











<b>Date:</b> 16/02/2024	<b>Ambient air temperature (°C):</b> 15
<b>Time:</b> 11:28	<b>Barometric pressure (mB):</b> 1003
<b>Recorded by:</b> DW	<b>Barometric trend:</b> Slight fall (5mB) previous 24hr
<b>Equipment:</b> Geotech GA5000 gas monitor and dip-meter	<b>Weather conditions:</b> Sunny, gentle breeze

### Groundwater monitoring

Hole ID	Ground level (mAOD)	Water depth (m)	Water level (mAOD)	Depth of pipe base (m)	Remarks
BH01		0.63		3.00	None
BH04		0.88		3.00	None

### Gas monitoring

Hole ID	Methane CH <sub>4</sub> (%v/v)	Carbon Dioxide CO <sub>2</sub> (%v/v)	Oxygen O <sub>2</sub> (%v/v)	Flow Rate (l/h)	Well Pressure (mBar)	PID* (ppm)	Remarks
Job/Hole	CH <sub>4</sub> %	CO <sub>2</sub> %	O <sub>2</sub> %	INTERNAL FLOW l/h	REL.PRESSU RE mb		
BH01	<0.1	2.1	19.1	0.3	0.07	<0.01	None
BH04	<0.1	1.7	19.5	<0.1	0.02	<0.01	None

<b>Date:</b> 21/02/2024	<b>Ambient air temperature (°C):</b> 17
<b>Time:</b> 14:37	<b>Barometric pressure (mB):</b> 998
<b>Recorded by:</b> DW	<b>Barometric trend:</b> Slight rise (3mB) previous 24hr
<b>Equipment:</b> Geotech GA5000 gas monitor and dip-meter	<b>Weather conditions:</b> Sunny, gentle breeze

### Groundwater monitoring

Hole ID	Ground level (mAOD)	Water depth (m)	Water level (mAOD)	Depth of pipe base (m)	Remarks
BH01		0.61		3.00	None
BH04		0.82		3.00	None

### Gas monitoring

Hole ID	Methane CH <sub>4</sub> (%v/v)	Carbon Dioxide CO <sub>2</sub> (%v/v)	Oxygen O <sub>2</sub> (%v/v)	Flow Rate (l/h)	Well Pressure (mBar)	PID* (ppm)	Remarks
Job/Hole	CH <sub>4</sub> %	CO <sub>2</sub> %	O <sub>2</sub> %	INTERNAL FLOW l/h	REL.PRESSU RE mb		
BH01	<0.1	1.9	19.3	0.2	0.05	<0.01	None
BH04	<0.1	1.6	19.6	<0.1	0.02	<0.01	None



**Edlington**

Consulting Group Limited

## **APPENDIX C**

### **LABORATORY TESTING RESULTS**





# GroundTech Laboratories

## Geotechnical Testing Facility

Slapton Hill Barn, Blakesley Road, Slapton, Towcester, Northants. NN12 8QD

Telephone: 01327 860947/860060

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**Quality Assured  
to ISO 9001**

SAMPLES				CLASSIFICATION TESTS							CLASSIFICATION TESTS							STRENGTH TESTS					CHEMICAL TESTS		
Test Location	Sample Type	Sample Depth -m	Test Type	WC %	LL %	PL %	PI %	Passing 425 µm %	Modified PI %	Class	Passing 63 µm %	WC/LL	PL+2%	Liquidity Index	Loss on Ignition %	Soil Suction kPa	Bulk Density Mg/m <sup>3</sup>	Test Type	Cell Pressure kN/m <sup>2</sup>	Deviator Stress kN/m <sup>2</sup>	Apparent Cohesion kN/m <sup>2</sup>	f	pH Value	Soluble Sulphate Content SO <sub>4</sub> g/l	
BH 01	D	1.00	PSD																						
BH 02	D	1.80	PI/63	16	28	16	12	88	11	CL	43	0.57	18	0.00									8.0	0.06	
BH 03	D	1.25	PI/63	13	26	14	12	79	9	CL	50	0.50	16	-0.08									7.7	0.04	
<b>Symbols:</b>				U	Undisturbed Sample					R	Remoulded			PI	Plasticity Index			T	Triaxial Undrained			L	100mm specimen		
				D	Disturbed Sample					63	Passing 63µm			F	Filter Paper Suction Tests			M	Multistage Triaxial			S	38mm specimen		
				B	Bulk Sample					H	Hydrometer			CC	Continuous Core			HP	Hand Penetrometer						
				W	Water Sample					PSD	Wet Sieving							V	Vane Test						
<b>LABORATORY TEST RESULTS</b>																				<b>Project Reference 24.02.016</b>					

# GroundTech Laboratories

## Geotechnical Testing Facility

Slapton Hill Barn, Blakesley Road, Slapton, Towcester, Northants. NN12 8QD

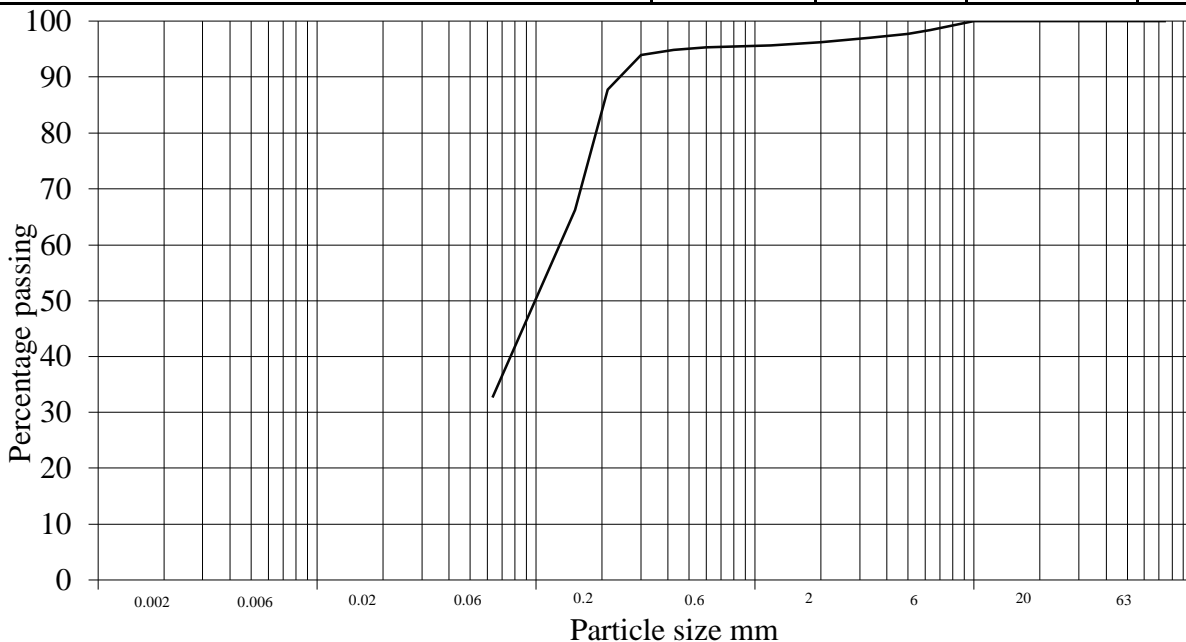
Telephone: 01327 860947/860060

Fax: 01327 860430

Email: groundtech@listersgeotechnics.co.uk

**Quality  
Assured  
ISO 9001**

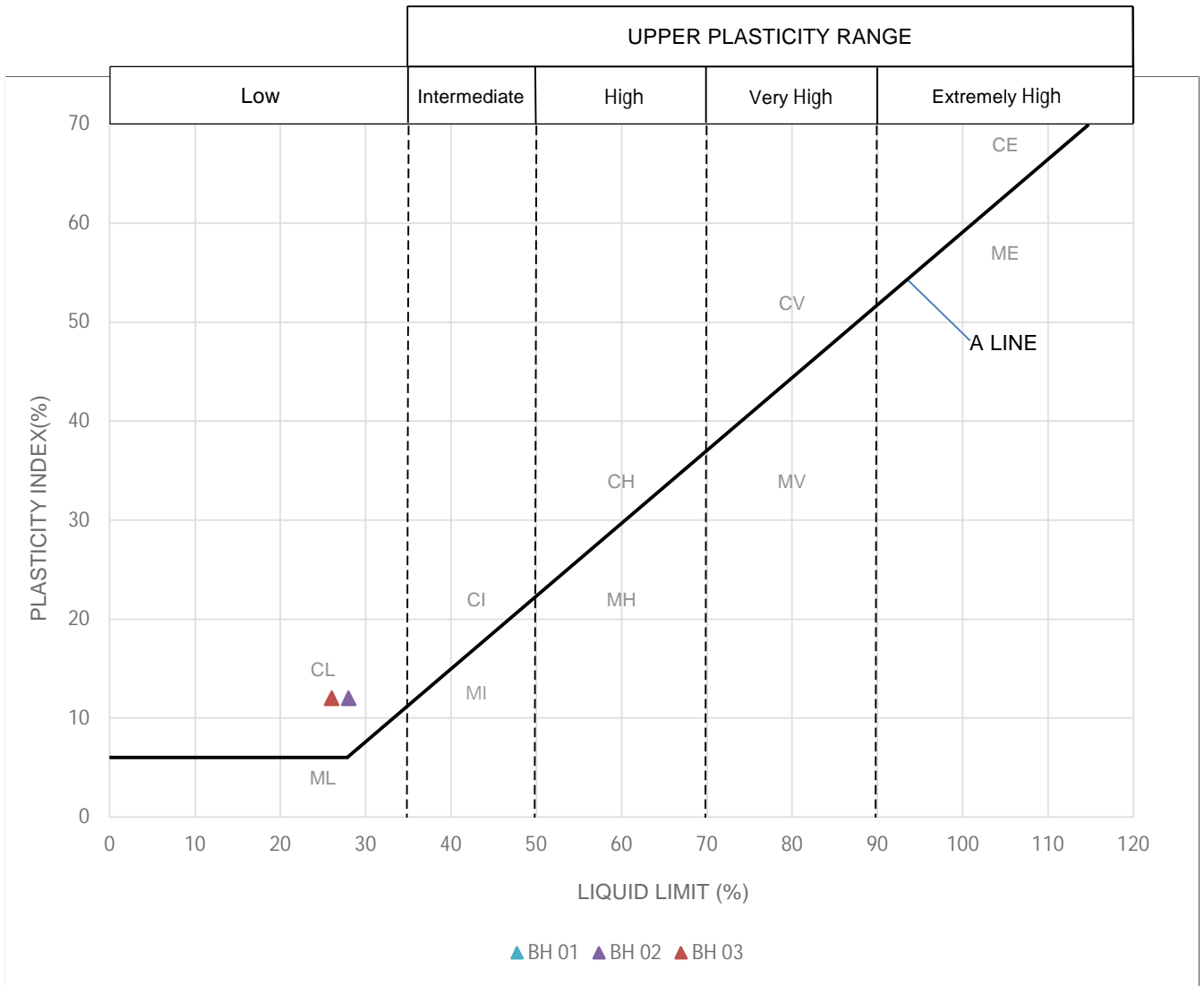
		Test Method: BS 1377 : Part 2 : 1990 : 9.2			
		BS test sieve	Cumulative Passing - %	Hydrometer Particle Diameter	Cumulative Passing - %
<b>Site:</b>	York	75mm	100.00		
<b>Test Location:</b>	BH 01	63mm	100.00		
<b>Sample Depth:</b>	1.00m	50mm	100.00		
<b>Hydrometer No.:</b>		37.5mm	100.00		
<b>SG Gs:</b>		26.5mm	100.00		
<b>Water Visc. (N):</b>		20mm	100.00		
<b>Dry Mass of Soil after pretreatment (g):</b>		14mm	100.00		
		10mm	100.00		
		6.3mm	98.40		
		5mm	97.70		
		3.5mm	97.10		
		2mm	96.20		
		1.18mm	95.60		
		600µm	95.30		
		425µm	94.90		
		300µm	94.00		
		212µm	87.70		
		150µm	66.20		
		63µm	32.70		



CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	33%			64%			4%			0%

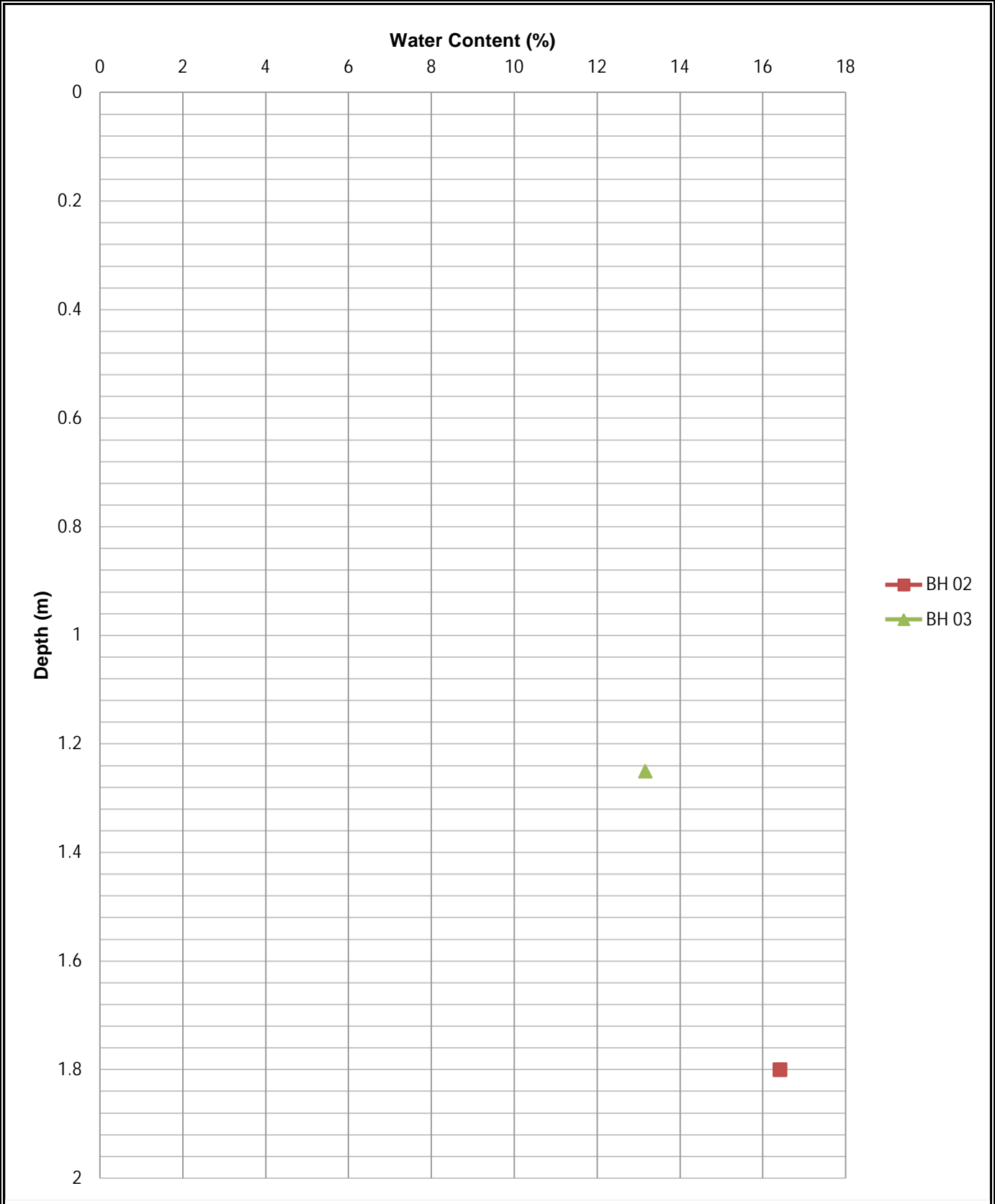
### PARTICLE SIZE DISTRIBUTION

Project Reference  
24.02.016



**PLASTICITY CHART**

**Report:  
24.02.016**



**WATER CONTENT v DEPTH**

**Report:  
24.02.016**



Listers Geo□  
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## Analytical Report Number : 24-002680

<b>Project / Site name:</b>	York	<b>Samples received on:</b>	14/02/2024
<b>Your job number:</b>	24.02.016	<b>Samples instructed on/ Analysis started on:</b>	14/02/2024
<b>Your order number:</b>	24.02.016 495	<b>Analysis completed by:</b>	23/02/2024
<b>Report Issue Number:</b>	1	<b>Report issued on:</b>	23/02/2024
<b>Samples Analysed:</b>	5 soil samples		

**Sign**

Izabela Wójcik  
Senior Reporting Specialist  
**For & on behalf of i2 Analytical Ltd.**

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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

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

Analytical Report Number: 24-002680  
 Project / Site name: York  
 Your Order No: 24.02.016 495

Lab Sample Number	115296	115297	115298	115299	115300
Sample Reference	BH01	BH02	BH03	BH04	HP01
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30-0.40	0.25-0.40	0.35-0.45	0.20-0.35	0.35-0.40
Date Sampled	12/02/2023	12/02/2023	12/02/2023	12/02/2023	12/02/2023
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	-	36
Moisture Content	%	0.01	NONE	13	20	10	-	9.1
Total mass of sample received	kg	0.1	NONE	0.4	0.4	0.4	-	0.4

#### 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	-	DSO	-	DSO	-

#### General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	8.6	-	8.8	-	-
pH (L099)	pH Units	N/A	MCERTS	8	-	7.7	-	-
Water Soluble SO4 1hr extraction	mg/kg	2.5	MCERTS	91	-	10	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	45.3	-	5.21	-	-

#### 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	0.2	-	< 0.05	-	-
Anthracene	mg/kg	0.05	MCERTS	0.05	-	< 0.05	-	-
Fluoranthene	mg/kg	0.05	MCERTS	0.3	-	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	0.29	-	< 0.05	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.17	-	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	0.18	-	< 0.05	-	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.18	-	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.09	-	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.15	-	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.07	-	< 0.05	-	-
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.1	-	< 0.05	-	-

#### Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.78	-	< 0.80	-	-
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#### Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.6	-	15	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	-	10	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	-	7.2	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	27	-	21	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	-	4.2	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	78	-	19	-	-

#### Petroleum Hydrocarbons

TPH (C10 - C40) EH_CU_1D_TOTAL_#1_#2	mg/kg	10	MCERTS	-	< 10	-	-	< 10
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number : 24-002680

Project / Site name: York

\* 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 *
115296	BH01	None Supplied	0.30-0.40	Brown loam and clay with gravel
115297	BH02	None Supplied	0.25-0.40	Brown loam and clay with gravel and vegetation
115298	BH03	None Supplied	0.35-0.45	Brown loam and sand with gravel
115300	HP01	None Supplied	0.35-0.40	Brown loam with vegetation and stones



Analytical Report Number : 24-002680  
Project / Site name: York

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038B	D	MCERTS
Speciated EPA-16 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
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

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

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

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

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

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

Analytical Report Number : 24-002680

Project / Site name: York

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

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH01	N/A	S	115296	c	Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	L064B	c
BH01	N/A	S	115296	c	pH at 20°C in soil	L005B	c
BH01	N/A	S	115296	c	pH in soil (automated)	L099	c
BH02	N/A	S	115297	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088	c
BH03	N/A	S	115298	c	Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	L064B	c
BH03	N/A	S	115298	c	pH at 20°C in soil	L005B	c
BH03	N/A	S	115298	c	pH in soil (automated)	L099	c
HP01	N/A	S	115300	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088	c