeyLAB ID RGS\_2025051932

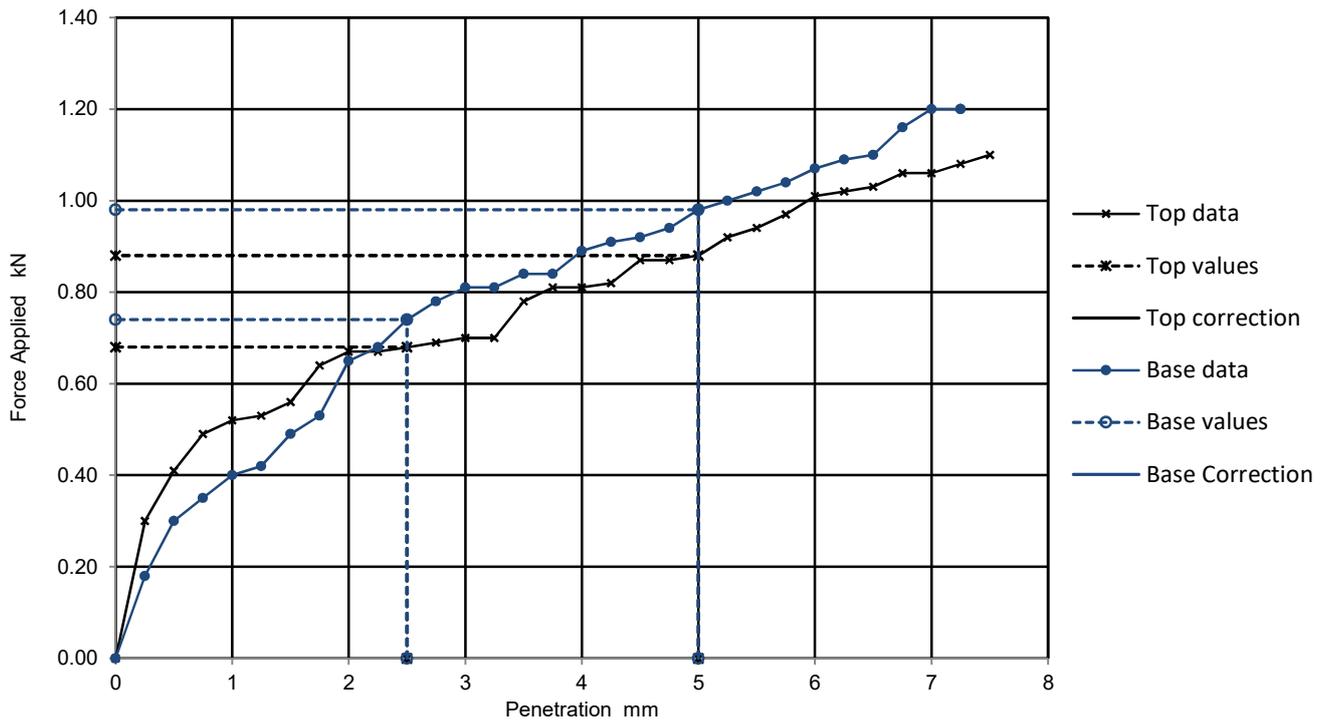
Test Method BS 1377-2:2022

CBR Test Number 1

### Specimen Preparation

Condition	REMOULDED	Soaking details	Not soaked
Details	Recompacted to specified density 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 1.94 Mg/m3	Surcharge applied	2 kg
	Dry density 1.56 Mg/m3		1 kPa
	Moisture content 24.5 %		

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		5.2	4.4	5.2	5.4	23.5
BASE		5.6	4.9	5.6		24.6

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	8

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

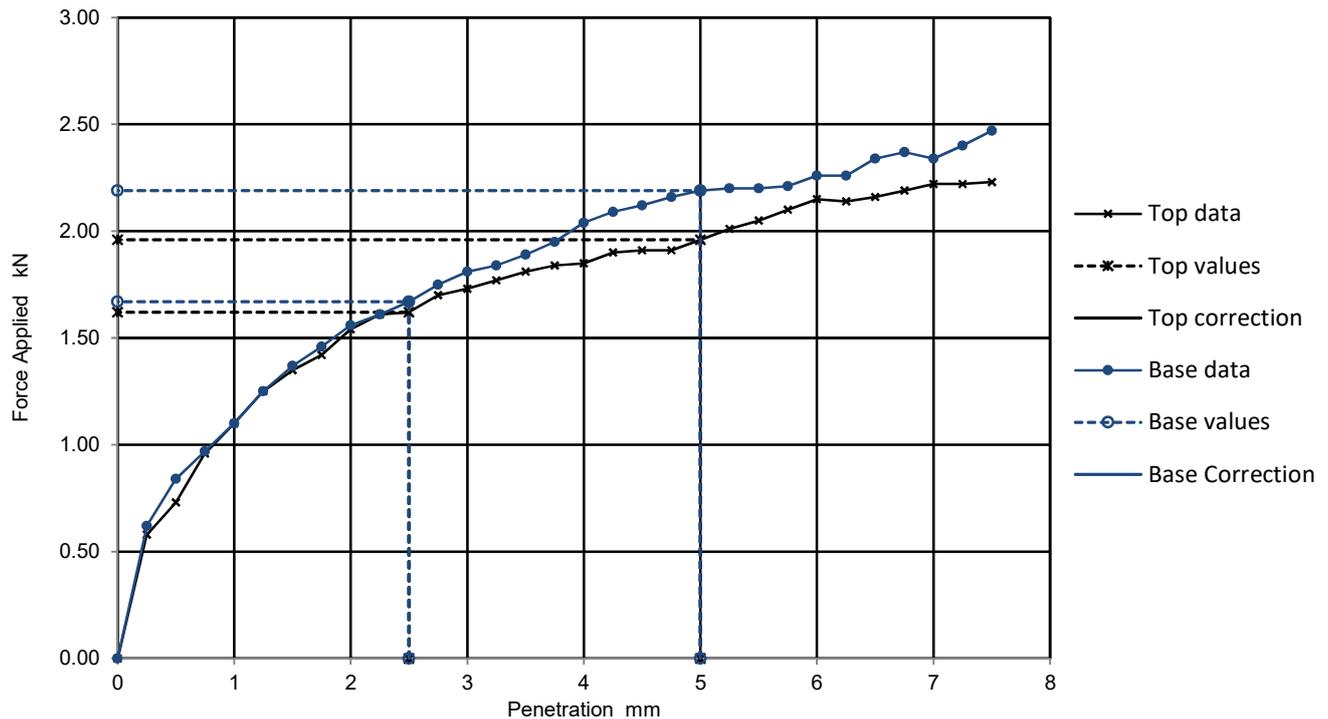
Job Ref C4826/24/E/7379  
Borehole/Pit No. TP15

Site Name	Home Farm	Sample No.	1
Soil Description	Firm grey slightly sandy silty CLAY.	Depth m	1.00
Specimen Reference	1	Specimen Depth	1.00 m
Specimen Description	Firm grey slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051933
		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	1.95 Mg/m3	Surcharge applied
	Dry density	1.59 Mg/m3	2 kg
	Moisture content	22.5 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		12.0	9.8	12.0	12.0	21.0
BASE		13.0	11.0	13.0		22.8

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
--	---	-------

Fig No.	5
Sheet No	9

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

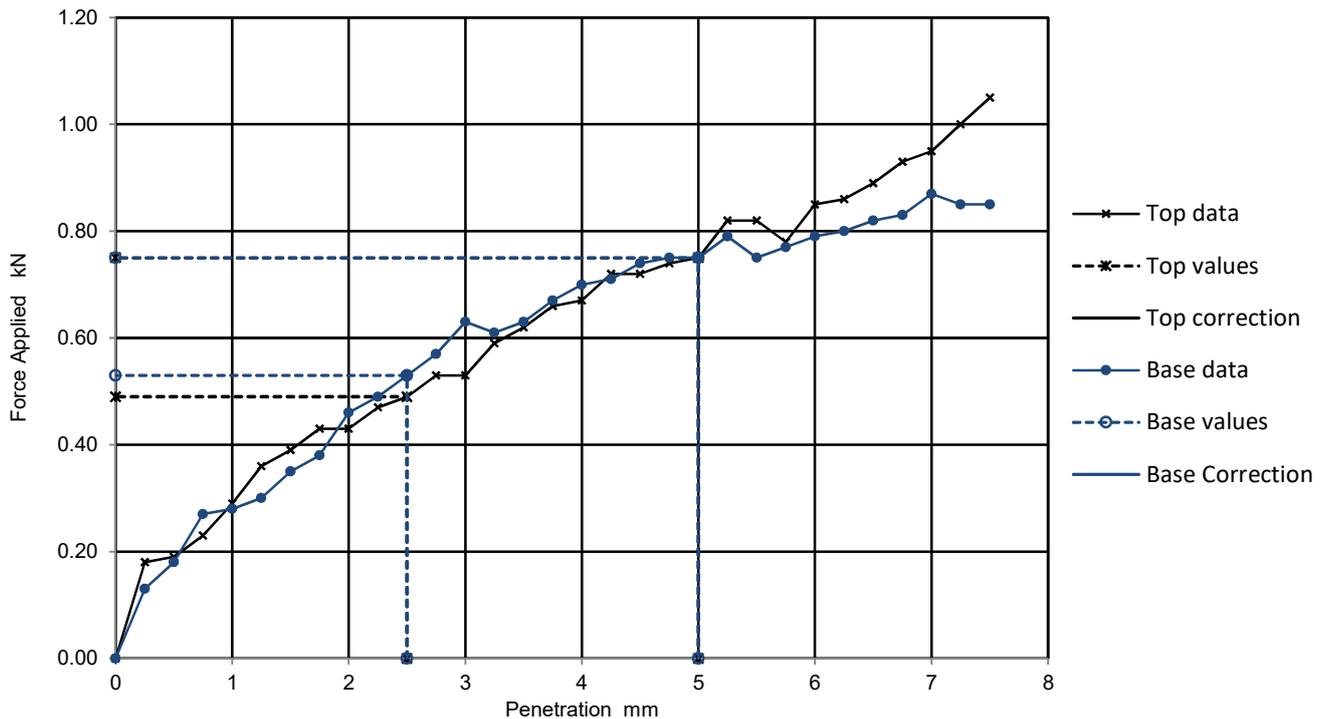
Job Ref	C4826/24/E/7379
Borehole/Pit No.	TP16

Site Name	Home Farm	Sample No.	1
Soil Description	Firm grey slightly sandy silty CLAY.	Depth m	1.00
Specimen Reference	1	Specimen Depth	1.00 m
Specimen Description	Firm grey slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051934
		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	2.04 Mg/m3	Surcharge applied
	Dry density	1.70 Mg/m3	2 kg
	Moisture content	20.3 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		3.7	3.8	3.8	3.9	20.6
BASE		4.0	3.8	4.0		19.9

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	10

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

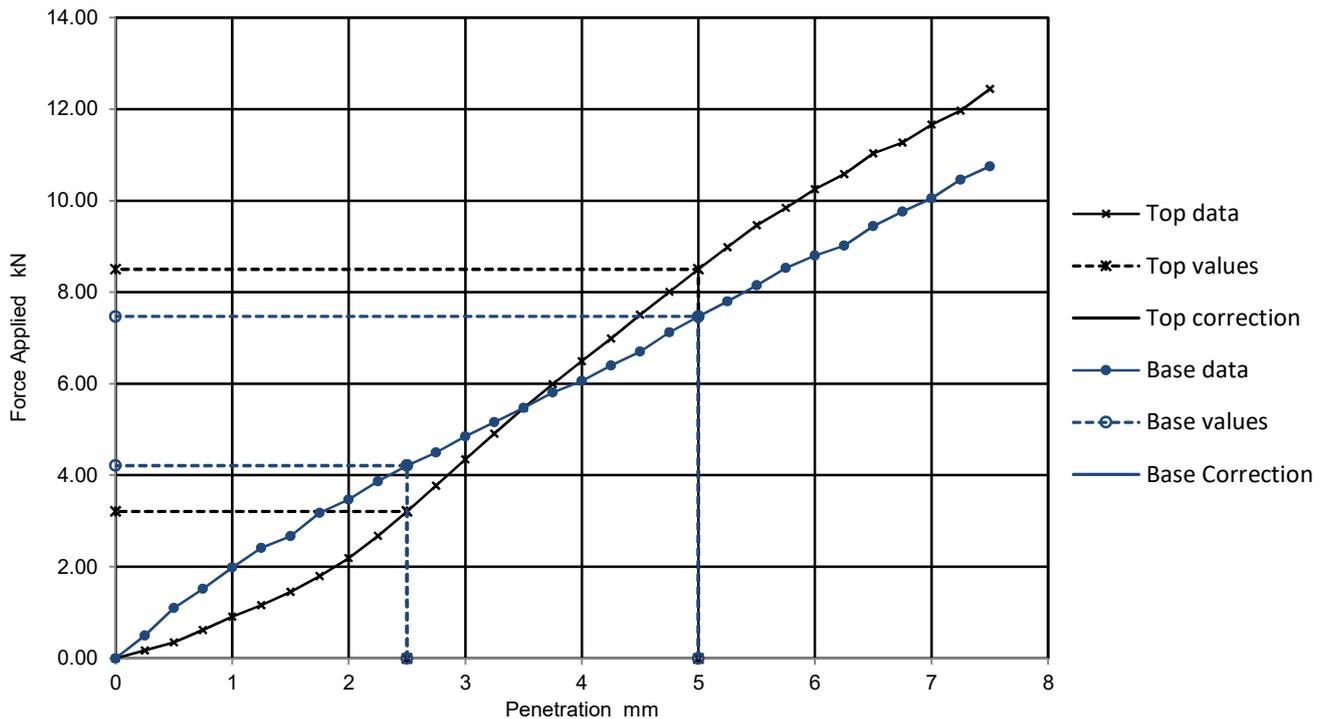
Job Ref C4826/24/E/7379  
Borehole/Pit No. TP17

Site Name	Home Farm	Sample No.	1
Soil Description	Firm grey slightly sandy silty CLAY.	Depth m	1.00
Specimen Reference	1	Specimen Depth	1.00 m
Specimen Description	Firm grey slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051935
		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	2.17 Mg/m3	Surcharge applied
	Dry density	1.97 Mg/m3	2 kg
	Moisture content	10.4 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		24.0	43.0	43.0	40.0	10.5
BASE		32.0	37.0	37.0		10.7

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	11

Lab Sheet Reference :



## California Bearing Ratio ( CBR )

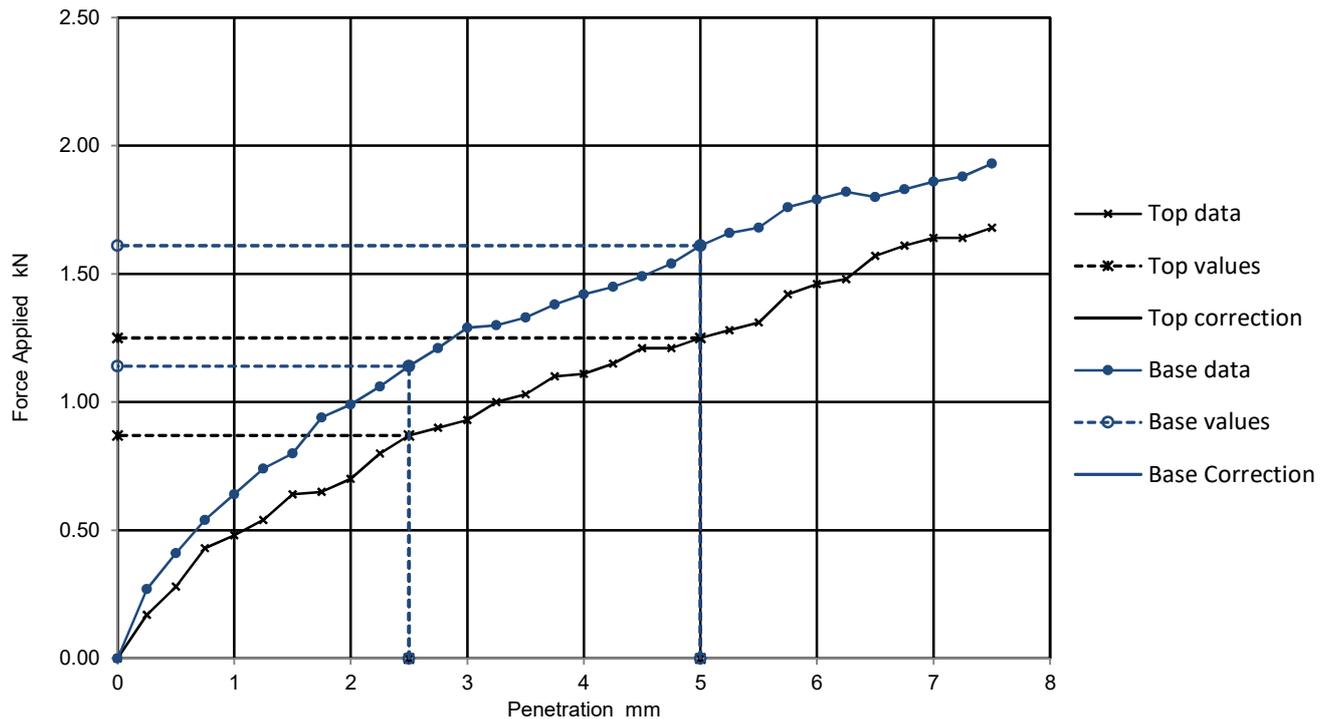
Job Ref C4826/24/E/7379  
Borehole/Pit No. TP18

Site Name	Home Farm	Sample No.	1
Soil Description	Firm grey slightly sandy silty CLAY.	Depth m	1.00
Specimen Reference	1	Specimen Depth	1.00 m
Specimen Description	Firm grey slightly sandy silty CLAY.	Sample Type	B
Test Method	BS 1377-2:2022	KeyLAB ID	RGS_2025051936
		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	2.02 Mg/m3	Surcharge applied
	Dry density	1.68 Mg/m3	2 kg
	Moisture content	20.4 %	1 kPa

**Force v Penetration Plots**



**Results**

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		6.6	6.3	6.6		21.4
BASE		8.6	8.1	8.6		20.2

**General remarks**

**Test specific remarks**

**Approved**

	Results reported under 1kN are below the loadcells lower limit and are outside of the calibrated range.	Harry
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Fig No.	5
Sheet No	12

Lab Sheet Reference :



2788

# Laboratory Report



## Contract Number: 78342

Client Ref: **C4826/24/E/7379**

Client PO:

Date Received: **22-04-2025**

Date Completed: **01-05-2025**

Report Date: **01-05-2025**

Client: **Rogers Geotechnical Services LTD**

This report has been checked and approved by:

Contract Title: **Home Farm**  
For the attention of: **Harry Letch**

  
**Richard John**  
Quality/Technical Manager

Description	Qty
<b>Determination of water content</b> BS EN ISO 17892-1:2014 - @ Non Accredited Test	12
<b>4 Point Liquid &amp; Plastic Limit..</b> BS EN ISO 17892-12 - * UKAS	12
<b>One-dimensional Consolidation 75mm or 50mm diameter specimens (up to 5 stages/days)</b> BS 1377:1990 - Part 5 : 3 - * UKAS	18
<b>Quick Undrained Triaxial Compression test - single specimen at one confining pressure (100mm or 38mm diameter)</b> BS 1377:1990 - Part 7 : 8 - * UKAS	12

**Notes:** Observations and Interpretations are outside the UKAS Accreditation

\* - denotes test included in laboratory scope of accreditation

# - denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

**Approved Signatories:**

Brendan Evans (Senior Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (HR & HSE Manager)







**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH01

Project Name Home Farm

Sample No.

Soil Description Brown Silty CLAY

Depth Top (m) 2.00

Depth Base (m) 2.45

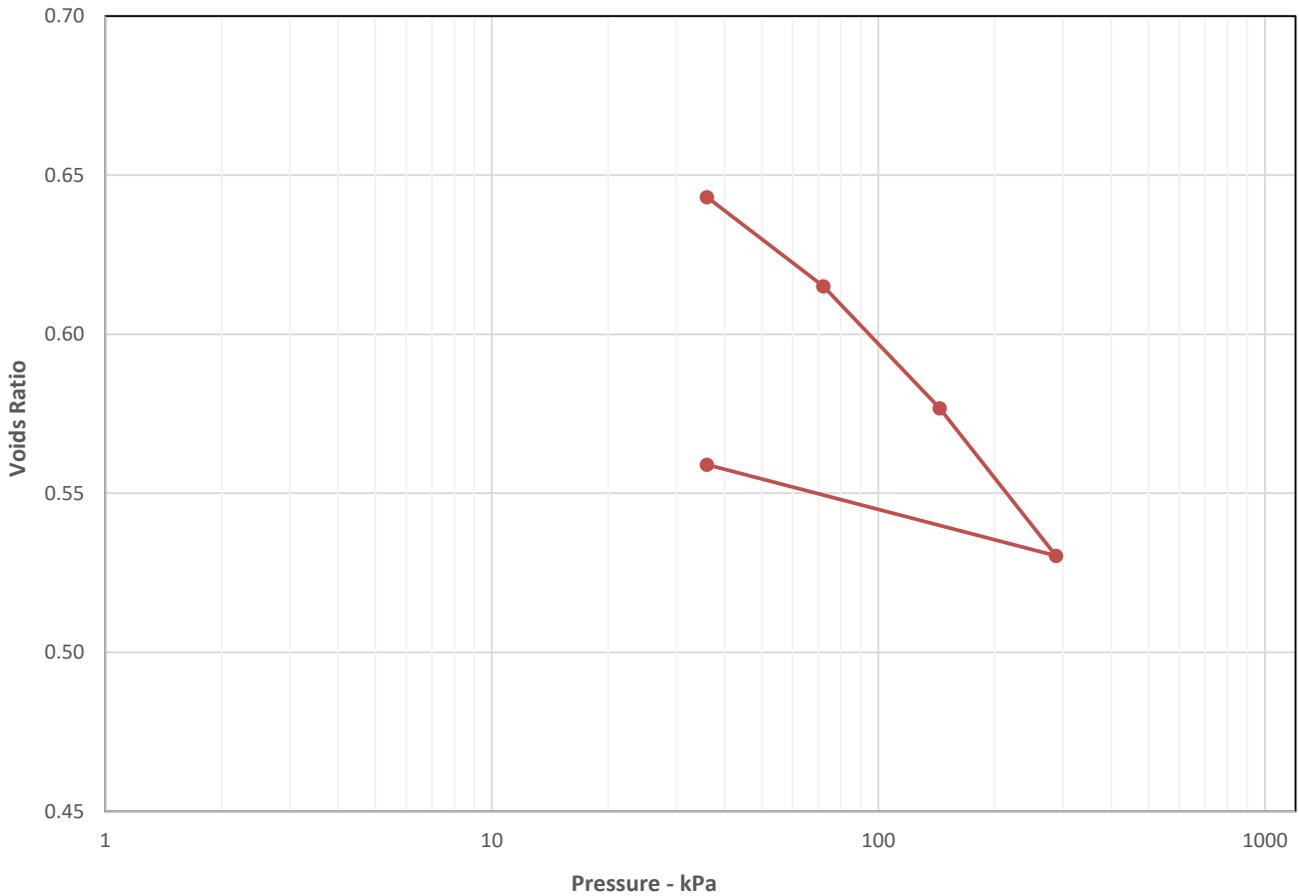
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
			-					-			
Moisture Content (%)	31	0	-	36	1.1	1.0		-			
Bulk Density (Mg/m3)	2.03	36	-	72	0.47	1.7		-			
Dry Density (Mg/m3)	1.55	72	-	144	0.33	2.1		-			
Voids Ratio	0.7114	144	-	288	0.20	2.4		-			
Degree of saturation	115.0	288	-	36	0.074	2.4		-			
Height (mm)	19.96		-					-			
Diameter (mm)	74.97		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH01

Project Name Home Farm

Sample No.

Soil Description Brown Silty CLAY

Depth Top (m) 4.00

Depth Base (m) 4.45

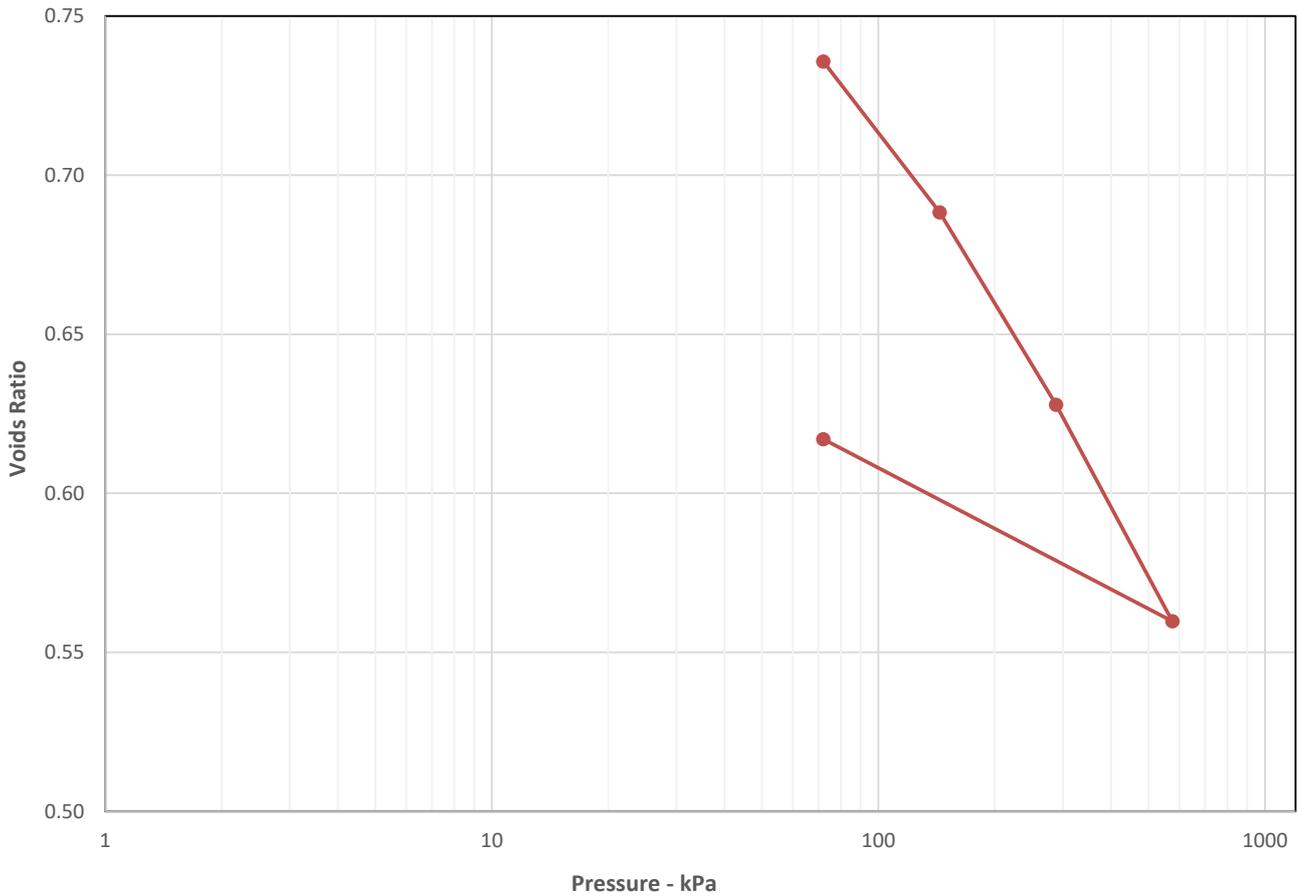
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
			-					-			
Moisture Content (%)	35	0	-	72	0.63	0.67		-			
Bulk Density (Mg/m3)	1.97	72	-	144	0.38	0.88		-			
Dry Density (Mg/m3)	1.46	144	-	288	0.25	0.98		-			
Voids Ratio	0.8188	288	-	576	0.15	1.0		-			
Degree of saturation	113.5	576	-	72	0.073	0.98		-			
Height (mm)	19.95		-					-			
Diameter (mm)	74.96		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH01

Project Name Home Farm

Sample No.

Soil Description Brown/Grey Slightly Gravelly Silty CLAY

Depth Top (m) 6.00

Depth Base (m) 6.45

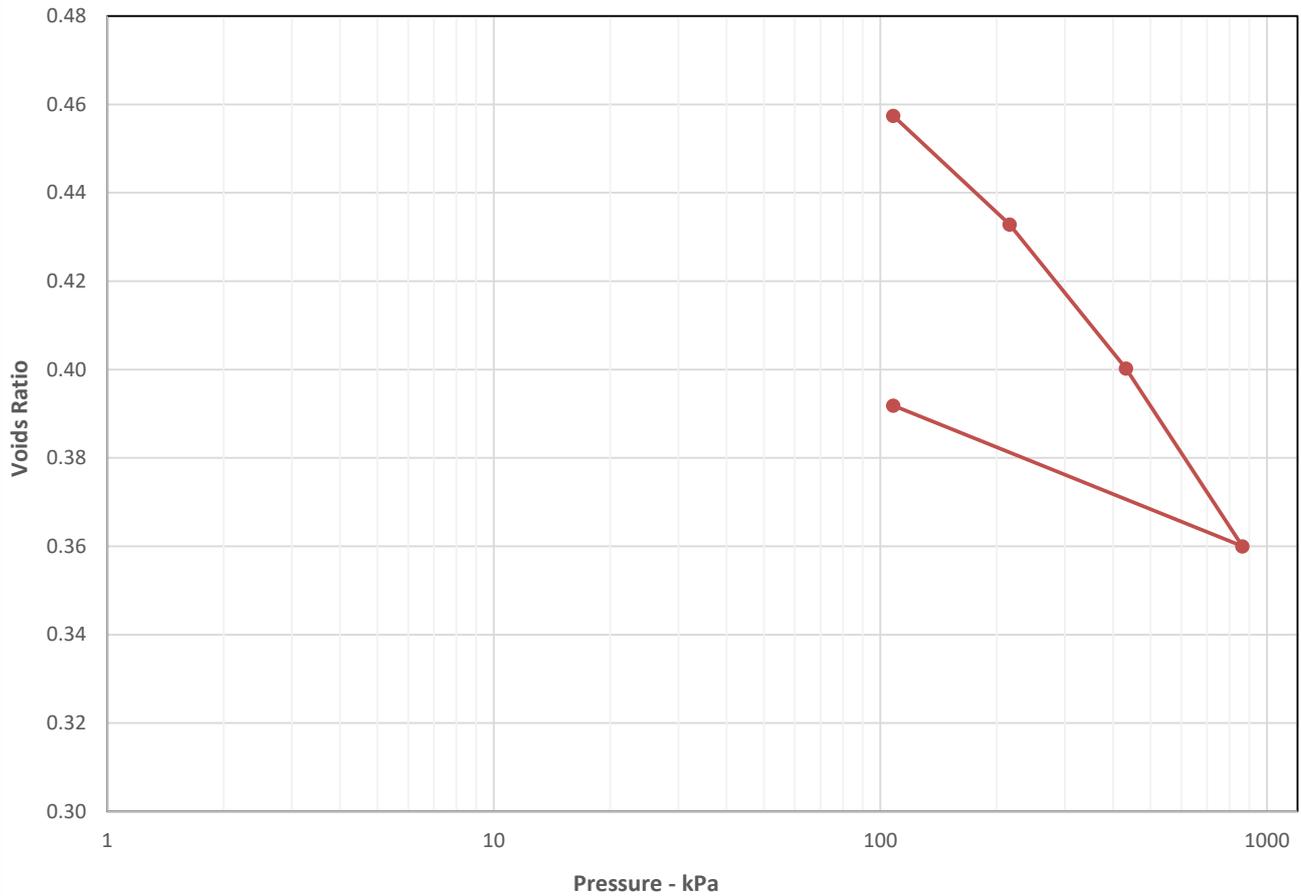
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	24	0	-	108	0.43	1.1		-			
Bulk Density (Mg/m3)	2.16	108	-	216	0.16	1.4		-			
Dry Density (Mg/m3)	1.73	216	-	432	0.11	1.7		-			
Voids Ratio	0.5287	432	-	864	0.066	1.8		-			
Degree of saturation	122.1	864	-	108	0.031	2.0		-			
Height (mm)	19.73		-					-			
Diameter (mm)	75		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH01

Project Name Home Farm

Sample No.

Soil Description Brown Silty CLAY

Depth Top (m) 7.50

Depth Base (m) 7.95

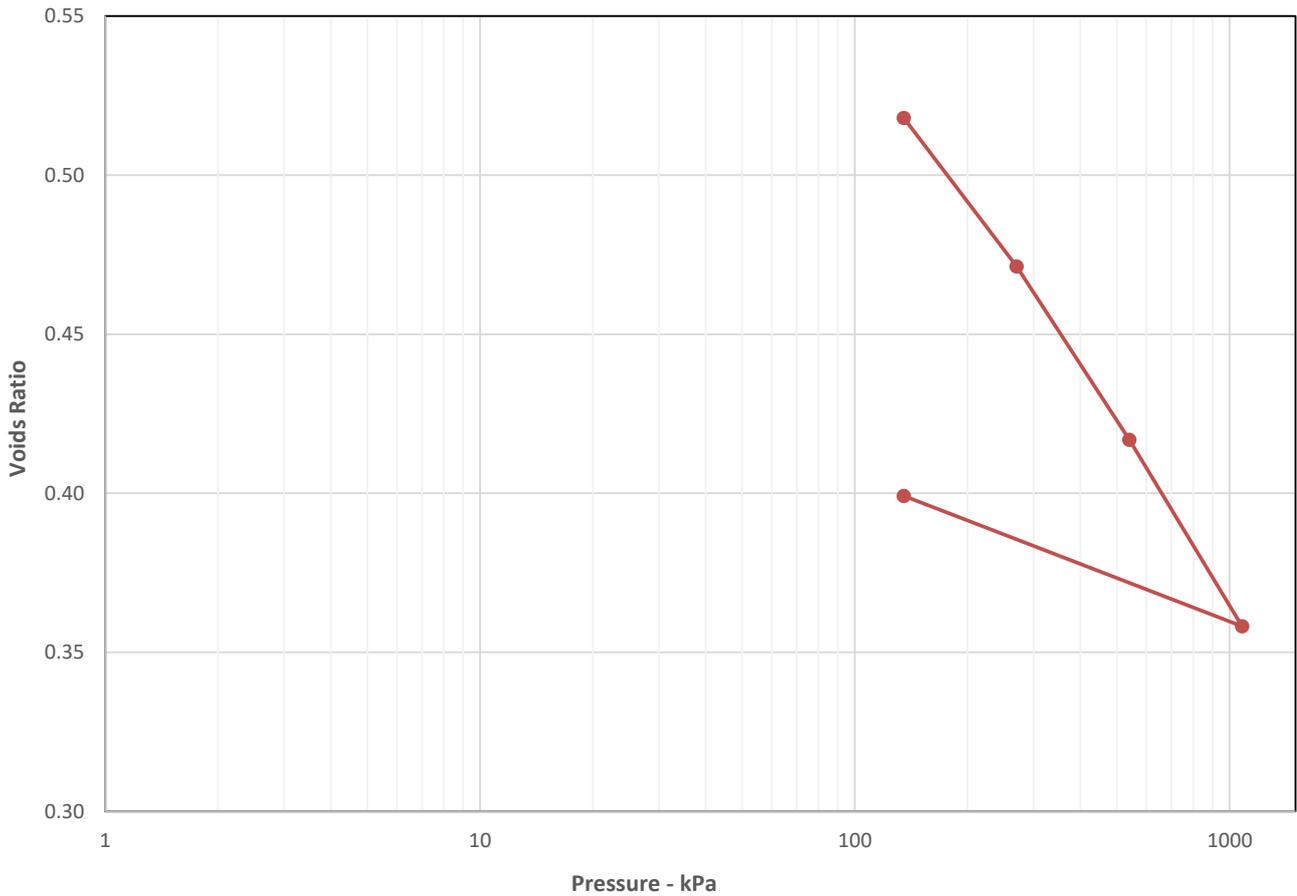
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
			-					-			
Moisture Content (%)	30	0	-	135	0.73	1.2		-			
Bulk Density (Mg/m3)	2.05	135	-	270	0.23	1.9		-			
Dry Density (Mg/m3)	1.57	270	-	540	0.14	1.9		-			
Voids Ratio	0.6847	540	-	1080	0.077	2.1		-			
Degree of saturation	116.3	1080	-	135	0.032	3.3		-			
Height (mm)	19.91		-					-			
Diameter (mm)	74.99		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator

Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH02

Project Name Home Farm

Sample No.

Soil Description Gey Silty CLAY

Depth Top (m) 2.00

Depth Base (m) 2.45

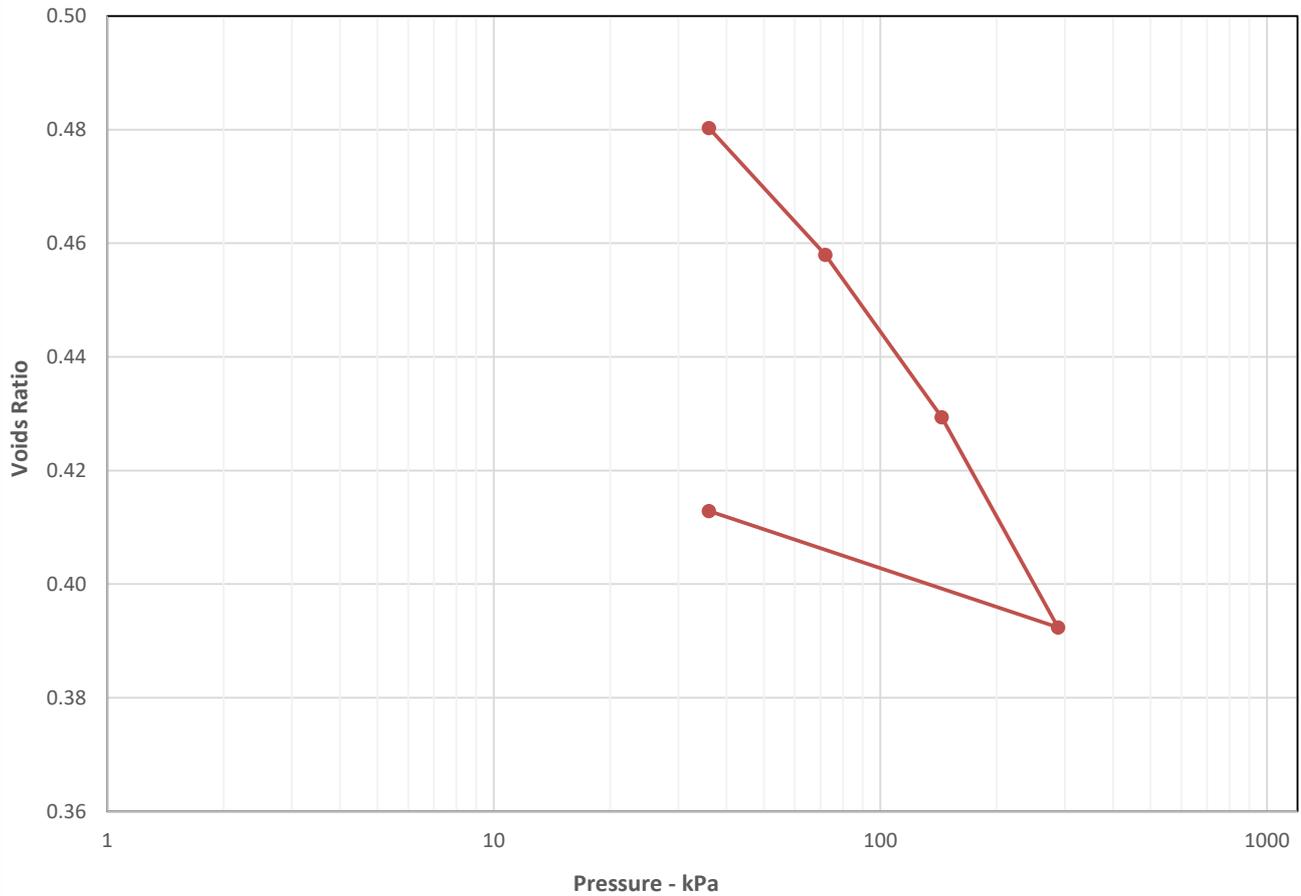
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	26	0	-	36	1.3	1.2		-			
Bulk Density (Mg/m3)	2.15	36	-	72	0.42	2.5		-			
Dry Density (Mg/m3)	1.71	72	-	144	0.27	3.7		-			
Voids Ratio	0.5533	144	-	288	0.18	5.5		-			
Degree of saturation	125.3	288	-	36	0.058	8.7		-			
Height (mm)	19.65		-					-			
Diameter (mm)	74.96		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH02

Project Name Home Farm

Sample No.

Soil Description Gey Silty CLAY

Depth Top (m) 4.00

Depth Base (m) 4.45

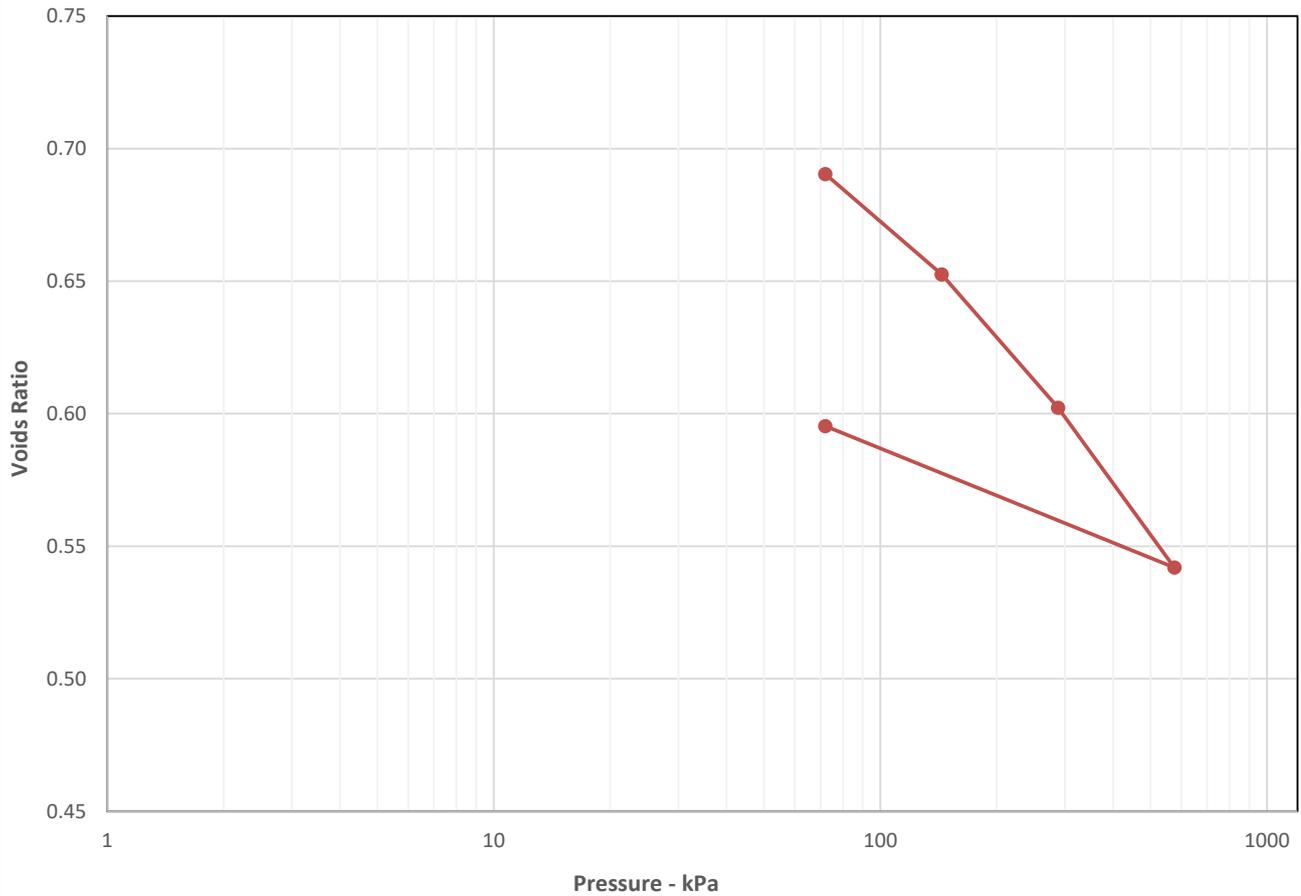
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
			-					-			
Moisture Content (%)	33	0	-	72	0.73	0.92		-			
Bulk Density (Mg/m3)	1.98	72	-	144	0.31	1.2		-			
Dry Density (Mg/m3)	1.49	144	-	288	0.21	1.7		-			
Voids Ratio	0.7837	288	-	576	0.13	1.8		-			
Degree of saturation	112.6	576	-	72	0.069	1.1		-			
Height (mm)	19.97		-					-			
Diameter (mm)	74.95		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH03

Project Name Home Farm

Sample No.

Soil Description Gey Silty CLAY

Depth Top (m) 2.00

Depth Base (m) 2.45

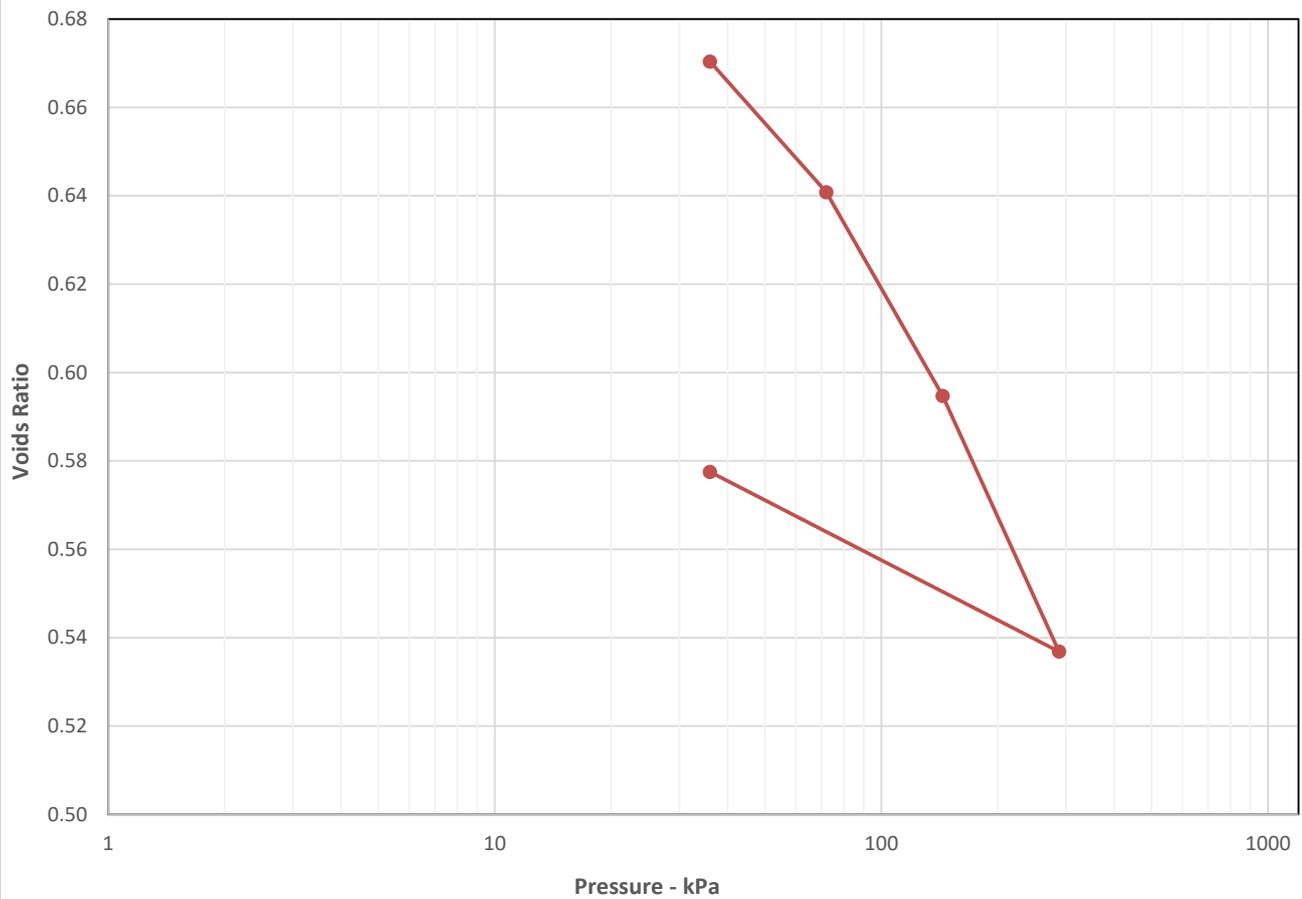
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	33	0	-	36	1.2	4.0		-			
Bulk Density (Mg/m3)	2.01	36	-	72	0.49	6.6		-			
Dry Density (Mg/m3)	1.52	72	-	144	0.39	8.2		-			
Voids Ratio	0.7449	144	-	288	0.25	8.1		-			
Degree of saturation	115.8	288	-	36	0.11	11		-			
Height (mm)	19.99		-					-			
Diameter (mm)	75.02		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator

Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH03

Project Name Home Farm

Sample No.

Soil Description Gey Silty CLAY

Depth Top (m) 4.00

Depth Base (m) 4.45

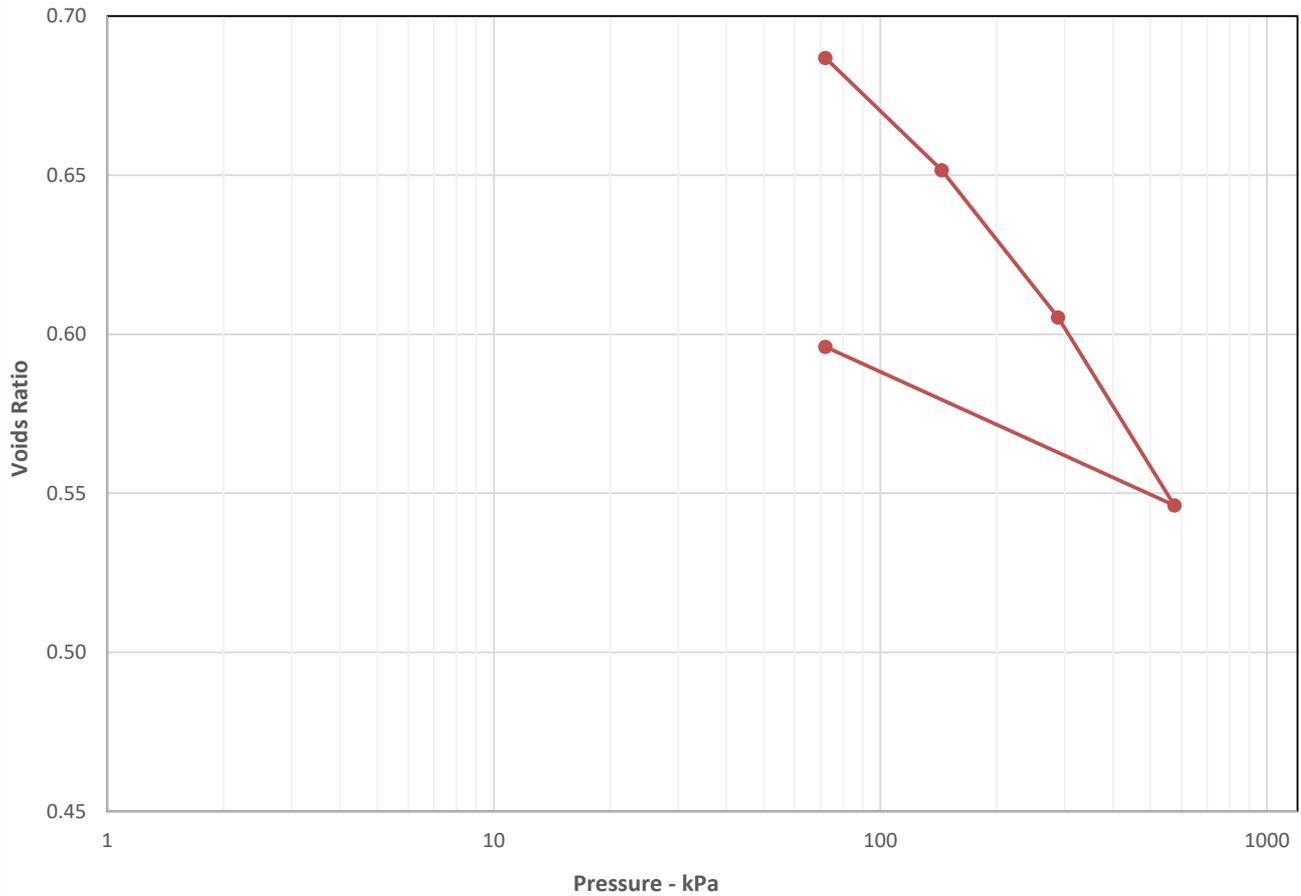
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
			-					-			
Moisture Content (%)	33	0	-	72	0.70	3.2		-			
Bulk Density (Mg/m3)	1.98	72	-	144	0.29	3.7		-			
Dry Density (Mg/m3)	1.49	144	-	288	0.19	3.7		-			
Voids Ratio	0.7768	288	-	576	0.13	4.9		-			
Degree of saturation	112.5	576	-	72	0.064	3.6		-			
Height (mm)	19.97		-					-			
Diameter (mm)	75.02		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH04

Project Name Home Farm

Sample No.

Soil Description Gey Silty CLAY

Depth Top (m) 2.00

Depth Base (m) 2.45

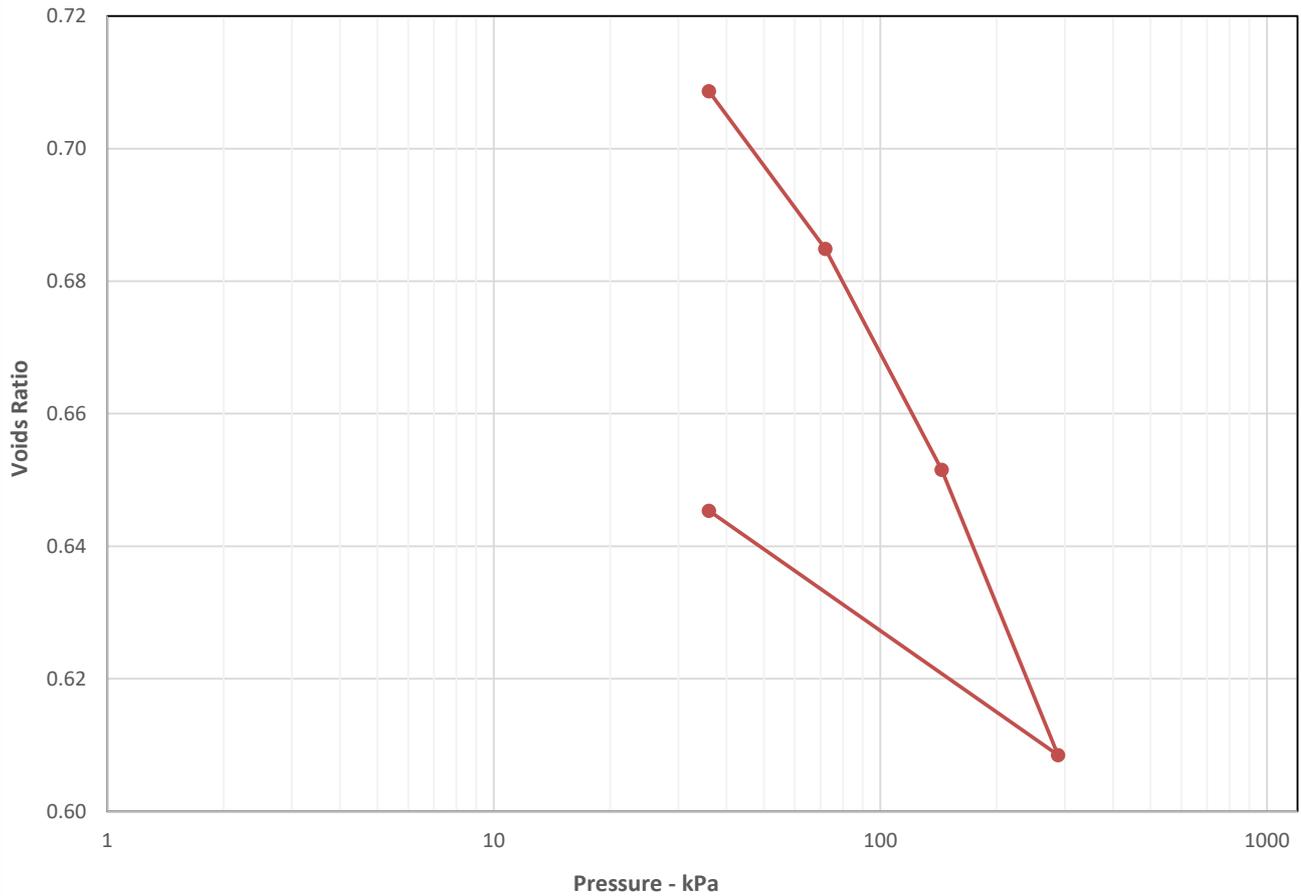
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	30	0	-	36	0.54	0.44		-			
Bulk Density (Mg/m3)	1.98	36	-	72	0.39	0.78		-			
Dry Density (Mg/m3)	1.52	72	-	144	0.27	0.97		-			
Voids Ratio	0.7424	144	-	288	0.18	1.2		-			
Degree of saturation	108.1	288	-	36	0.091	1.2		-			
Height (mm)	19.99		-					-			
Diameter (mm)	74.94		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH05

Project Name Home Farm

Sample No.

Soil Description Gey Silty CLAY

Depth Top (m) 2.00

Depth Base (m) 2.45

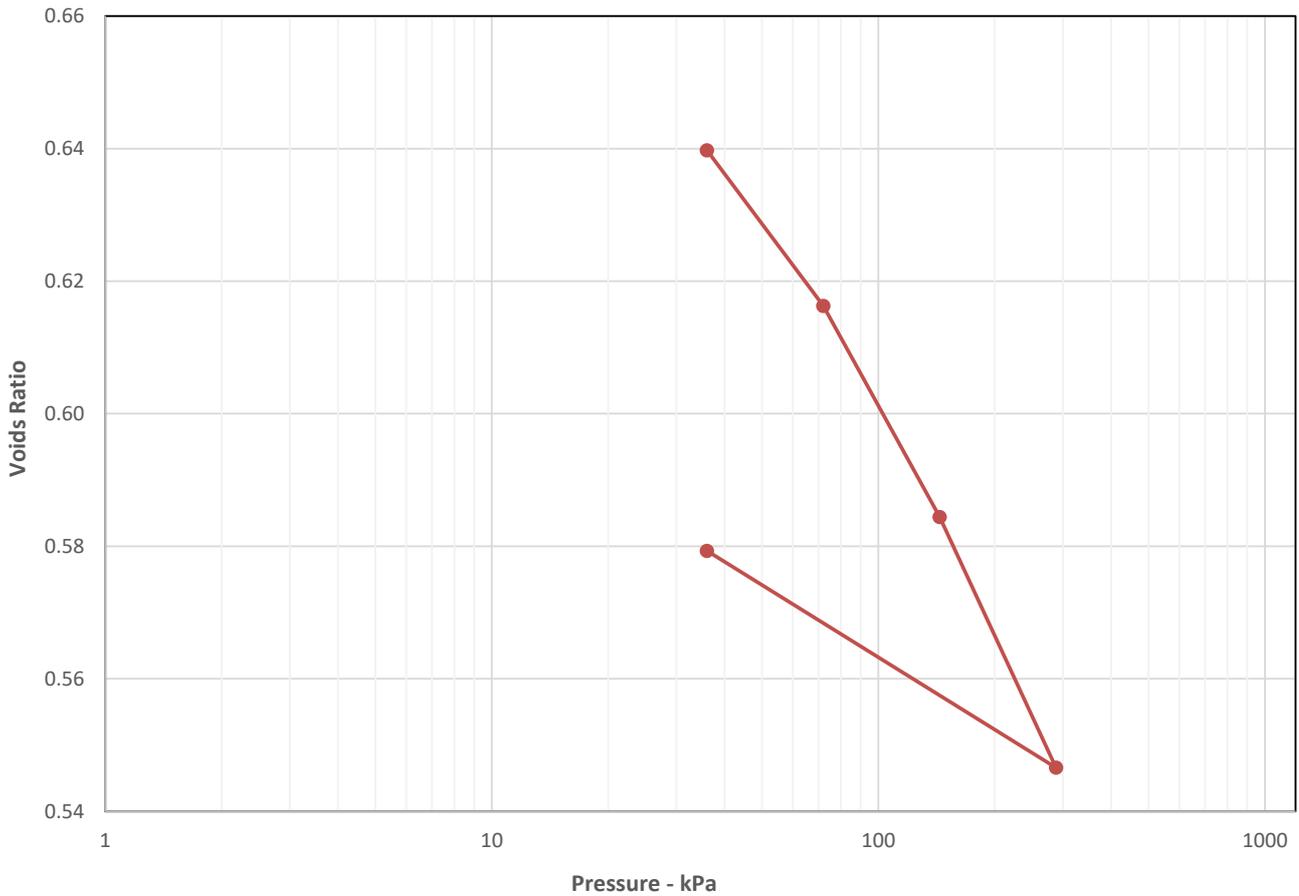
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	29	0	-	36	0.88	0.68		-			
Bulk Density (Mg/m3)	2.03	36	-	72	0.40	1.3		-			
Dry Density (Mg/m3)	1.56	72	-	144	0.27	1.6		-			
Voids Ratio	0.6937	144	-	288	0.17	1.6		-			
Degree of saturation	112.4	288	-	36	0.084	2.0		-			
Height (mm)	19.98		-					-			
Diameter (mm)	75.03		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH05

Project Name Home Farm

Sample No.

Soil Description Gey Silty CLAY

Depth Top (m) 4.00

Depth Base (m) 4.45

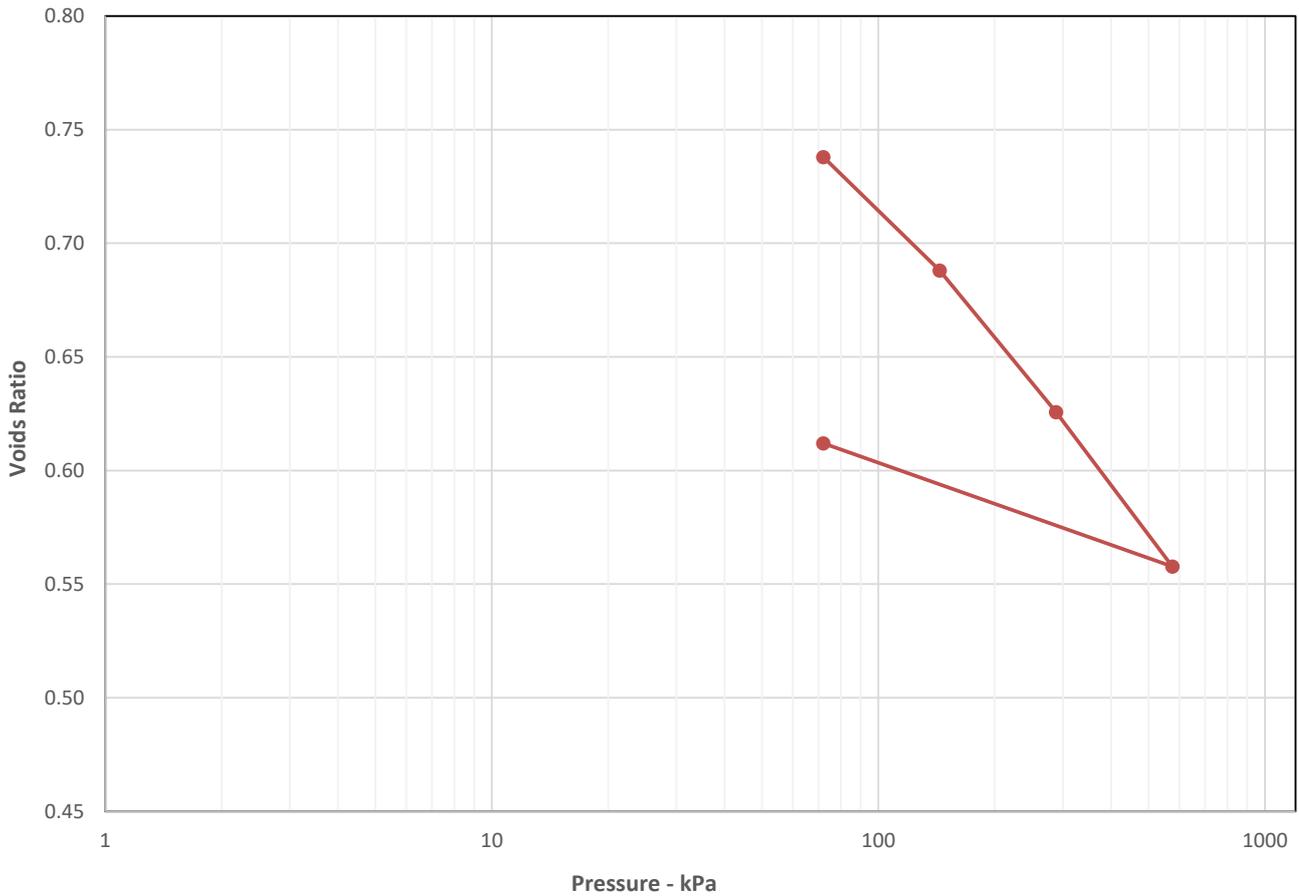
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	35	0	-	72	0.66	0.61		-			
Bulk Density (Mg/m3)	1.96	72	-	144	0.40	0.66		-			
Dry Density (Mg/m3)	1.45	144	-	288	0.26	0.93		-			
Voids Ratio	0.8250	288	-	576	0.15	0.90		-			
Degree of saturation	112.4	576	-	72	0.069	1.0		-			
Height (mm)	19.94		-					-			
Diameter (mm)	74.92		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. BH05

Project Name Home Farm

Sample No.

Soil Description Gey Silty CLAY

Depth Top (m) 6.00

Depth Base (m) 6.45

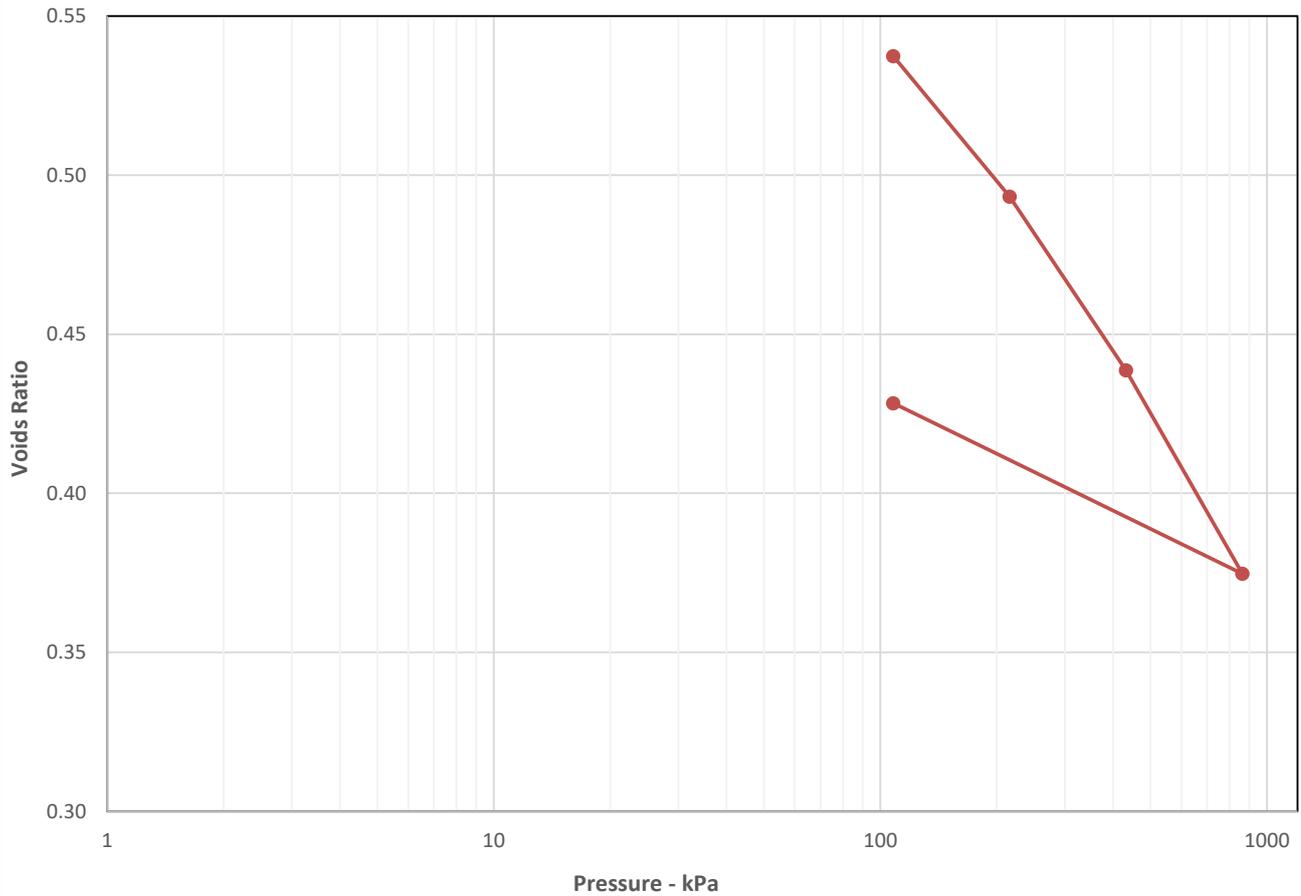
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type U

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	30	0	-	108	0.68	0.86		-			
Bulk Density (Mg/m3)	2.07	108	-	216	0.27	0.92		-			
Dry Density (Mg/m3)	1.60	216	-	432	0.17	1.2		-			
Voids Ratio	0.6600	432	-	864	0.10	1.4		-			
Degree of saturation	119.4	864	-	108	0.052	1.2		-			
Height (mm)	20.03		-					-			
Diameter (mm)	74.79		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. WSC

Project Name Home Farm

Sample No.

Soil Description Mortled Brown Slightly Sandy Silty CLAY

Depth Top (m) 1.50

Depth Base (m) 2.00

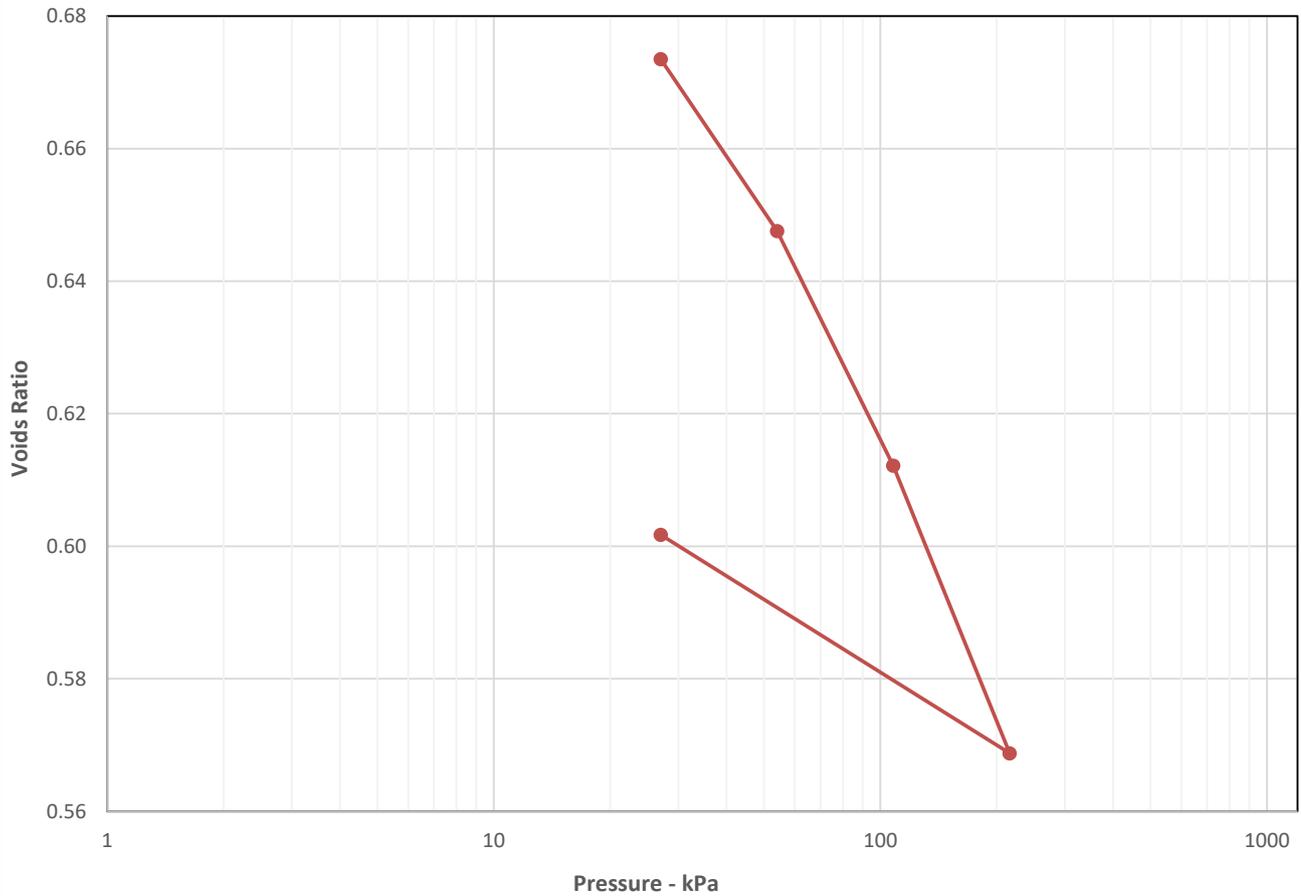
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type C

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
			-					-			
Moisture Content (%)	33	0	-	27	1.2	6.3		-			
Bulk Density (Mg/m3)	2.03	27	-	54	0.57	6.5		-			
Dry Density (Mg/m3)	1.53	54	-	108	0.40	6.8		-			
Voids Ratio	0.7316	108	-	216	0.25	6.7		-			
Degree of saturation	118.4	216	-	27	0.11	7.3		-			
Height (mm)	20.02		-					-			
Diameter (mm)	74.92		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. WSF

Project Name Home Farm

Sample No.

Soil Description Mottled Brown Slightly Sandy Silty CLAY

Depth Top (m) 1.50

Depth Base (m) 2.00

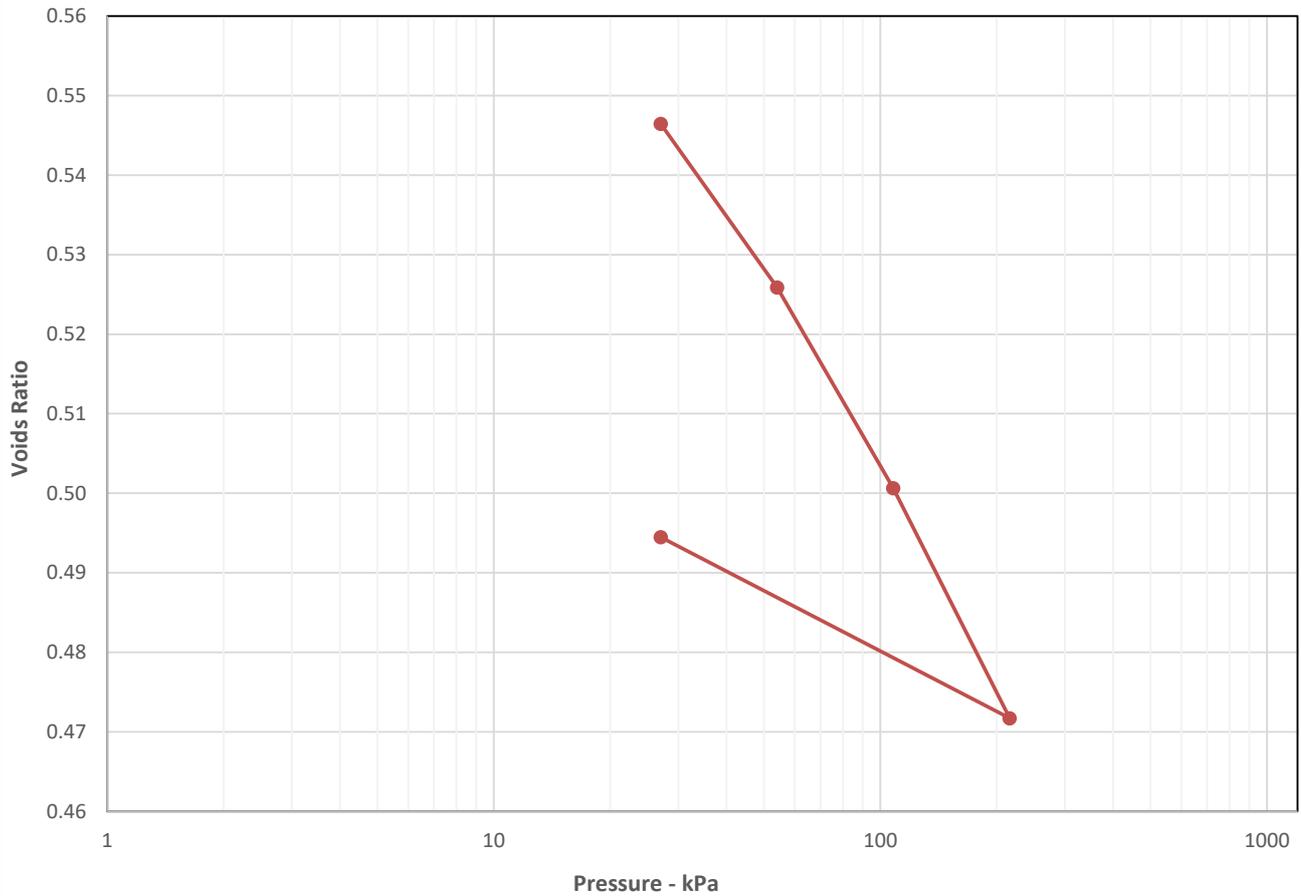
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type C

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
			-					-			
Moisture Content (%)	26	0	-	27	1.3	5.6		-			
Bulk Density (Mg/m3)	2.09	27	-	54	0.49	3.3		-			
Dry Density (Mg/m3)	1.65	54	-	108	0.31	6.9		-			
Voids Ratio	0.6026	108	-	216	0.18	6.0		-			
Degree of saturation	115.3	216	-	27	0.082	7.7		-			
Height (mm)	20.07		-					-			
Diameter (mm)	74.95		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. WSH

Project Name Home Farm

Sample No.

Soil Description Brown Slightly Sandy Silty CLAY

Depth Top (m) 1.50

Depth Base (m) 2.00

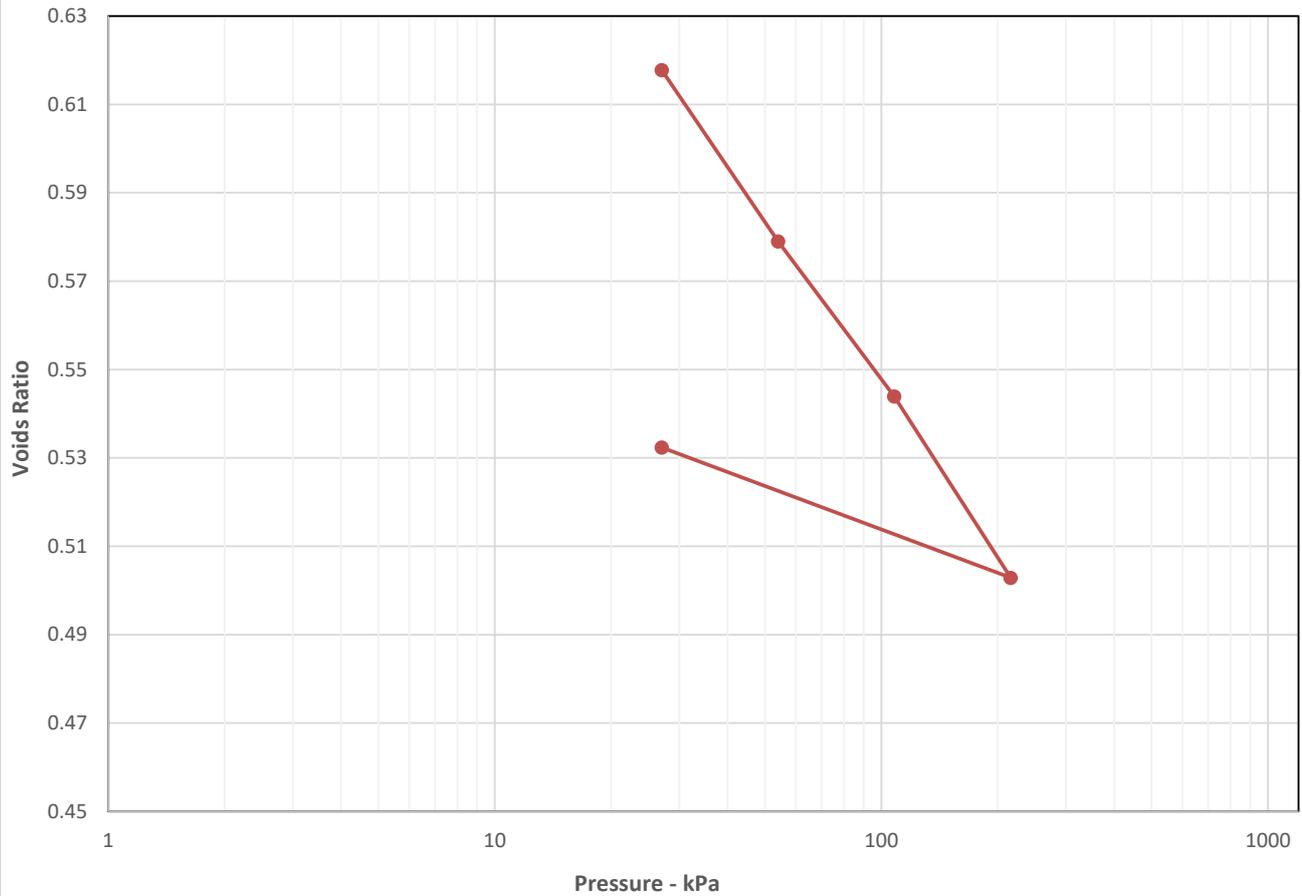
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type C

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
			-					-			
Moisture Content (%)	31	0	-	27	1.4	7.9		-			
Bulk Density (Mg/m3)	2.07	27	-	54	0.89	12		-			
Dry Density (Mg/m3)	1.57	54	-	108	0.41	4.2		-			
Voids Ratio	0.6829	108	-	216	0.25	5.1		-			
Degree of saturation	121.0	216	-	27	0.10	6.5		-			
Height (mm)	20.05		-					-			
Diameter (mm)	74.99		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. WSH

Project Name Home Farm

Sample No.

Soil Description Brown Slightly Sandy Silty CLAY

Depth Top (m) 2.50

Depth Base (m) 3.00

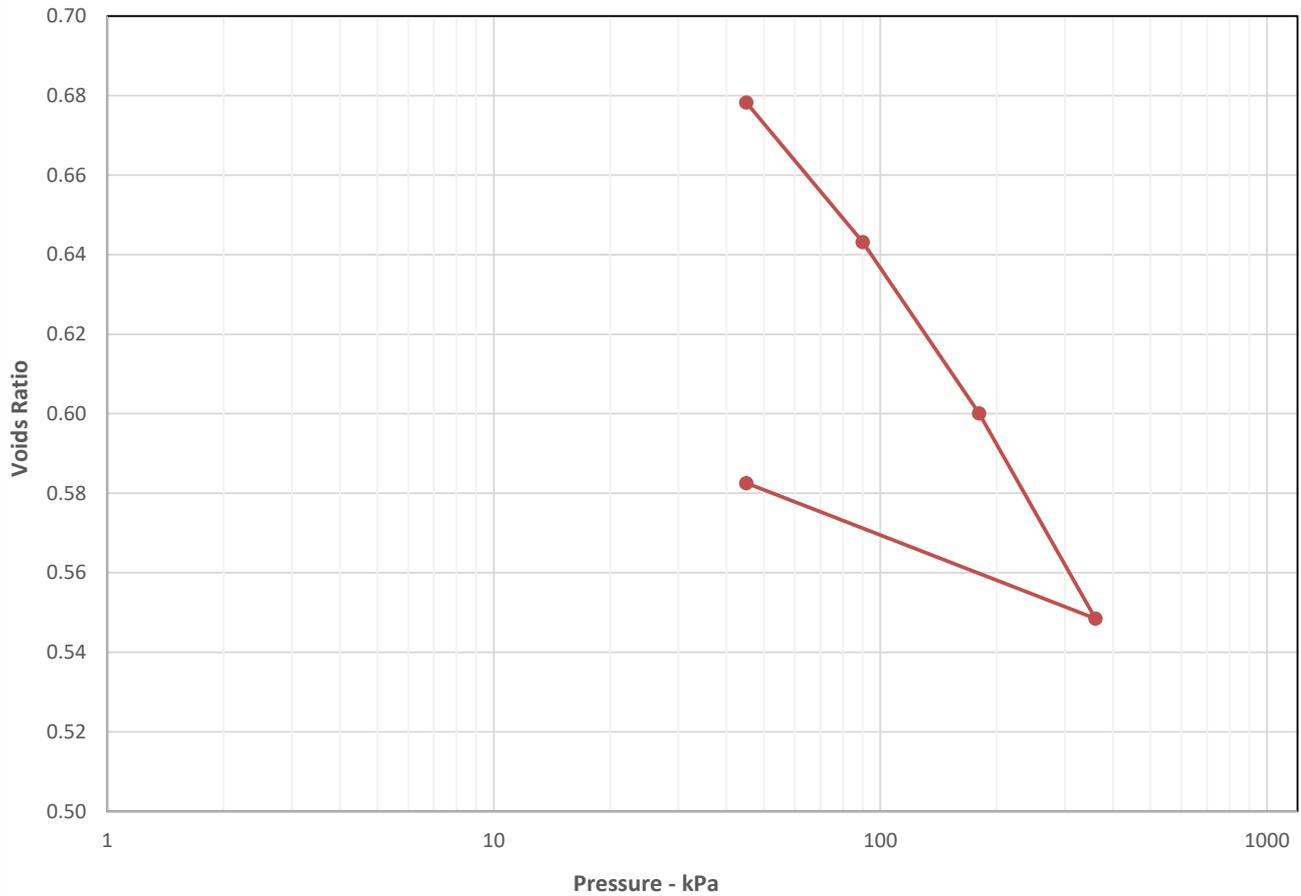
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type C

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
			-					-			
Moisture Content (%)	32	0	-	45	1.2	4.1		-			
Bulk Density (Mg/m3)	1.98	45	-	90	0.46	4.7		-			
Dry Density (Mg/m3)	1.50	90	-	180	0.29	5.4		-			
Voids Ratio	0.7702	180	-	360	0.18	6.2		-			
Degree of saturation	110.6	360	-	45	0.070	5.3		-			
Height (mm)	19.89		-					-			
Diameter (mm)	74.97		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. WSJ

Project Name Home Farm

Sample No.

Soil Description Brown Slightly Sandy Silty CLAY

Depth Top (m) 1.50

Depth Base (m) 2.00

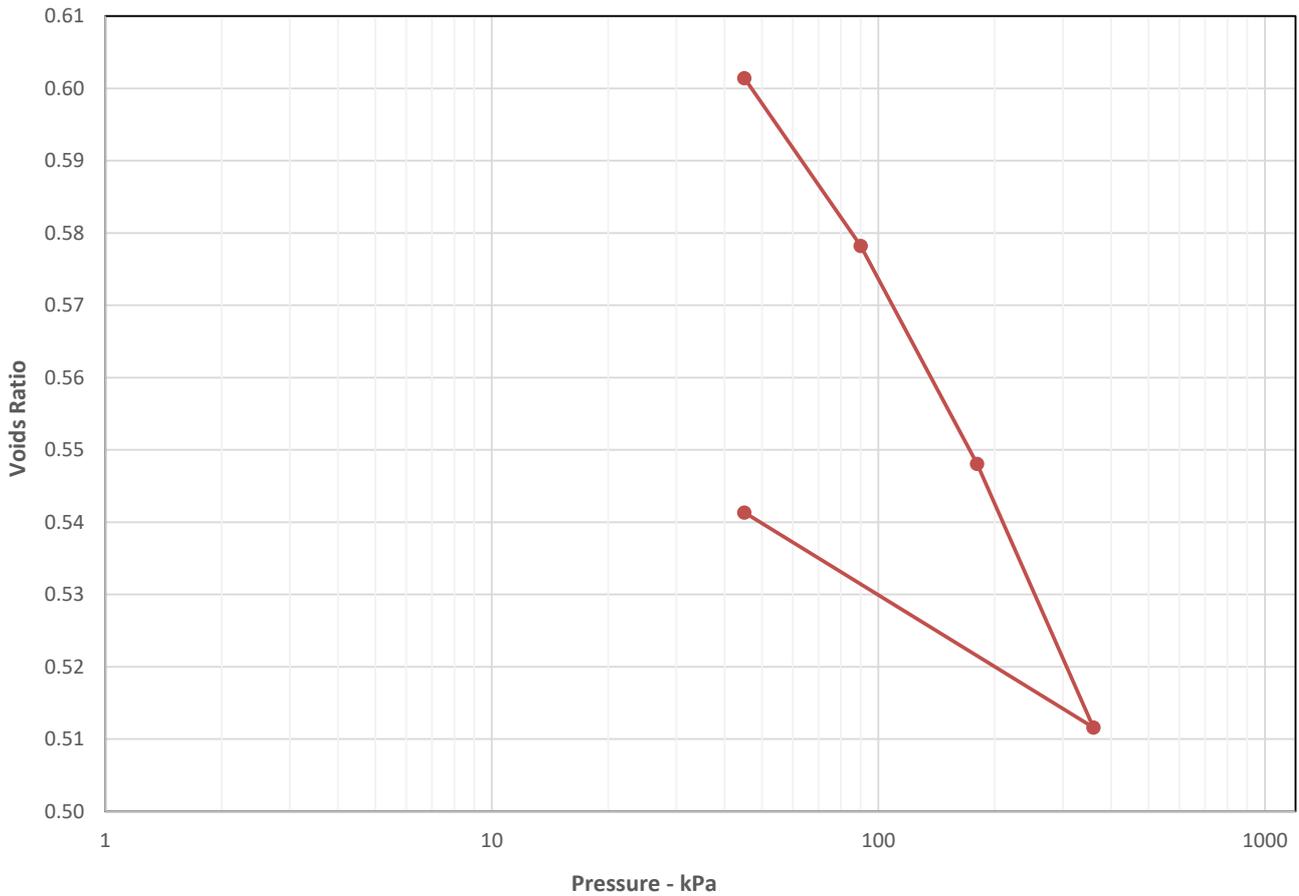
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type C

Date Tested 23/04/2025



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
			-					-			
Moisture Content (%)	31	0	-	45	1.0	2.8		-			
Bulk Density (Mg/m3)	2.07	45	-	90	0.32	2.3		-			
Dry Density (Mg/m3)	1.58	90	-	180	0.21	2.3		-			
Voids Ratio	0.6796	180	-	360	0.13	2.6		-			
Degree of saturation	122.4	360	-	45	0.062	2.8		-			
Height (mm)	19.99		-					-			
Diameter (mm)	74.86		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W



**ONE DIMENSIONAL CONSOLIDATION TEST  
BS1377:Part 5:1990, clause 3**

Contract Number 78342

Borehole/Trialpit No. WSJ

Project Name Home Farm

Sample No.

Soil Description Brown Slightly Sandy Silty CLAY

Depth Top (m) 2.50

Depth Base (m) 3.00

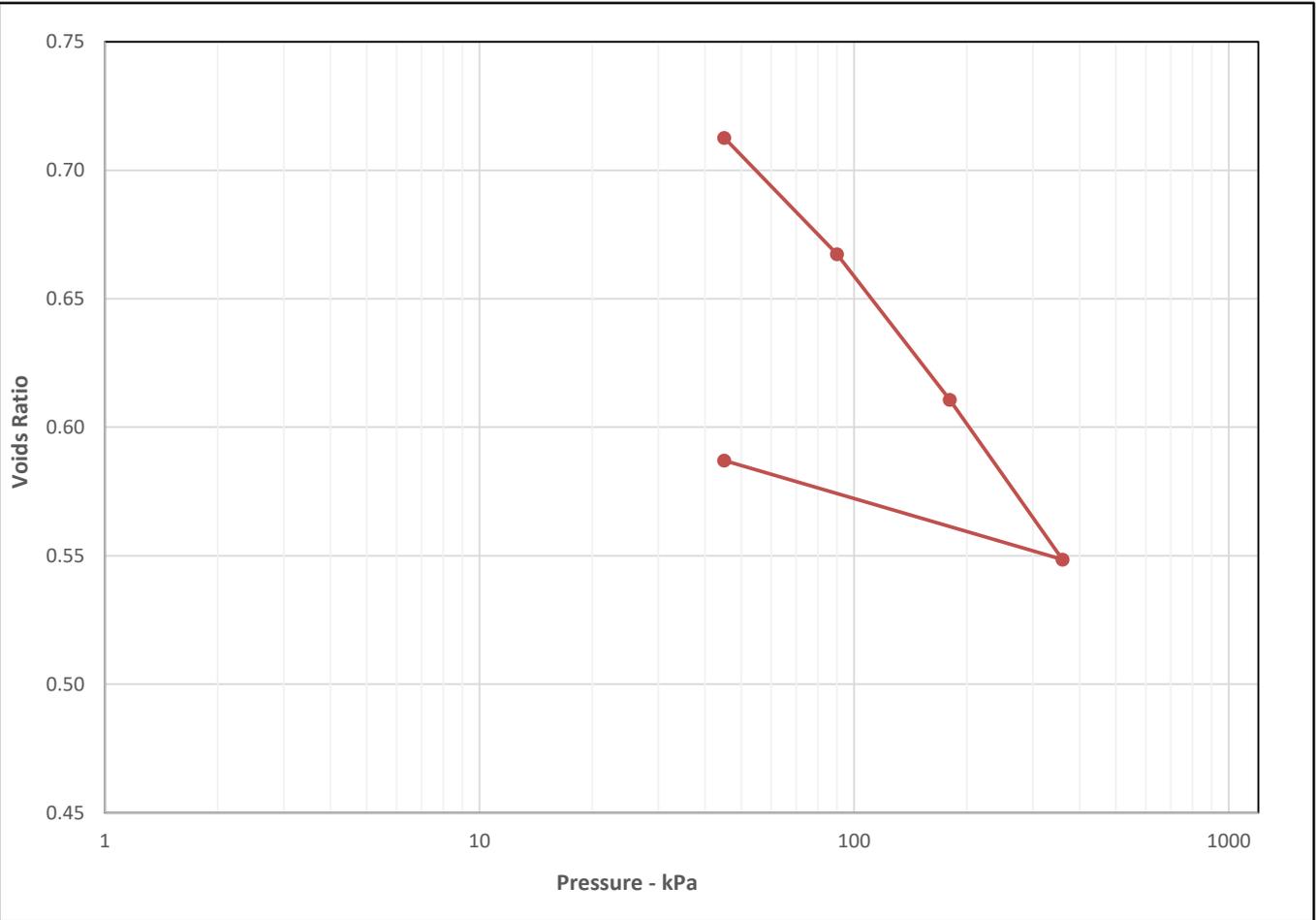
Lab Temperature 20°C

Sample Location Top

Remarks Cv Calculated Using T90  
Particle Density Assumed Unless Stated Otherwise

Sample Type C

Date Tested 23/04/2025



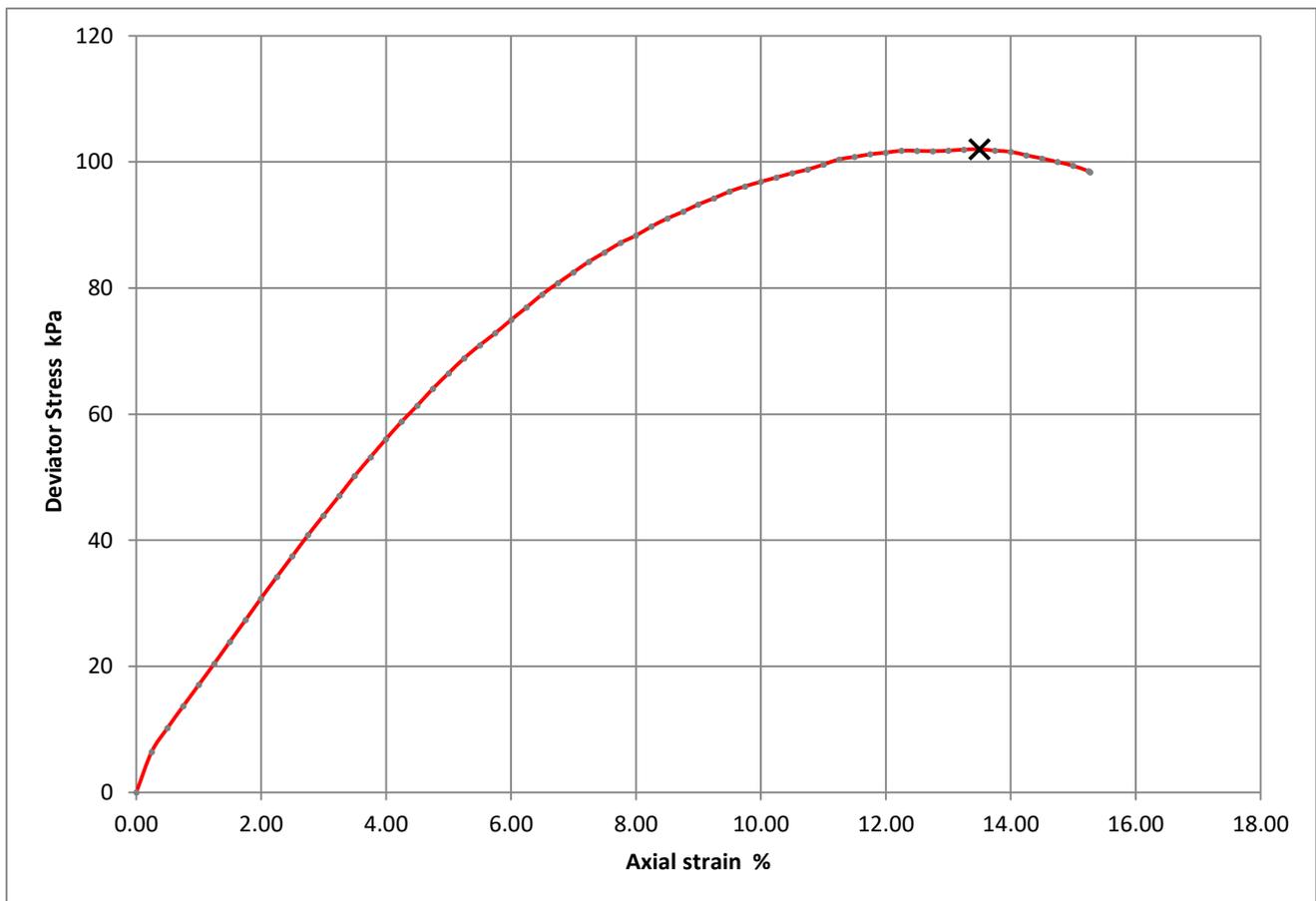
Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	35	0	-	45	1.4	1.7		-			
Bulk Density (Mg/m3)	1.95	45	-	90	0.59	1.9		-			
Dry Density (Mg/m3)	1.45	90	-	180	0.38	2.3		-			
Voids Ratio	0.8309	180	-	360	0.21	2.4		-			
Degree of saturation	111.8	360	-	45	0.079	2.6		-			
Height (mm)	19.96		-					-			
Diameter (mm)	74.92		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operator  
Wayne W

**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

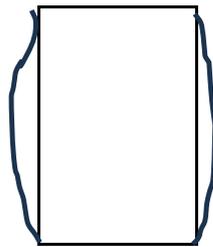
Contract Number	78342
Borehole/Pit No.	BH01
Sample No.	
Depth Top (m)	2.00
Depth Base (m)	2.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	30
Bulk Density (Mg/m <sup>3</sup> )	1.94
Dry Density (Mg/m <sup>3</sup> )	1.49
Specimen Length (mm)	208.4
Specimen Diameter (mm)	104.1
Cell Pressure (kPa)	36
Deviator Stress (kPa)	102
Undrained Shear Strength (kPa)	51
Failure Strain (%)	13
Mode Of Failure	Plastic
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



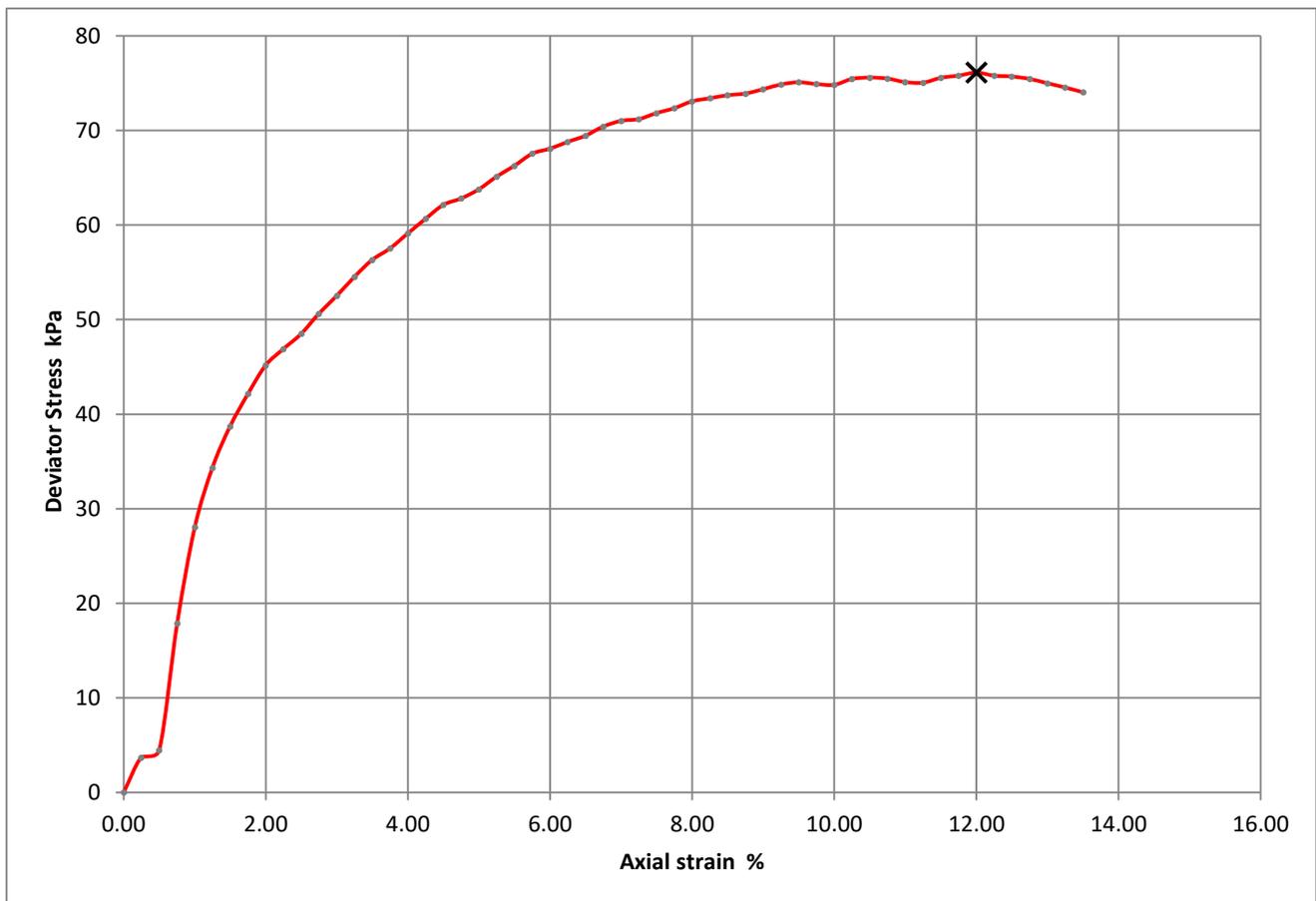
Failure Sketch.



**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

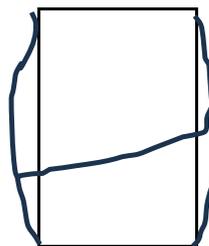
Contract Number	78342
Borehole/Pit No.	BH01
Sample No.	
Depth Top (m)	4.00
Depth Base (m)	4.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	34
Bulk Density (Mg/m <sup>3</sup> )	1.87
Dry Density (Mg/m <sup>3</sup> )	1.40
Specimen Length (mm)	208.4
Specimen Diameter (mm)	104.3
Cell Pressure (kPa)	76
Deviator Stress (kPa)	76
Undrained Shear Strength (kPa)	38
Failure Strain (%)	12
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



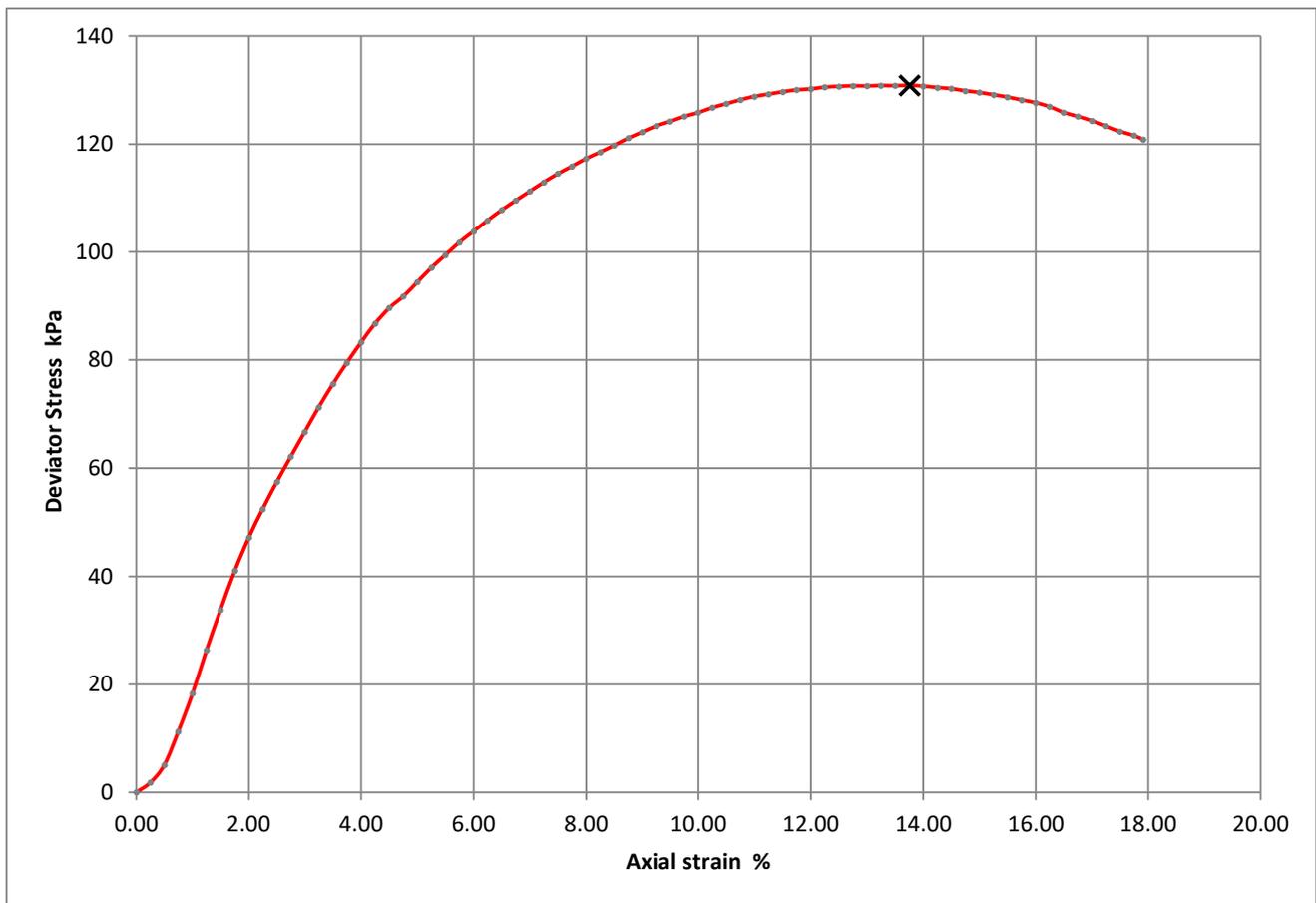
Failure Sketch.



**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

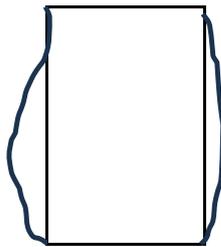
Contract Number	78342
Borehole/Pit No.	BH01
Sample No.	
Depth Top (m)	6.00
Depth Base (m)	6.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown gravelly silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	24
Bulk Density (Mg/m <sup>3</sup> )	1.91
Dry Density (Mg/m <sup>3</sup> )	1.55
Specimen Length (mm)	208.3
Specimen Diameter (mm)	104.1
Cell Pressure (kPa)	108
Deviator Stress (kPa)	131
Undrained Shear Strength (kPa)	65
Failure Strain (%)	14
Mode Of Failure	Plastic
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



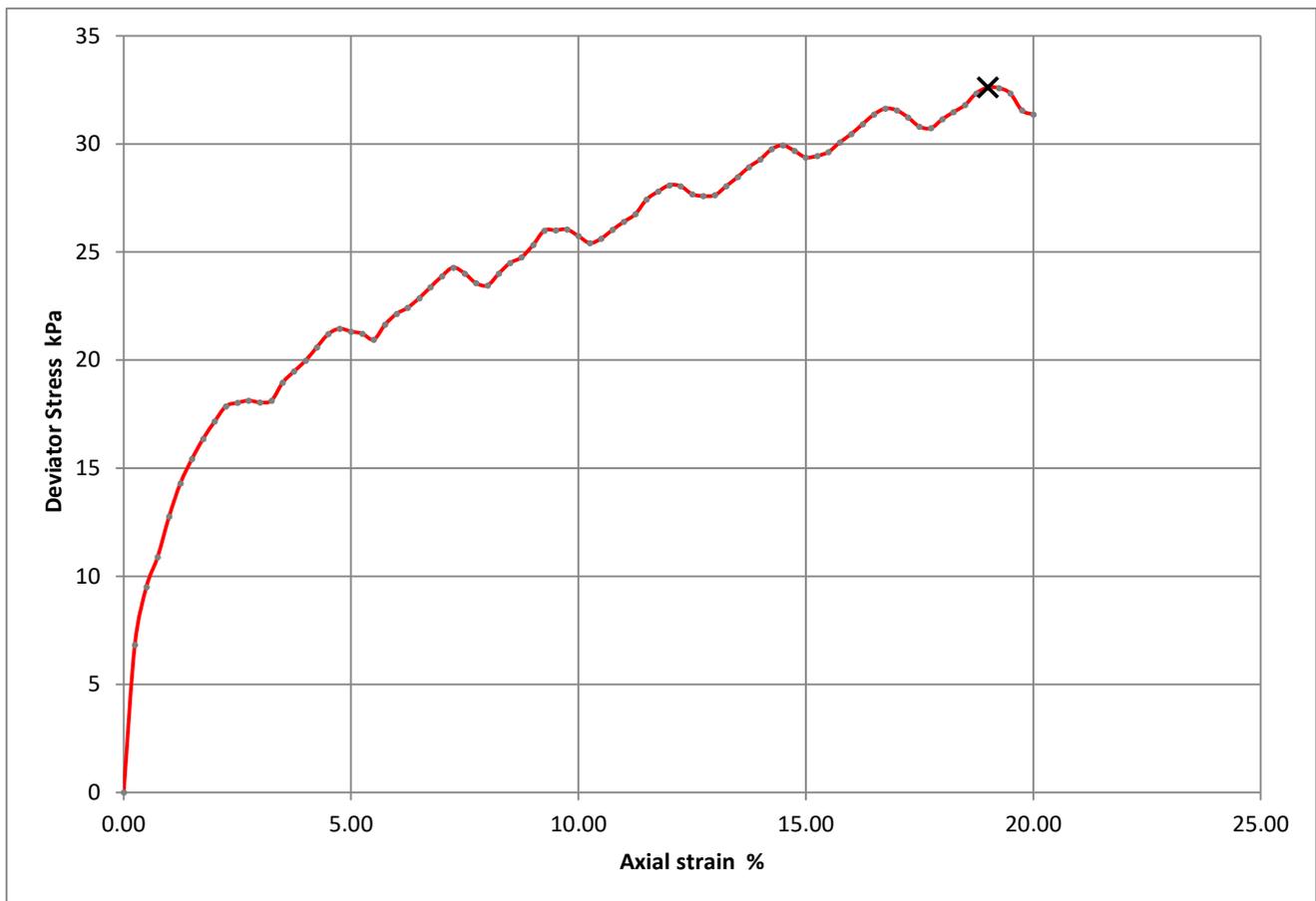
Failure Sketch.



**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

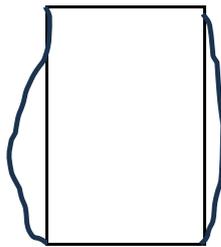
Contract Number	78342
Borehole/Pit No.	BH01
Sample No.	
Depth Top (m)	9.50
Depth Base (m)	9.95
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown gravelly silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	29
Bulk Density (Mg/m <sup>3</sup> )	2.02
Dry Density (Mg/m <sup>3</sup> )	1.56
Specimen Length (mm)	208.2
Specimen Diameter (mm)	104.1
Cell Pressure (kPa)	135
Deviator Stress (kPa)	33
Undrained Shear Strength (kPa)	16
Failure Strain (%)	19
Mode Of Failure	Plastic
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



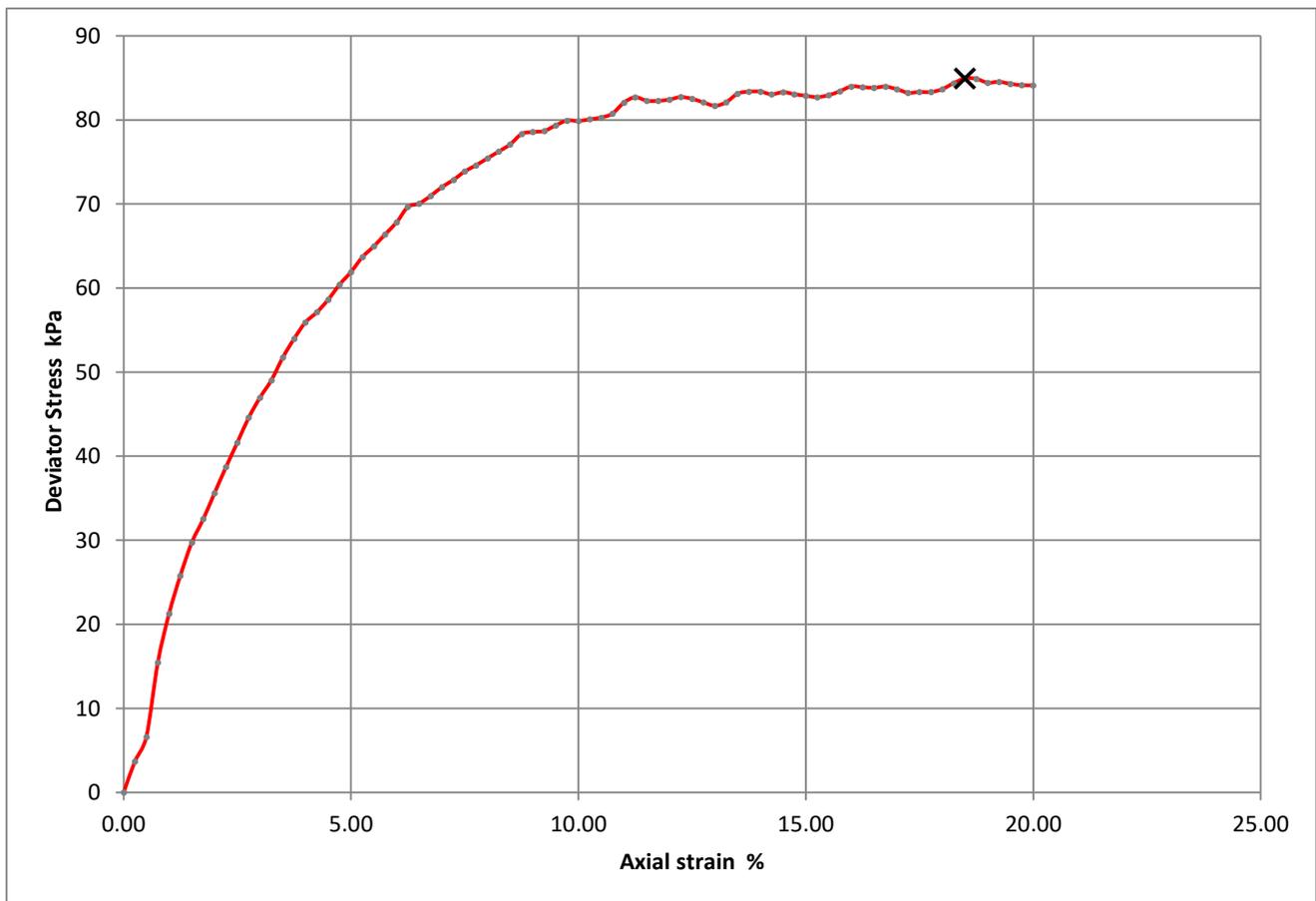
Failure Sketch.



**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

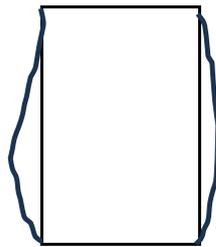
Contract Number	78342
Borehole/Pit No.	BH02
Sample No.	
Depth Top (m)	2.00
Depth Base (m)	2.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	26
Bulk Density (Mg/m <sup>3</sup> )	1.90
Dry Density (Mg/m <sup>3</sup> )	1.51
Specimen Length (mm)	208.3
Specimen Diameter (mm)	104.1
Cell Pressure (kPa)	36
Deviator Stress (kPa)	85
Undrained Shear Strength (kPa)	42
Failure Strain (%)	18
Mode Of Failure	Plastic
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



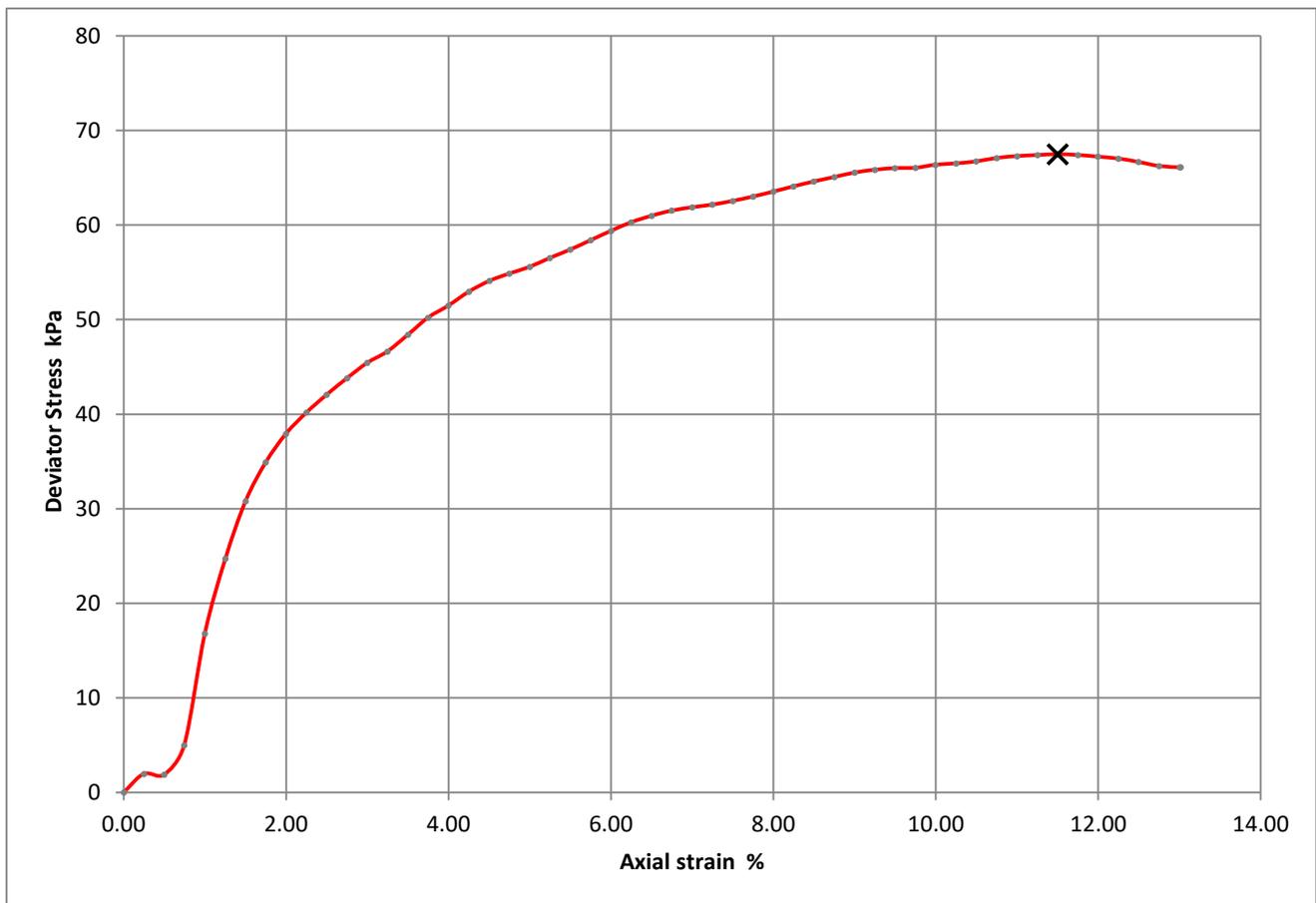
Failure Sketch.



**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

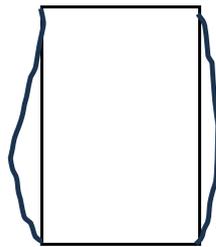
Contract Number	78342
Borehole/Pit No.	BH02
Sample No.	
Depth Top (m)	4.00
Depth Base (m)	4.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	37
Bulk Density (Mg/m <sup>3</sup> )	1.88
Dry Density (Mg/m <sup>3</sup> )	1.37
Specimen Length (mm)	208.3
Specimen Diameter (mm)	104.1
Cell Pressure (kPa)	72
Deviator Stress (kPa)	67
Undrained Shear Strength (kPa)	34
Failure Strain (%)	11
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



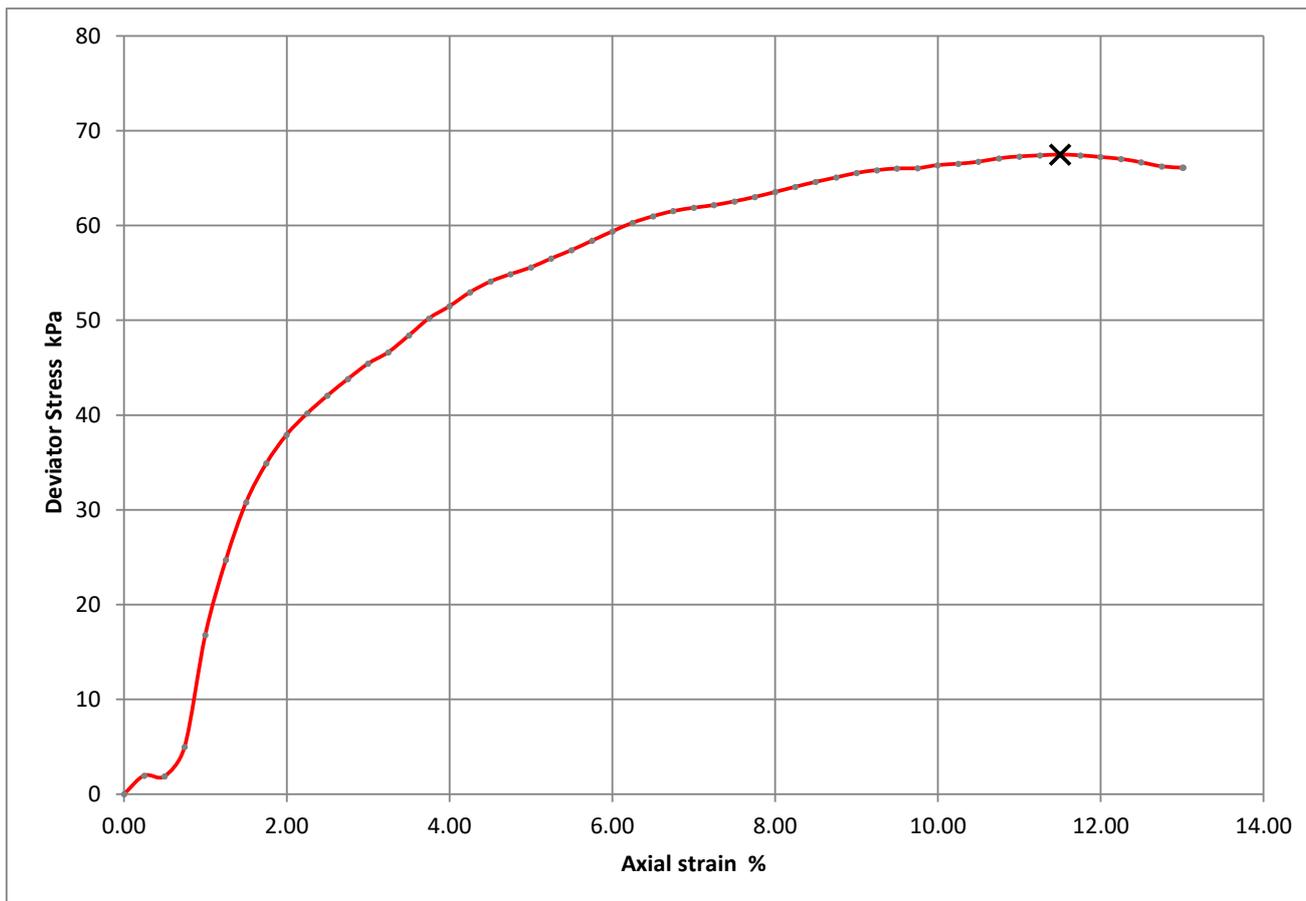
Failure Sketch.



**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

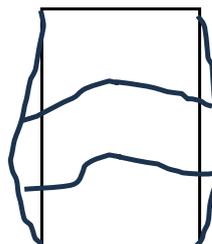
Contract Number	78342
Borehole/Pit No.	BH03
Sample No.	
Depth Top (m)	2.00
Depth Base (m)	2.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	29
Bulk Density (Mg/m <sup>3</sup> )	1.77
Dry Density (Mg/m <sup>3</sup> )	1.37
Specimen Length (mm)	208.2
Specimen Diameter (mm)	104.3
Cell Pressure (kPa)	72
Deviator Stress (kPa)	67
Undrained Shear Strength (kPa)	34
Failure Strain (%)	11
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



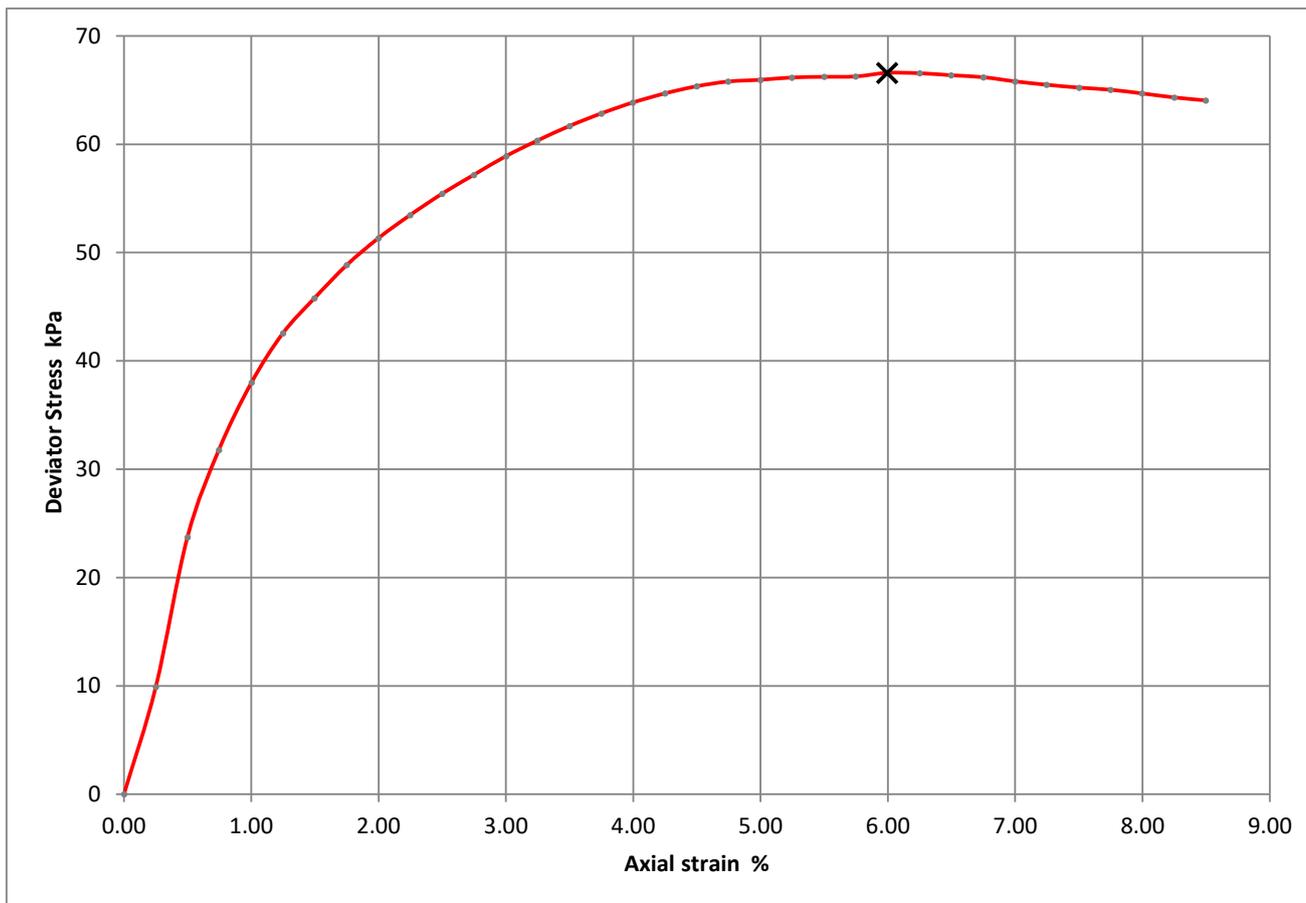
Failure Sketch.



**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

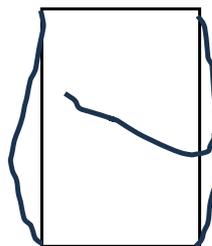
Contract Number	78342
Borehole/Pit No.	BH03
Sample No.	
Depth Top (m)	4.00
Depth Base (m)	4.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	33
Bulk Density (Mg/m <sup>3</sup> )	1.89
Dry Density (Mg/m <sup>3</sup> )	1.42
Specimen Length (mm)	208.2
Specimen Diameter (mm)	104.2
Cell Pressure (kPa)	76
Deviator Stress (kPa)	67
Undrained Shear Strength (kPa)	33
Failure Strain (%)	6
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.

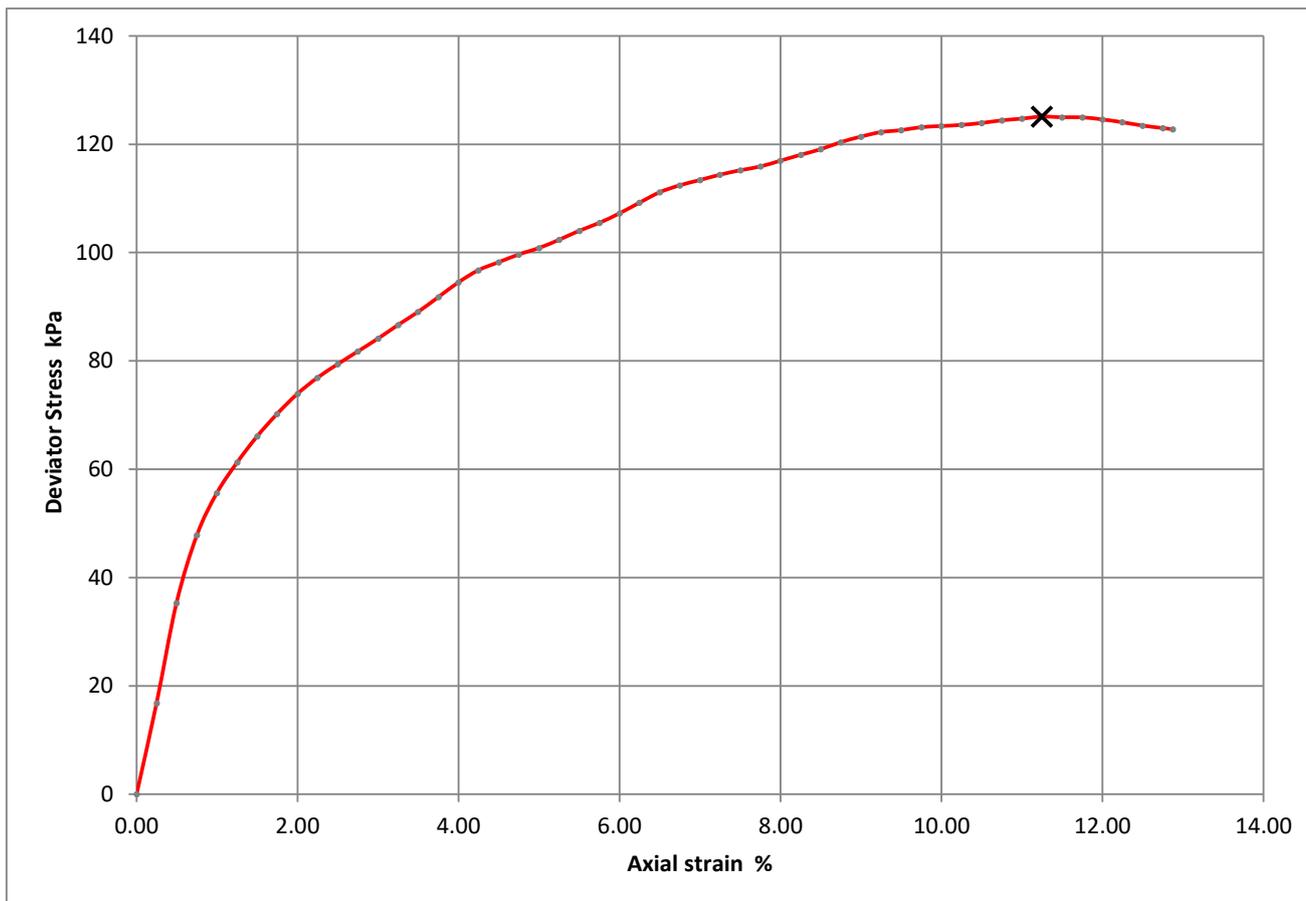


Failure Sketch.

**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

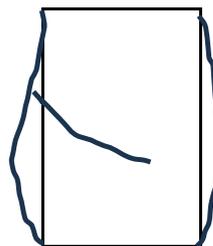
Contract Number	78342
Borehole/Pit No.	BH04
Sample No.	
Depth Top (m)	2.00
Depth Base (m)	2.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown gravelly silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	28
Bulk Density (Mg/m <sup>3</sup> )	1.94
Dry Density (Mg/m <sup>3</sup> )	1.51
Specimen Length (mm)	208.3
Specimen Diameter (mm)	104.3
Cell Pressure (kPa)	36
Deviator Stress (kPa)	125
Undrained Shear Strength (kPa)	63
Failure Strain (%)	11
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



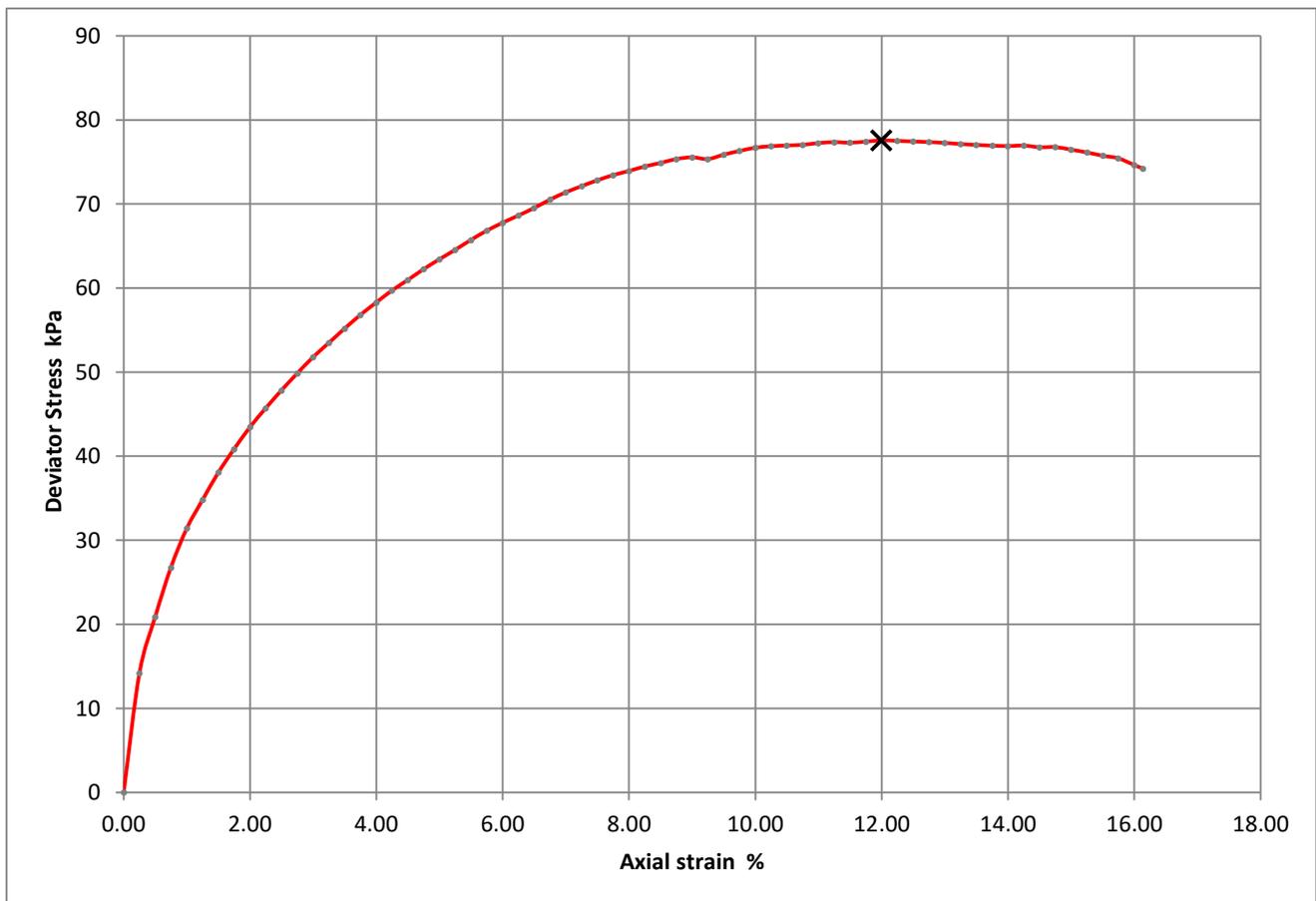
Failure Sketch.



**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

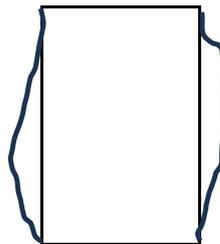
Contract Number	78342
Borehole/Pit No.	BH05
Sample No.	
Depth Top (m)	2.00
Depth Base (m)	2.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	30
Bulk Density (Mg/m <sup>3</sup> )	1.92
Dry Density (Mg/m <sup>3</sup> )	1.48
Specimen Length (mm)	208.4
Specimen Diameter (mm)	104.1
Cell Pressure (kPa)	36
Deviator Stress (kPa)	78
Undrained Shear Strength (kPa)	39
Failure Strain (%)	12
Mode Of Failure	Plastic
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



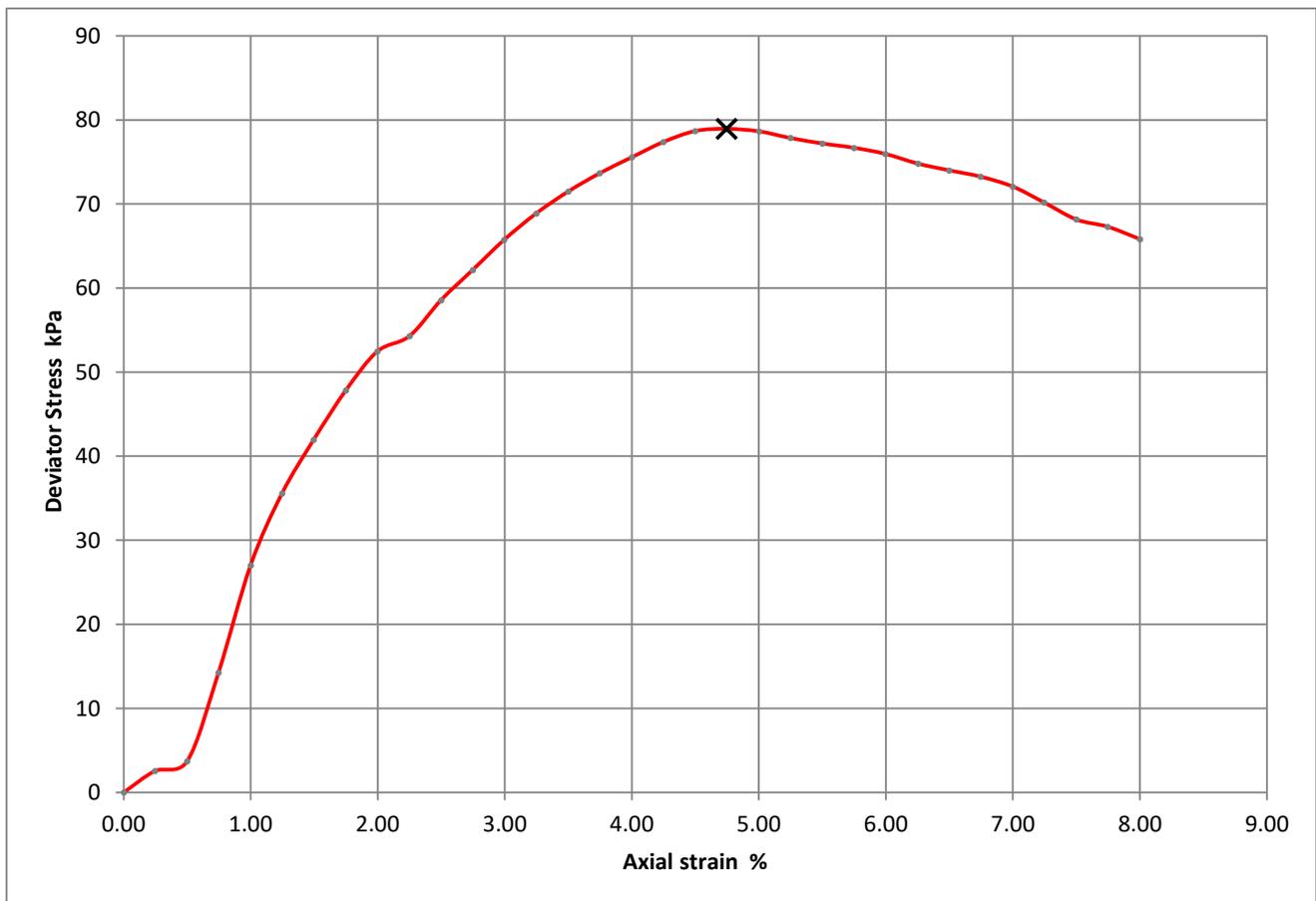
Failure Sketch.



**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

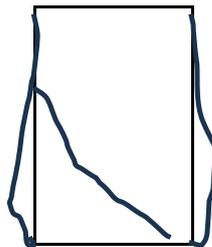
Contract Number	78342
Borehole/Pit No.	BH05
Sample No.	
Depth Top (m)	4.00
Depth Base (m)	4.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown silty CLAY
Date Tested	26/04/2025



Moisture Content (%)	34
Bulk Density (Mg/m <sup>3</sup> )	1.85
Dry Density (Mg/m <sup>3</sup> )	1.38
Specimen Length (mm)	208.3
Specimen Diameter (mm)	104.2
Cell Pressure (kPa)	36
Deviator Stress (kPa)	79
Undrained Shear Strength (kPa)	39
Failure Strain (%)	5
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



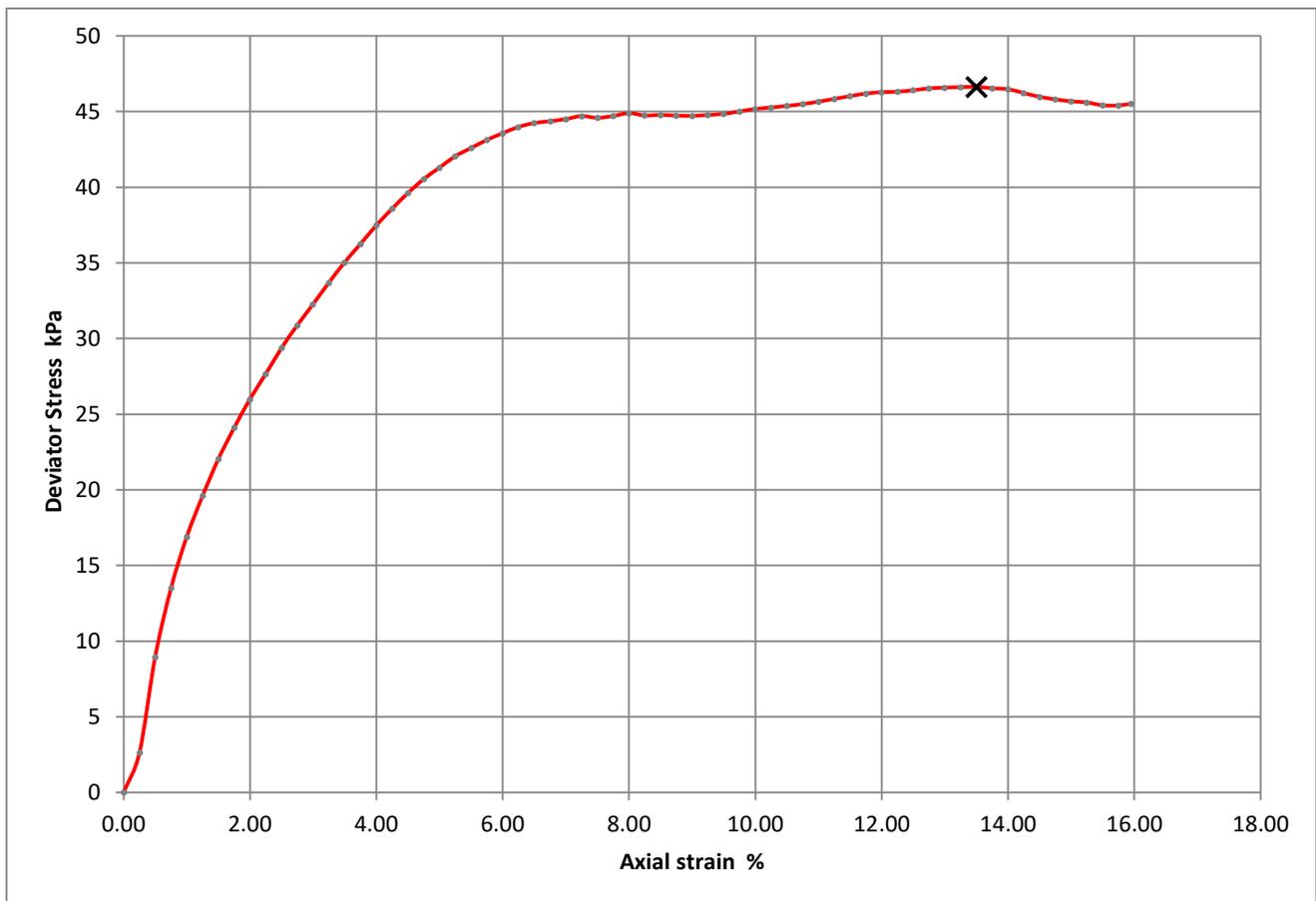
Failure Sketch.



**Single Stage Unconsolidated-Undrained Triaxial Test**  
**BS 1377 : 1990 Part 7 : 8**

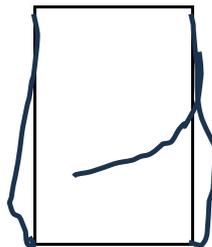
Contract Number	78342
Borehole/Pit No.	BH05
Sample No.	
Depth Top (m)	6.00
Depth Base (m)	6.45
Sample Type	U
Operator	David E

Project Name	Home Farm
Soil Description	Brown silty sandy CLAY
Date Tested	26/04/2025



Moisture Content (%)	32
Bulk Density (Mg/m <sup>3</sup> )	1.80
Dry Density (Mg/m <sup>3</sup> )	1.37
Specimen Length (mm)	208.4
Specimen Diameter (mm)	104.2
Cell Pressure (kPa)	36
Deviator Stress (kPa)	47
Undrained Shear Strength (kPa)	23
Failure Strain (%)	14
Mode Of Failure	Compound
Membrane Used/Thickness	Rubber/0.4mm
Rate of Strain (%/min)	1.32

Notes.



Failure Sketch.



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Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU  
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# ENVIRONMENTAL TESTING RESULTS



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☎ 01484 604354      Company No. 5130864

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## **Analytical Report Number : 25-025766**

<b>Project / Site name:</b>	Home Farm	<b>Samples received on:</b>	16/05/2025
<b>Your job number:</b>	C4826/24/7379	<b>Samples instructed on/ Analysis started on:</b>	19/05/2025
<b>Your order number:</b>		<b>Analysis completed by:</b>	26/05/2025
<b>Report Issue Number:</b>	1	<b>Report issued on:</b>	26/05/2025
<b>Samples Analysed:</b>	5 soil samples		



**Signed:** \_\_\_\_\_

Anna Goc  
PL Head of Reporting Team  
**For & on behalf of i2 Analytical Ltd.**

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

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

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

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

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

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

Analytical Report Number: 25-025766  
Project / Site name: Home Farm

Lab Sample Number	550579	550580	550581	550582	550583			
Sample Reference	WSD	WSI	WSE	WSG	WS02			
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Water Matrix	N/A	N/A	N/A	N/A	N/A			
Depth (m)	0.4	0.3	0.8	1.1	1			
Date Sampled	14/05/2025	14/05/2025	03/05/2025	03/05/2025	04/05/2025			
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	< 0.1
Moisture Content	%	0.01	NONE	24	18	23	18	21
Total mass of sample received	kg	0.1	NONE	1.6	1.6	0.6	0.6	0.5

#### 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	MJN	MJN	-	-	-
Analysis completed	N/A	N/A	N/A	24/05/2025	24/05/2025	-	-	-

#### General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.9	8	8.1	8.2	8
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	-	-
Total Sulphate as SO <sub>4</sub>	mg/kg	50	MCERTS	-	-	450	330	1000
Total Sulphate as SO <sub>4</sub>	%	0.005	MCERTS	0.032	0.045	-	-	-
Water Soluble Sulphate as SO <sub>4</sub> 16hr extraction (2:1)	mg/kg	2.5	MCERTS	110	79	130	85	670
Water Soluble SO <sub>4</sub> 16hr extraction (2:1) Leachate Equivalent)	mg/l	1.25	MCERTS	52.5	39.5	-	-	-
Water Soluble SO <sub>4</sub> 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	-	63.7	42.7	335
Organic Matter (automated)	%	0.1	MCERTS	2.9	1.6	-	-	-

#### Total Phenols

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

#### Speciated PAHs

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

#### Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	-	-	-
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Analytical Report Number: 25-025766  
Project / Site name: Home Farm

Lab Sample Number	550579	550580	550581	550582	550583
Sample Reference	WSD	WSI	WSE	WSG	WS02
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.4	0.3	0.8	1.1	1
Date Sampled	14/05/2025	14/05/2025	03/05/2025	03/05/2025	04/05/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

#### Heavy Metals / Metalloids

Parameter	Units	Test Limit of detection	Test Accreditation Status	550579	550580	550581	550582	550583
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	8.2	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	0.6	-	-	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	42	21	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	37	20	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28	16	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	52	29	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	43	29	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	96	58	-	-	-

#### Petroleum Hydrocarbons

Parameter	Units	Test Limit of detection	Test Accreditation Status	550579	550580	550581	550582	550583
TPHCWG - Aliphatic >EC5 - EC6 <sub>HS_ID_AL</sub>	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-	-	-
TPHCWG - Aliphatic >EC6 - EC8 <sub>HS_ID_AL</sub>	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-	-	-
TPHCWG - Aliphatic >EC8 - EC10 <sub>HS_ID_AL</sub>	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-	-	-
TPHCWG - Aliphatic >EC10 - EC12 <sub>EH_CU_ID_AL</sub>	mg/kg	1	MCERTS	< 1.0	< 1.0	-	-	-
TPHCWG - Aliphatic >EC12 - EC16 <sub>EH_CU_ID_AL</sub>	mg/kg	2	MCERTS	< 2.0	< 2.0	-	-	-
TPHCWG - Aliphatic >EC16 - EC21 <sub>EH_CU_ID_AL</sub>	mg/kg	8	MCERTS	< 8.0	< 8.0	-	-	-
TPHCWG - Aliphatic >EC21 - EC35 <sub>EH_CU_ID_AL</sub>	mg/kg	8	MCERTS	< 8.0	< 8.0	-	-	-
TPHCWG - Aliphatic >EC5 - EC35 <sub>EH_CU+HS_ID_AL</sub>	mg/kg	10	NONE	< 10	< 10	-	-	-

Parameter	Units	Test Limit of detection	Test Accreditation Status	550579	550580	550581	550582	550583
TPHCWG - Aromatic >EC5 - EC7 <sub>HS_ID_AR</sub>	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-	-	-
TPHCWG - Aromatic >EC7 - EC8 <sub>HS_ID_AR</sub>	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-	-	-
TPHCWG - Aromatic >EC8 - EC10 <sub>HS_ID_AR</sub>	mg/kg	0.02	MCERTS	< 0.020	< 0.020	-	-	-
TPHCWG - Aromatic >EC10 - EC12 <sub>EH_CU_ID_AR</sub>	mg/kg	1	MCERTS	< 1.0	< 1.0	-	-	-
TPHCWG - Aromatic >EC12 - EC16 <sub>EH_CU_ID_AR</sub>	mg/kg	2	MCERTS	< 2.0	< 2.0	-	-	-
TPHCWG - Aromatic >EC16 - EC21 <sub>EH_CU_ID_AR</sub>	mg/kg	10	MCERTS	< 10	< 10	-	-	-
TPHCWG - Aromatic >EC21 - EC35 <sub>EH_CU_ID_AR</sub>	mg/kg	10	MCERTS	< 10	< 10	-	-	-
TPHCWG - Aromatic >EC5 - EC35 <sub>EH_CU+HS_ID_AR</sub>	mg/kg	10	NONE	< 10	< 10	-	-	-

#### VOCs

Parameter	Units	Test Limit of detection	Test Accreditation Status	550579	550580	550581	550582	550583
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	-	-
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	-	-

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

**Analytical Report Number : 25-025766**  
**Project / Site name: Home Farm**

\* 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 *
550579	WSD	None Supplied	0.4	Grey clay
550580	WSI	None Supplied	0.3	Brown clay and sand with gravel
550581	WSE	None Supplied	0.8	Grey clay
550582	WSG	None Supplied	1.1	Brown clay and sand
550583	WS02	None Supplied	1	Brown clay and sand

Analytical Report Number : 25-025766

Project / Site name: Home Farm

Water matrix abbreviations:

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

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
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

Analytical Report Number : 25-025766  
 Project / Site name: Home Farm

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
Soil Descriptions	Textural classification	In-house method	L019B	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



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### Sample Deviation Report



**Analytical Report Number : 25-025766**

**Project / Site name: Home Farm**

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
WS02	N/A	S	550583	c	pH in soil (automated)	L099-PL	c
WSE	N/A	S	550581	c	pH in soil (automated)	L099-PL	c
WSG	N/A	S	550582	c	pH in soil (automated)	L099-PL	c



< ENVIRONMENTAL > < GEOTECHNICAL >

End of Report



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## Appendix 9

### Soil Screening Sheet

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# Rogers Geotechnical Services: Soil Screening Values Comparison Sheet



Rogers Geotechnical Services Ltd: Soil Screening Value (SSV) Comparison Sheet													
Job Number	C4826/24/E			A = WS Atkins PLC, Atrisk Soil Screening Values. A+ = Values updated June 2017. A* = Atrisk's SSV is lower than I2's detectable limit for this compound. B = health criterion values, which are available from toxicological reviews published in the C4SL project methodology report. C = Category 4 Screening Levels (C4SLs) based on 6% soil organic matter. D = Value provided is based on Methyl Mercury. Should elemental mercury be observed or a source be known then a limit of 102 should be used.									
Job Name	Home Farm			<b>KEY</b> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="width: 20px; height: 10px; background-color: #f4cccc; border: 1px solid black; display: inline-block;"></div> Exceeds SSV  <div style="width: 20px; height: 10px; background-color: #fff2cc; border: 1px solid black; display: inline-block;"></div> Exceeds 2017, Below 2015  <div style="width: 20px; height: 10px; background-color: #d9ead3; border: 1px solid black; display: inline-block;"></div> Below limit of detection (LOD)                 </div>									
Date	14.07.25			Sample Location	WSD	WSI	WSE	WSG	WS02				
Client	Engie			Depth Top	0.4	0.3	0.8	1.1	1				
				Depth Base									
Determinand	Units	Ref	LOD	Commercial 1%									
				Atrisk 2015 (No Free Product)	Atrisk 2017								
Cadmium	mg/kg	C	0.2		410	0.6	0.6						
Chromium (Hexavalent)	mg/kg	B/C	1.8	49.1	19.7	< 1.8	< 1.8						
Copper	mg/kg	A+	1.0		106000	37.00	20.00						
Mercury	mg/kg	A/D	0.3		350	< 0.3	< 0.3						
Nickel	mg/kg	A+	1.0		1770	52.00	29.00						
Lead	mg/kg	C	1.0		2310	28.00	16.00						
Zinc	mg/kg	A+	1.0		1100000	96.00	58.00						
Vanadium	mg/kg	A+	1.0		7490	43.00	29.00						
Arsenic	mg/kg	C	1.0		635	11.00	8.20						
Selenium	mg/kg	A	1.0		13000	< 1.0	< 1.0						
Cyanide (Free)	mg/kg	A	1.0		373	< 1.0	< 1.0						
Total Phenols	mg/kg	A	1.0		685	< 1.0	< 1.0						
Naphthalene	mg/kg	A+	0.05	90.1	75	< 0.05	< 0.05						
Acenaphthylene	mg/kg		0.05			< 0.05	< 0.05						
Acenaphthene	mg/kg	A+	0.05	83600	156.8	< 0.05	< 0.05						
Fluorene	mg/kg	A+	0.05		66500	< 0.05	< 0.05						
Phenanthrene	mg/kg		0.05			< 0.05	< 0.05						
Anthracene	mg/kg	A+	0.05		535000	< 0.05	< 0.05						
Fluoranthene	mg/kg	A+	0.05		72200	< 0.05	< 0.05						
Pyrene	mg/kg	A+	0.05		54100	< 0.05	< 0.05						
Benzo[a]anthracene	mg/kg	A	0.05	131	1.71	< 0.05	< 0.05						
Chrysene	mg/kg	A	0.05	14000	0.44	< 0.05	< 0.05						
Benzo[b]fluoranthene	mg/kg	A	0.05	142	1.22	< 0.05	< 0.05						
Benzo[k]fluoranthene	mg/kg	A	0.05	1430	0.686	< 0.05	< 0.05						
Benzo[a]pyrene	mg/kg	B/C	0.05	76.3	26.1	< 0.05	< 0.05						
Indeno(1,2,3-c,d)Pyrene	mg/kg	A*	0.05	142	0.0614	< 0.05	< 0.05						
Dibenz(a,h)Anthracene	mg/kg	A	0.05	14.3	0.00393	< 0.05	< 0.05						
Benzo[g,h,i]perylene	mg/kg	A	0.05	1440	0.0187	< 0.05	< 0.05						
Total Of 16 PAH's	mg/kg		0.8										
Aliphatic TPH >C5-C6	mg/kg	A+	0.01	4490	327	< 0.010	< 0.010						
Aliphatic TPH >C6-C8	mg/kg	A+	0.01	10400	157	< 0.010	< 0.010						
Aliphatic TPH >C8-C10	mg/kg	A+	0.01	1370	82.4	< 0.010	< 0.010						
Aliphatic TPH >C10-C12	mg/kg	A+	1.0	7900	49.9	< 1.0	< 1.0						
Aliphatic TPH >C12-C16	mg/kg	A+	2.0	34000	20.9	< 2.0	< 2.0						
Aliphatic TPH >C16-C21	mg/kg	A+	8.0		3620000	< 8.0	< 8.0						
Aliphatic TPH >C21-C35	mg/kg	A+	8.0		3620000	< 8.0	< 8.0						
Aliphatic TPH >C35-C44	mg/kg		10.0										
Total Aliphatic Hydrocarbons	mg/kg		10.0										



# Rogers Geotechnical Services: Soil Screening Values Comparison Sheet



Rogers Geotechnical Services Ltd: Soil Screening Value (SSV) Comparison Sheet													
Job Number	C4826/24/E			<p style="font-size: small; margin: 0;">A = WS Atkins PLC, Atrisk Soil Screening Values.                      A* = Values updated June 2017.                      B = health criterion values, which are available from toxicological reviews published in the C4SL project methodology report.                      C = Category 4 Screening Levels (C4SLs) based on 6% soil organic matter.                      D = Value provided is based on Methyl Mercury. Should elemental mercury be observed or a source be known then a limit of 102 should be used.</p> <div style="float: right; text-align: right;"> <b>KEY</b>  <span style="display: inline-block; width: 15px; height: 15px; background-color: #f08080; border: 1px solid black; margin-right: 5px;"></span> Exceeds SSV  <span style="display: inline-block; width: 15px; height: 15px; background-color: #ffff00; border: 1px solid black; margin-right: 5px; margin-top: 5px;"></span> Exceeds 2017, Below 2015  <span style="display: inline-block; width: 15px; height: 15px; background-color: #c6efce; border: 1px solid black; margin-right: 5px; margin-top: 5px;"></span> Below limit of detection (LOD)                 </div>									
Job Name	Home Farm												
Date	14.07.25			<b>Sample Location</b>	WSD	WSI	WSE	WSG	WS02				
Client	Engie			Depth Top	0.4	0.3	0.8	1.1	1				
				Depth Base									
Determinand	Units	Ref	LOD	Commercial 1%									
Aromatic TPH >C5-C7	mg/kg	A+	0.01		12.5	< 0.010	< 0.010						
Aromatic TPH >C7-C8	mg/kg	A+	0.01	27900	834	< 0.010	< 0.010						
Aromatic TPH >C8-C10	mg/kg	A+	0.02		613	< 0.020	< 0.020						
Aromatic TPH >C10-C12	mg/kg	A+	1.0	12300	369	< 1.0	< 1.0						
Aromatic TPH >C12-C16	mg/kg	A+	2.0	41300	155	< 2.0	< 2.0						
Aromatic TPH >C16-C21	mg/kg	A+	10.0		28400	< 10	< 10						
Aromatic TPH >C21-C35	mg/kg	A+	10.0		28400	< 10	< 10						
Aromatic TPH >C35-C44	mg/kg		10.0										
Total Aromatic Hydrocarbons	mg/kg		10.0										
Total Petroleum Hydrocarbons	mg/kg		10.0										
pH			N/A			7.9	8	8.1	8.2	8			
Sulphate (2:1 Water Soluble) as SO4	mg/l		1.25			52.500	<b>39.500</b>	63.700	42.700	<b>335.000</b>			
ACM Type			N/A										
Asbestos Identification	%					Not detected	Not detected						
ACM Detection Stage			N/A										
Moisture	%		0.01										
Soil Colour			N/A										
Other Material			N/A										
Sulphate (Total)	mg/kg							450.00	330.00	1000.00			
Sulphate (Total)	%		0.005			0.0320	0.0450						
Organic Matter	%		0.1			<b>2.90</b>	<b>1.60</b>						