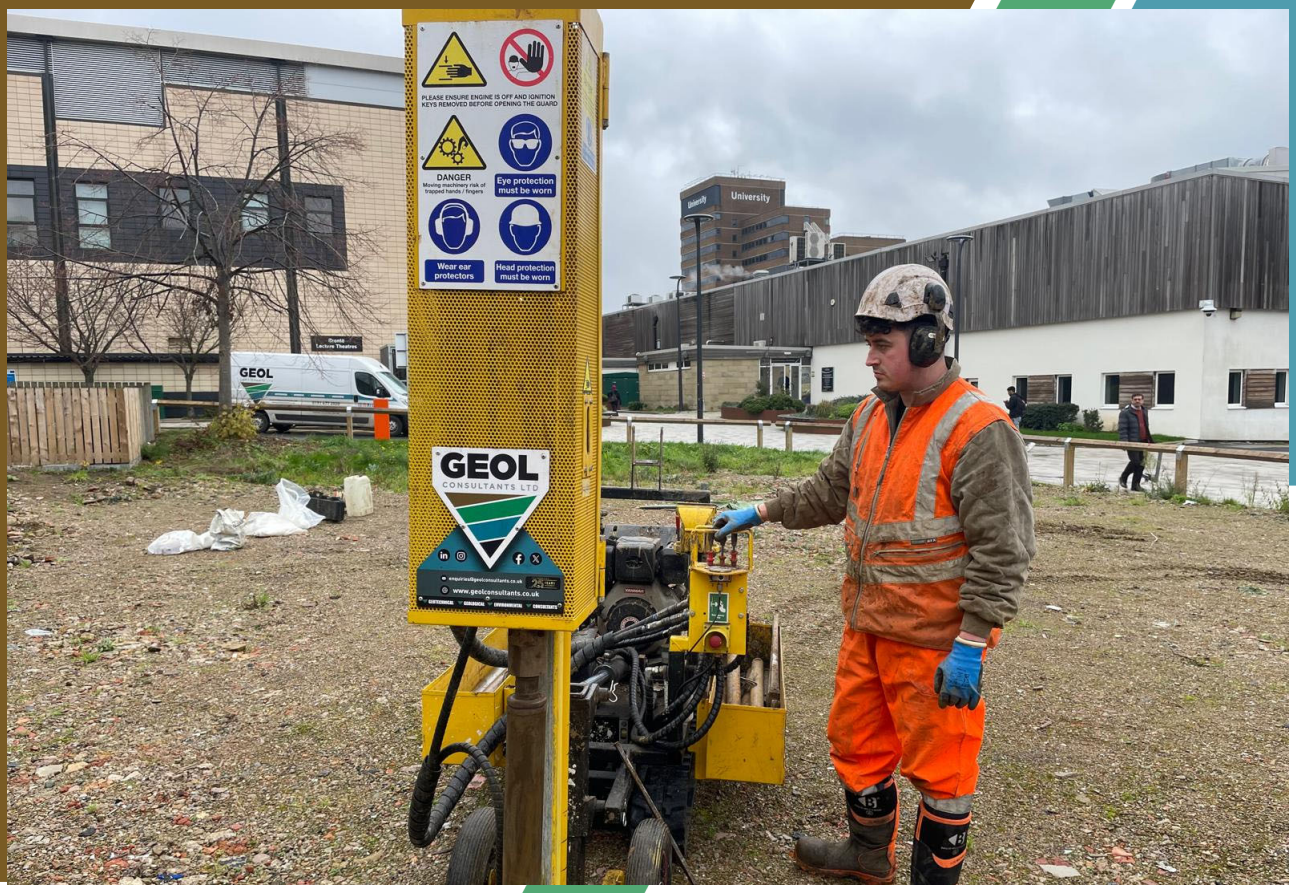
GROUND CONTAMINATION RISK ASSESSMENT REPORT



FORMER EDITH KEY BUILDING
UNIVERSITY OF HUDDERSFIELD, HUDDERSFIELD, WEST YORKSHIRE, HD1 3DH
PREPARED FOR UNIVERSITY OF HUDDERSFIELD

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GEOTECHNICAL GEOLOGICAL ENVIRONMENTAL CONSULTANTS

QUALITY CONTROL

Project No.	**GEOL25-6220**	**Client**	**University of Huddersfield**
Design Team	**GSS Architecture Limited**		
Report Type	**Ground Contamination Risk Assessment**		
Project Type	**Proposed Public Open Space Development**		
Site Address	**Former Edith Key Building, University of Huddersfield, Huddersfield, West Yorkshire, HD1 3DH**		
NGR	**414750, 416211**		
Date	**28/01/2026**		

Prepared by **Qualifications** **Position**	**William Howells** **BSc (Hons) MSc FGS** **Geoenvironmental Engineer**
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REPORT REVISION HISTORY				
Issue	**Description**	**Date**	**Author**	**Approval**
1	**Final Issue**	**28/01/2026**	**WH**	**TMc**

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APPENDIX III	LABORATORY TESTING RESULTS

1.0 Introduction

Geol Consultants Limited (GEOL) were instructed by GSS Architecture Limited on behalf of the University of Huddersfield to undertake an appropriate programme of ground investigation works over an area of land formerly occupied by the Edith Key Building (referred to as 'Site 1') situated at the site located within the grounds of the University of Huddersfield in Huddersfield, West Yorkshire.

The site is currently vacant, and the initial surfacing comprises predominantly building rubble. The site is centred on National Grid Reference (NGR) 414750, 416211 and a site location plan can be seen attached in Appendix I.

Proposals have been made to create an area of public open space / landscaping on the site. The proposed development can be seen on the proposed site plan attached in Appendix I, provided by the client.

A Phase I Desk Top Study (DTS) and Coal Mining Risk Assessment Report was completed for the site, and considers the new development proposals, by Arc Environmental Limited (ARC), reference 25-373, dated June 2025. The report produced by ARC should also be read in conjunction with this Ground Contamination Risk Assessment (GCRA) Report.

The purpose of this GCRA Report is to provide information relating to the following to assist with the new development proposals on the site.

- Determine the levels of contamination present within the existing shallow soil deposits present on site, to assess the impacts from potential contaminants towards the future site end-users (Human Health) based on an end-use of Public Open Space
- Assess the soil permeability characteristics of the underlying natural deposits to determine the suitability of these materials as a drainage medium for the discharge of surface water as part of a SUDS / soakaway design scheme

The information contained in this GCRA Report is limited to the area of the site as shown on the plans attached in Appendix II, and to those areas accessible at the time of the ground investigation works being undertaken. When considering the scope of works completed, any features or issues not specifically mentioned cannot be assumed to have been covered.

2.0 Scope of Works

The intrusive ground investigation works undertaken by GEOL comprised the completion of 6 no. windowless sampling boreholes (labelled BH01 to BH06), positioned to target proposed landscaping areas. Detailed descriptions of the strata encountered during the investigation works are presented on the borehole record sheets, attached in Appendix II. Additionally, the borehole positions can be seen on the investigation location plan attached in Appendix II.

3.0 Ground Conditions

3.1 Soil Profile

A summary of the ground conditions encountered below the site within the hand dug trial pits can be seen in the Table below.

Strata	Depths Recorded	Description & Comments
MADE GROUND	From 0.00m up to 0.50m to 1.50m	The made ground deposits comprised soft brown sandy gravelly clay, brown and reddish brown clayey gravelly sand and reddish-brown cobbly sand with fragments of brick and concrete throughout
BEDROCK GEOLOGY Pennine Lower Coal Measures Formation	From 0.50m to 1.50m up to 1.00m to 2.45m	The natural deposits underlying the made ground comprised completely weathered MUDSTONE which was recovered as firm brown, light brown and grey sandy gravelly clay

During the investigation period, no ingresses of water were recorded within the borehole locations.

4.0 Insitu Testing

4.1 Insitu Variable Head (Falling) Permeability Tests

An insitu variable head (falling) permeability test was completed at the location of BH03 to assess the permeability characteristics of the underlying natural deposits for determining the suitability of using conventional soakaways / infiltration. The permeability test result and calculation can be seen on the record sheet attached in Appendix II.

4.0 Insitu Testing (Cont'd)

4.1 Insitu Variable Head (Falling) Permeability Tests (Cont'd)

The test section at the borehole extended from 0.60m to a depth of 2.00m. The results of the test completed at the location of BH03 has identified a coefficient of permeability value (*k*) of 1.85^{-07} ms^{-1}, indicating the deposits tested have a very low permeability classification with poor drainage characteristics.

5.0 Laboratory Testing

5.1 Contamination Screening / Screening Strategy

Six representative samples of the made ground deposits encountered within the borehole locations were screened for a wide range of chemical analytes to determine the levels of contamination present, and to allow an assessment of the risks these materials may pose to the future site end-users and construction workforce.

Ground contamination laboratory testing was completed by Eurofins Chemtest Limited (Chemtest) (UKAS & MCERTS accredited). The suite of chemical analysis carried out is summarised below.

- 6 no. soil samples tested for Arsenic, Cadmium, Chromium (III & VI), Copper, Lead, Mercury, Nickel, Selenium, Zinc, Cyanide (free) and Total Organic Carbon (TOC)
- 6 no. soil samples screened for Speciated Polycyclic Aromatic Hydrocarbons (PAH's) – based on the current USEPA 16 PAH's
- 6 no. soil samples screened for Total Petroleum Hydrocarbons Criteria Working Group (Aliphatic & Aromatic split)
- 6 no. soil samples tested for Asbestos (presence)

The results of the tests are contained in the Chemtest Final Report (reference 25-40558-1), a copy of which can be found in Appendix III.

A summary of the contamination results can be seen in the Tables on the following pages within Section 6.0.

6.0 Ground Contamination Risk Assessment

A Human Health Generic Quantitative Risk Assessment (GQRA) is carried out by comparing measured concentrations in soil with generic screening values appropriate for the Conceptual Model and pollutant linkage(s) being assessed. Provided the measured concentrations are below appropriate generic screening criteria, the risk from the pollutant linkages(s) being assessed are unlikely to represent a significant risk.

The generic screening values referred to above usually take the form of risk-based Generic Assessment Criteria (GAC) values, that are most typically derived using the Environment Agency's Contaminated Land Exposure Assessment (CLEA) Model.

For the purpose of this Human Health contamination risk assessment and when considering the nature and sensitivity of the proposed development (i.e. Public Open Space), the results have been compared against currently available assessment values published by LQM / CIEH (Suitable 4 Use Levels – S4UL's), CL:AIRE Category 4 Screening Levels (C4SL's) and Atkins ATRISKsoil Soil Screening Values (SSVs) for Cyanide only. To allow an assessment of the level of risk to be made, the made ground deposits present on this site has been assessed by comparing the maximum recorded value against the appropriate critical concentration value.

Generic Analytes	Critical concentration (mg/kg)	No. of samples screened	Max. concentration recorded (mg/kg)
Arsenic	79[(1)]	6	15
Cadmium	120[(1)]	6	2.10
Chromium III	1500[(1)]	6	31
Chromium VI	7.7[(1)]	6	<0.50
Copper	12,000[(1)]	6	76
Lead	310[(3)]	6	130
Mercury	120[(1)]	6	0.11
Nickel	230[(1)]	6	37
Selenium	1100[(1)]	6	1.2
Zinc	81,000	6	94
Cyanide	34[(2)]	6	<0.50
Asbestos	Presence	6	No Asbestos Detected

[(1)] = The LQM/CIEH Suitable 4 Use Levels (Public Open Space land-use, 2.5% SOM) GEOL S4UL3816, [(2)] = ATRISK[SOIL] SSV (2015), [(3)] = CL:AIRE C4SLs (Public Open Space land-use)

6.0 Ground Contamination Risk Assessment (Cont'd)

Speciated PAH's	Critical concentration (mg/kg)	No. of samples screened	Max. concentration recorded (mg/kg)
Acenaphthene	15,000[(1)]	6	0.71
Acenaphthylene	15,000[(1)]	6	0.40
Anthracene	74,000[(1)]	6	1.2
Benzo(a)anthracene	29[(1)]	6	2.2
Benzo(a)pyrene	5.7[(1)]	6	2.0
Benzo(b)fluoranthene	7.2[(1)]	6	2.7
Benzo(ghi)perylene	640[(1)]	6	1.5
Benzo(k)fluoranthene	190[(1)]	6	2.4
Chrysene	57[(1)]	6	2.7
Dibenz(ah)anthracene	0.57[(1)]	6	0.48
Fluoranthene	3,100[(1)]	6	4.8
Fluorene	9,900[(1)]	6	0.51
Indeno(123cd)pyrene	82[(1)]	6	1.2
Naphthalene	4,900[(1)]	6	0.44
Phenanthrene	3,100[(1)]	6	4.2
Pyrene	7,400[(1)]	6	5.3
Petroleum Hydrocarbons			
Aliphatic C5-C6	590,000[(1)]	6	<0.05
Aliphatic C6-C8	610,000[(1)]	6	<0.10
Aliphatic C8-C10	13,000[(1)]	6	<0.05
Aliphatic C10-C12	13,000[(1)]	6	<2.0
Aliphatic C12-C16	13,000[(1)]	6	5.4
Aliphatic C16-C21	250,000[(1)]	6	9.2
Aliphatic C21-C35	250,000[(1)]	6	110
Aromatic C5-C7	56,000[(1)]	6	<0.05
Aromatic C7-C8	56,000[(1)]	6	<0.05
Aromatic C8-C10	5,000[(1)]	6	<0.05

[(1)] = The LQM/CIEH Suitable 4 Use Levels (Public Open Space land-use, 2.5% SOM) GEOL S4UL3816, [(2)] = ATRISK[SOIL] SSV (2015), [(3)] = CL:AIRE C4SLs (Public Open Space land-use)

6.0 Ground Contamination Risk Assessment (Cont'd)

Petroleum Hydrocarbons	Critical concentration (mg/kg)	No. of samples screened	Max. concentration recorded (mg/kg)
Aromatic C10-C12	5,000[(1)]	6	<2.0
Aromatic C12-C16	5,100[(1)]	6	2.2
Aromatic C16-C21	3,800[(1)]	6	17
Aromatic C21-C35	3,800[(1)]	6	28

[(1)] = The LQM/CIEH Suitable 4 Use Levels (Public Open Space land-use, 2.5% SOM) GEOL S4UL3816, [(2)] = ATRISK[SOIL] SSV (2015), [(3)] = CL:AIRE C4SLs (Public Open Space land-use)

Based on the laboratory contamination screening results obtained, the made ground deposits present over the site are suitable for their intended end-use and do not represent an unacceptable level of risk towards the future site end-users (Human Health).

As such, the risk to the future site end-users is considered negligible in relation to soil contamination and therefore no special remedial measures will be required.

End of Report

APPENDIX I

Site Location Plan &
Proposed Site Plan

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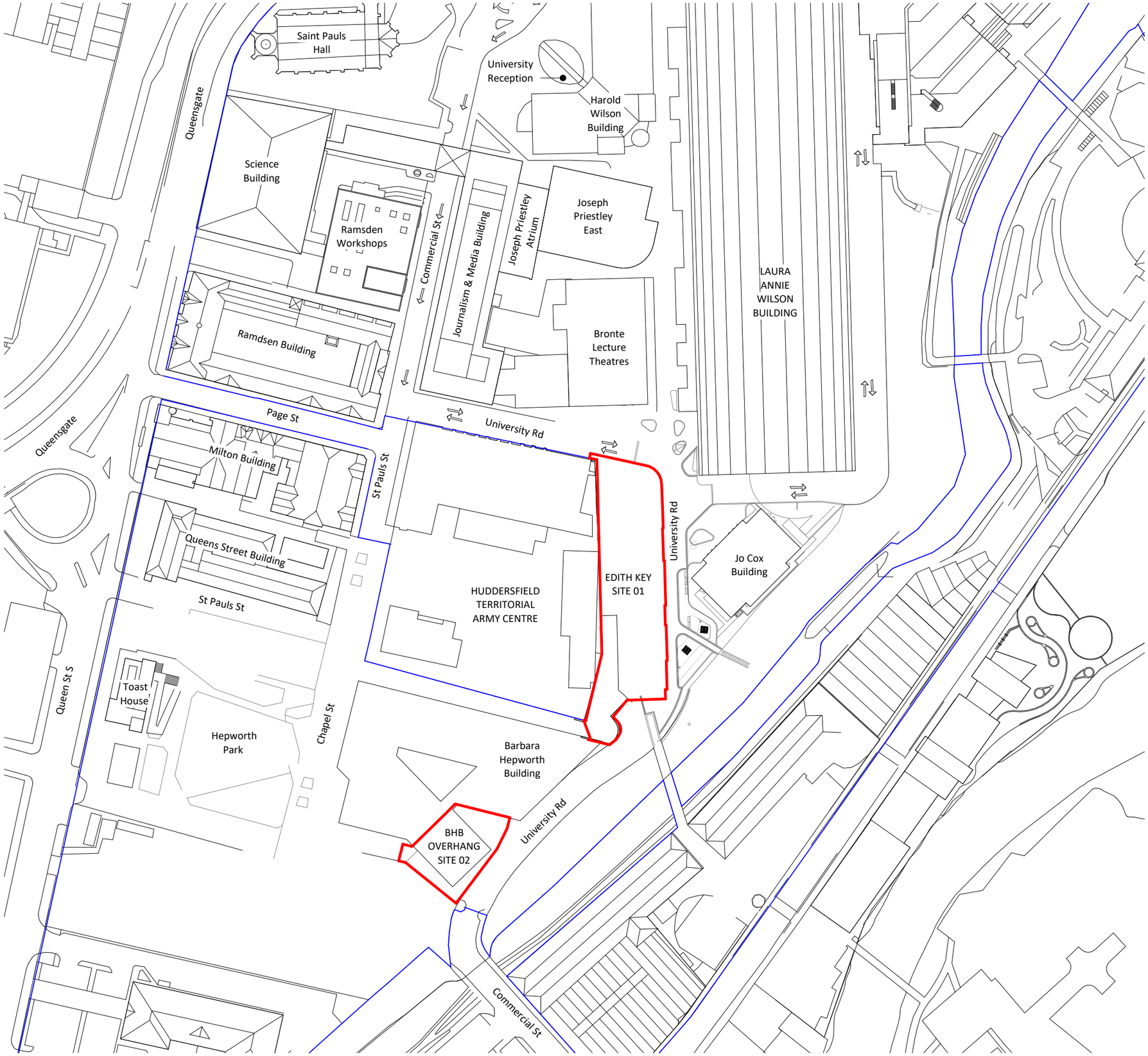

1:1250 Scale 25m 0 25m 50m 100m

Site Boundary
Campus Boundary

Rev	Date	Description
P02	15.07.25	Site boundary amended to solid line.
P01	10.02.25	Planning Issue. For Design Team Comments.

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KETTERING | GLOUCESTER | HARROGATE | LEEDS | MILTON KEYNES | NEWCASTLE

Project Title:
Campus Landscaping Schemes

Client:
University of Huddersfield

Drawing Title:
Site Location Plan

File Number:
UNI049H

Drawn By:
AMG

Checked By:
CJPW

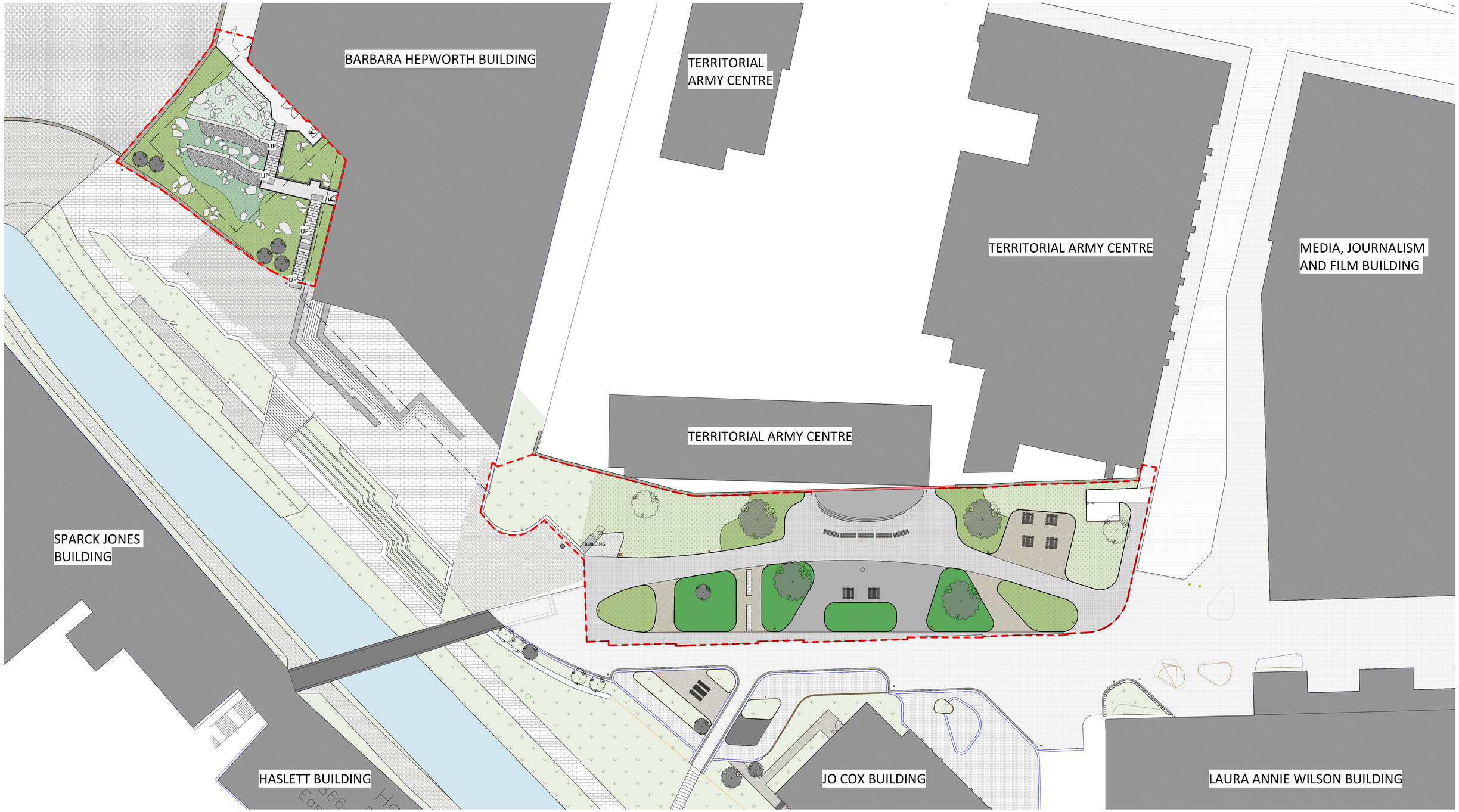
Scale @A3:
1 : 1250

Date:
02/01/2025

Status:
Preliminary Issue

Drwg No:
(90)001

Rev:
P02



1. Proposed site Plan
SCALE - 1 : 250@A1

1:250 Scale 5m 0 5m 10m 20m

Legend

Key Plan

Rev	Date	Drn	Chk	Description
P02	22.05.25	AMG	CJPW	Revised for planning pack.
P01	10.02.25	AMG	CJPW	Planning Issue. For Design Team Comments.

GSSarchitecture
KETTERING | GLOUCESTER | HARROGATE | LEEDS | MILTON KEYNES | NEWCASTLE

Project Title:
Campus Landscaping Schemes

Client:
University of Huddersfield

Drawing Title:
Proposed Site Plan

Drawn By:	Checked By:	Scale @A1:	Date:
AMG	CJPW	1 : 250	02/01/2025

Status: Preliminary Issue

File No: UNI049H

Drwg No: (90)003

Rev: P02

APPENDIX II

Investigation Location Plan,
Borehole Record Sheets &
Insitu Variable Head (Falling) Permeability Tests

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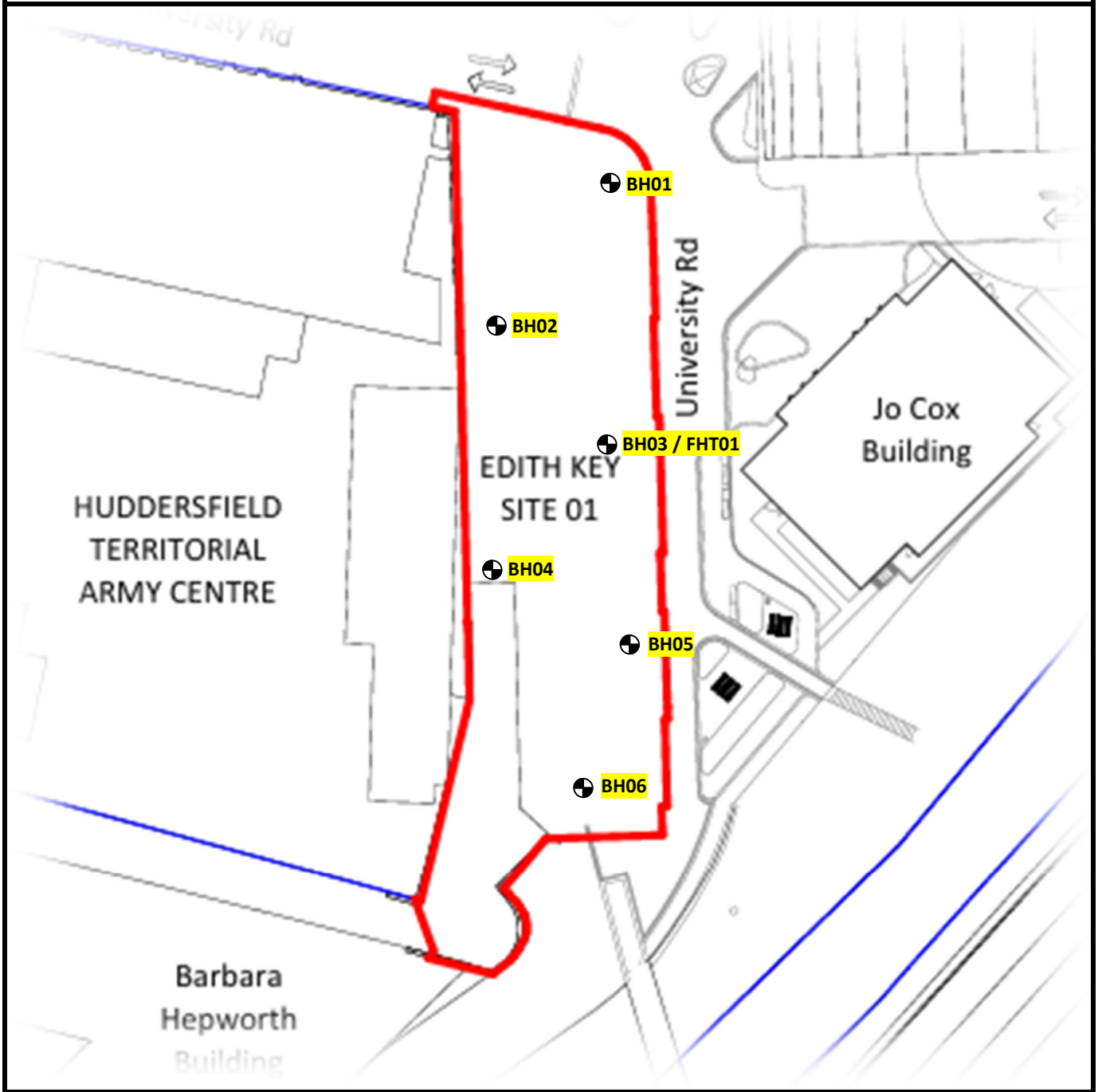

INVESTIGATION LOCATION PLAN

Report Type: Ground Contamination Risk Assessment Report
Site Address: Former Edith Key Building, University of Huddersfield, West Yorkshire, HD1 3DH
Project No.: GEOL25-6220

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BOREHOLE LOG

Project				BOREHOLE No
Former Edith Key Building, University of Huddersfield, West Yorkshire, HD1 3DH				BH01
Job No	Date	Ground Level (m)	Co-Ordinates ()	
GEOL25-6220	04-12-26			
Contractor				Sheet
Geol Consultants Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-0.50	B						Soft brown sandy gravelly clay with fragments of brick and concrete (MADE GROUND).		
0.50-1.00	B					(1.50)			
1.00-1.45	SPT	N=9							
						1.50			
							Brown completely weathered MUDSTONE recovered as firm sandy gravelly CLAY (PENNINE LOWER COAL MEASURES FORMATION).		
1.80-2.00	B					(0.95)			
2.00-2.45	SPT	N=17							
						2.45			
							Borehole terminated at a depth of 2.45m.		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	WATER: Borehole remained dry.

All dimensions in metres Scale 1:16.25	Client University of Huddersfield	Method/ Plant Used Competitor Dart	Logged By WH

AGS3 UK BH BH LOGS.GPJ GINT STD AGS 3_1.GDT 26/01/26

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BOREHOLE LOG

Project				BOREHOLE No
Former Edith Key Building, University of Huddersfield, West Yorkshire, HD1 3DH				BH02
Job No	Date	Ground Level (m)	Co-Ordinates ()	
GEOL25-6220	04-12-26			
Contractor				Sheet
Geol Consultants Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-0.50	B					(0.80) 0.80	Brown clayey gravelly sand with fragments of brick and concrete (MADE GROUND).		
0.80-1.00	B					(0.20) 1.00	Firm brown and grey very sandy gravelly clay with fragments of brick concrete and sandstone (MADE GROUND).		
							Borehole terminated at a depth of 1.00m.		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER: Borehole remained dry.

All dimensions in metres Scale 1:16.25	Client University of Huddersfield	Method/ Plant Used Competitor Dart	Logged By WH

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BOREHOLE LOG

Project				BOREHOLE No
Former Edith Key Building, University of Huddersfield, West Yorkshire, HD1 3DH				BH03
Job No	Date	Ground Level (m)	Co-Ordinates ()	
GEOL25-6220	04-12-26			
Contractor				Sheet
Geol Consultants Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-0.50	B					(0.50) 0.50	Reddish brown cobbly sand with fragments of brick and cobbles of concrete (MADE GROUND).		
0.50-0.60	B					(0.50) 1.00	Brown and reddish brown clayey gravelly sand with fragments of brick (MADE GROUND).		
1.80-2.00	B					(1.00) 2.00	Light brown and grey completely weathered MUDSTONE recovered as firm sandy gravelly clay (PENNINE LOWER COAL MEASURES FORMATION).		
							Borehole terminated at a depth of 2.00m.		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	WATER: Borehole remained dry.

All dimensions in metres Scale 1:16.25	Client University of Huddersfield	Method/ Plant Used Competitor Dart	Logged By WH

AGS3 UK BH BH LOGS.GPJ GINT STD AGS 3_1.GDT 26/01/26

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BOREHOLE LOG

Project				BOREHOLE No
Former Edith Key Building, University of Huddersfield, West Yorkshire, HD1 3DH				**BH04**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
GEOL25-6220	04-12-26			
Contractor				Sheet
Geol Consultants Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-0.50	B					(0.50) 0.50	Soft brown sandy gravelly clay with fragments of brick and sandstone (MADE GROUND).		
0.50-1.00	B					(0.50) 1.00	Light brown and grey completely weathered MUDSTONE recovered as firm sandy gravelly clay (PENNINE LOWER COAL MEASURES FORMATION).		
							Borehole terminated at a depth of 1.00m.		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER: Borehole remained dry.

All dimensions in metres Scale 1:16.25	Client University of Huddersfield	Method/ Plant Used Competitor Dart	Logged By WH

AGS3 UK BH BH LOGS.GPJ GINT STD AGS 3_1.GDT 26/01/26

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BOREHOLE LOG

Project				BOREHOLE No
Former Edith Key Building, University of Huddersfield, West Yorkshire, HD1 3DH				BH05
Job No	Date	Ground Level (m)	Co-Ordinates ()	
GEOL25-6220	04-12-26			
Contractor				Sheet
Geol Consultants Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-0.50	B					(1.00)	Brown clayey gravelly sand with fragments of brick, concrete and sandstone (MADE GROUND).		
0.50-1.00	B					1.00			
							Borehole terminated at a depth of 1.00m.		

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

WATER: Borehole remained dry.

All dimensions in metres Scale 1:16.25	Client University of Huddersfield	Method/ Plant Used Competitor Dart	Logged By WH

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BOREHOLE LOG

Project				BOREHOLE No
Former Edith Key Building, University of Huddersfield, West Yorkshire, HD1 3DH				BH06
Job No	Date	Ground Level (m)	Co-Ordinates ()	
GEOL25-6220	04-12-26			
Contractor				Sheet
Geol Consultants Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-0.50	B					(1.00)	Brown clayey gravelly sand with fragments of brick and concrete (MADE GROUND).		
0.50-1.00	B					1.00			
							Borehole terminated at a depth of 1.00m.		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	WATER: Borehole remained dry.

All dimensions in metres Scale 1:16.25	Client University of Huddersfield	Method/ Plant Used Competitor Dart	Logged By WH

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VARIABLE HEAD (FALLING) PERMEABILITY TEST

SITE DETAILS: Former Edith Key Building, University of Huddersfield, West Yorkshire, HD1 3DH

BOREHOLE: BH03

Bottom of Borehole	2.00	mBGL
Base of casing	0.00	mBGL
Diameter of casing	100.00	mm
Height of casing	0.00	mAGL
Elevation of Borehole		mAOD
Groundwater Level	2.00	mBGL

Operator	SP	
Date	04/12/2025	
Time	12:55:00	
Weather	Cloudy	
Input volume of water	~	litres
Test Zone	1.40	m

TEST CALCULATION

Intake Factor (F)

$$F = \frac{2\pi L}{\log_e [(L/D) + \sqrt{\{1+(L/D)^2\}}]} \quad \text{(i)}$$

(From BS 5930:2015 for standpipes)

L=length of test zone
D=diameter of standpipe

Permeability (k)

$$k = \frac{A}{F(t_2 - t_1)} \times \log_e (H_1/H_2) \quad \text{(ii)}$$

or

$$k = \frac{A}{FT} \quad \text{(iii)}$$

Where T is the Basic Time Lag Factor corresponding to an H/Ho value of 0.37

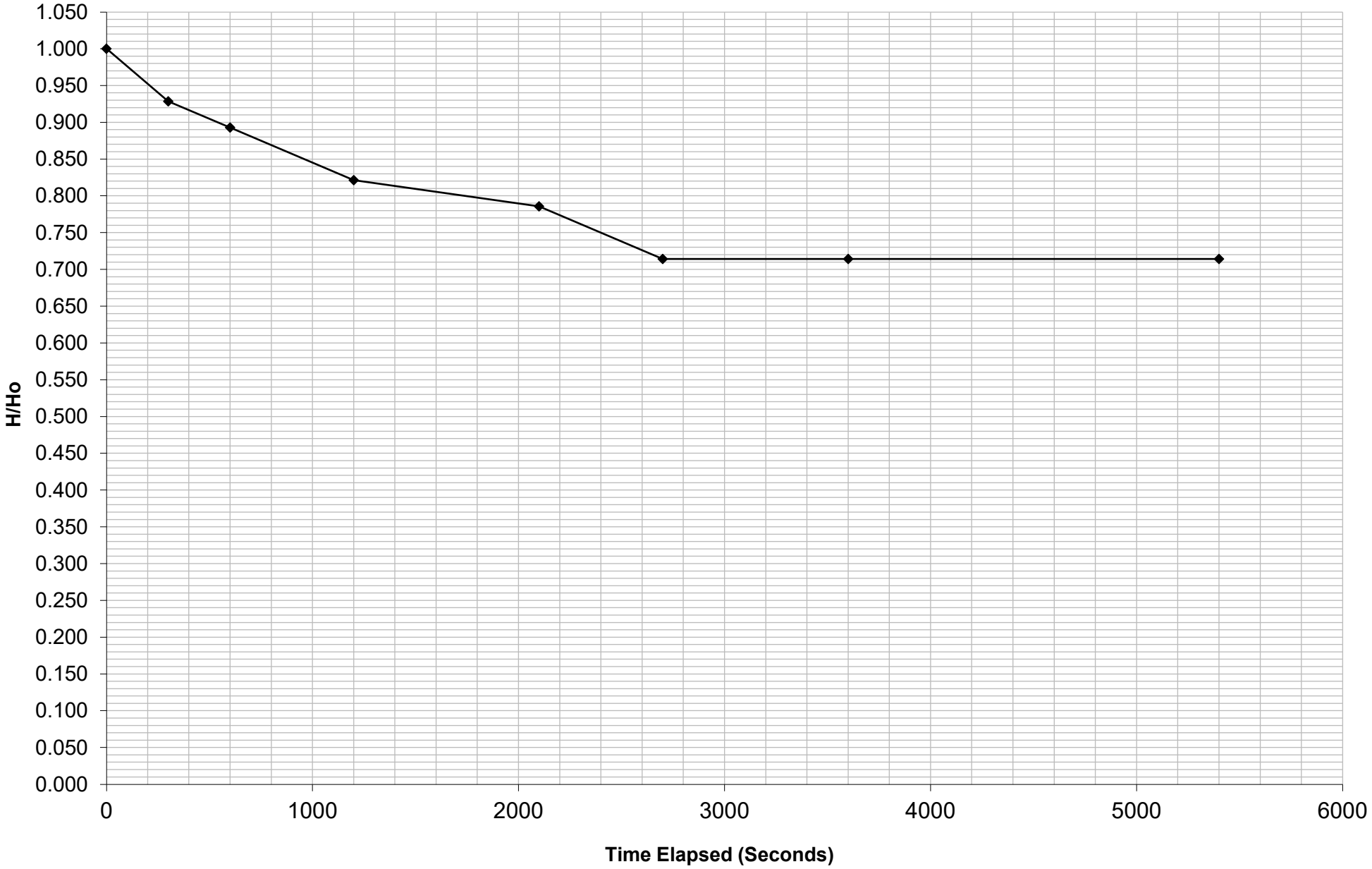
L=	1.40	m	
D=	0.100	m	
L/D=	14.00		
t_1=	0	s	
t_2=	5400	s	
H_1=	1.40	m	
H_2=	1.00	m	
A=	0.00785	m^2	
F=	2.6388		From (i)
T=		s	
k=	1.85453E-07	ms^{-1}	From (ii)
k=			From (iii)
Ave k=			

Elapsed (minutes)	Elapsed (seconds)	Total seconds	Water Depth (m)	Head (metres)	H/Ho
0	0	0	0.600	1.400	1.000
5	0	300	0.700	1.300	0.929
10	0	600	0.750	1.250	0.893
20	0	1200	0.850	1.150	0.821
35	0	2100	0.900	1.100	0.786
45	0	2700	1.000	1.000	0.714
60	0	3600	1.000	1.000	0.714
90	0	5400	1.000	1.000	0.714

Remarks

Drainage Characteristics: POOR
Permeability Classification: VERY LOW

Variable Head (Falling) Permeability Test at BH03



APPENDIX III

Laboratory Testing Results

Tectonic House, Unit 11, Queens Court North
Third Avenue, Team Valley Trading Estate
Gateshead, Tyne and Wear
NE11 0BU

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: cs@etuki.eurofins.com

Final Report

Report No.:	25-40558-1
Initial Date of Issue:	23-Jan-2026
Re-Issue Details:	
Client	*GEOL Consultants Limited*
Client Address:	*Tectonic House* *Unit 11, Queens Court North* *Third Avenue, Team Valley Trading Estate* *Gateshead* *NE11 0BU*
Contact(s):	*William Howells*
Project	*GEOL25-6220 Huddersfield Uni Site 1*

Quotation No.:	*Q24-35924*	**Date Received:**	16-Dec-2025
Order No.:		**Date Instructed:**	08-Jan-2026
No. of Samples:	*6*		
Turnaround (Wkdays):	10	**Results Due:**	21-Jan-2026
Date Approved:	23-Jan-2026		

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: GEOL25-6220 Huddersfield Uni Site 1

Client: GEOL Consultants Limited				**Chemtest Job No.:**		25-40558	25-40558	25-40558	25-40558	25-40558	25-40558
Quotation No.: Q24-35924				**Chemtest Sample ID.:**		2066684	2066685	2066686	2066687	2066688	2066689
				Client Reference:		*BH01*	*BH02*	*BH03*	*BH04*	*BH05*	*BH06*
				Sample Type:		*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
				Top Depth (m):		*0.00*	*0.00*	*0.50*	*0.00*	*0.00*	*0.00*
				Bottom Depth (m):		*0.50*	*0.50*	*0.60*	*0.50*	*0.50*	*0.50*
				Date Sampled:		*04-Dec-2025*	*04-Dec-2025*	*04-Dec-2025*	*04-Dec-2025*	*04-Dec-2025*	*04-Dec-2025*
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type		N	2192		N/A	-	-	-	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	14	12	10	12	12	10
Soil Colour		N	2030		N/A	Brown	Brown	Brown	Brown	Brown	Brown
Other Material		N	2030		N/A	Stones and brick	Stones, Roots and brick	Stones and brick	Stones, Roots and brick	Stones, Roots and brick	Stones, cobbles, concrete and Roots
Soil Texture		N	2030		N/A	Clay	Clay	Clay	Clay	Clay	Sand
pH at 20C		M	2010		4.0	8.2	9.0	8.4	8.9	9.0	10.4
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.61	1.2	0.44	1.5	1.3	1.3
Cyanide (Free)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Arsenic		M	2455	mg/kg	0.5	12	11	8.7	9.5	15	5.2
Cadmium		M	2455	mg/kg	0.10	0.15	0.22	0.13	0.26	2.1	0.43
Chromium		M	2455	mg/kg	0.5	23	28	27	25	31	17
Copper		M	2455	mg/kg	0.50	76	30	35	27	30	16
Mercury		M	2455	mg/kg	0.05	0.09	0.06	< 0.05	0.11	0.07	< 0.05
Nickel		M	2455	mg/kg	0.50	22	27	28	22	37	17
Lead		M	2455	mg/kg	0.50	78	62	39	130	98	22
Selenium		M	2455	mg/kg	0.25	0.70	0.80	0.96	0.58	1.2	0.62
Zinc		M	2455	mg/kg	0.50	81	86	64	94	65	56
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic EPH >C10-C12	EH_2D_AL_#1	M	5002	mg/kg	2.00	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Aliphatic EPH >C12-C16	EH_2D_AL_#1	M	5002	mg/kg	2.00	5.4	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Aliphatic EPH >C16-C21	EH_2D_AL_#1	M	5002	mg/kg	2.00	9.2	2.3	< 2.0	< 2.0	5.2	< 2.0
Aliphatic EPH >C21-C35	EH_2D_AL_#1	M	5002	mg/kg	3.00	25	36	4.9	35	110	5.0

Results - Soil

Project: GEOL25-6220 Huddersfield Uni Site 1

Client: GEOL Consultants Limited				**Chemtest Job No.:**		25-40558	25-40558	25-40558	25-40558	25-40558	25-40558
Quotation No.: Q24-35924				**Chemtest Sample ID.:**		2066684	2066685	2066686	2066687	2066688	2066689
				Client Reference:		*BH01*	*BH02*	*BH03*	*BH04*	*BH05*	*BH06*
				Sample Type:		*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
				Top Depth (m):		*0.00*	*0.00*	*0.50*	*0.00*	*0.00*	*0.00*
				Bottom Depth (m):		*0.50*	*0.50*	*0.60*	*0.50*	*0.50*	*0.50*
				Date Sampled:		*04-Dec-2025*	*04-Dec-2025*	*04-Dec-2025*	*04-Dec-2025*	*04-Dec-2025*	*04-Dec-2025*
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**						
Aliphatic EPH >C35-C40	EH_2D_AL_#1	N	5002	mg/kg	10.00	< 10	17	< 10	17	64	< 10
Aliphatic EPH >C40-C44	EH_2D_AL_#1	N	5002	mg/kg	1.00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic EPH >C10-C35	EH_2D_AL_#1	M	5002	mg/kg	7.00	42	39	< 7.0	38	120	< 7.0
Total Aliphatic EPH >C10-C40	EH_2D_AL_#1	N	5002	mg/kg	10.00	49	56	< 10	54	180	< 10
Total Aliphatic EPH >C10-C44	EH_2D_AL_#1	N	5002	mg/kg	10.00	42	56	< 10	54	180	< 10
Aromatic EPH >C10-C12	EH_2D_AR_#1	U	5002	mg/kg	2.00	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Aromatic EPH >C12-C16	EH_2D_AR_#1	U	5002	mg/kg	2.00	2.0	2.0	< 2.0	2.2	< 2.0	< 2.0
Aromatic EPH >C16-C21	EH_2D_AR_#1	U	5002	mg/kg	2.00	7.5	17	< 2.0	15	15	10
Aromatic EPH >C21-C35	EH_2D_AR_#1	U	5002	mg/kg	2.00	13	28	< 2.0	22	17	23
Aromatic EPH >C35-C40	EH_2D_AR_#1	N	5002	mg/kg	1.00	3.5	11	< 1.0	3.6	14	2.3
Aromatic EPH >C40-C44	EH_2D_AR_#1	N	5002	mg/kg	1.00	3.2	10	< 1.0	8.4	24	< 1.0
Total Aromatic EPH >C10-C35	EH_2D_AR_#1	U	5002	mg/kg	4.00	23	47	< 4.0	39	33	35
Total Aromatic EPH >C10-C40	EH_2D_AR_#1	N	5002	mg/kg	10.00	26	58	< 10	43	47	37
Total Aromatic EPH >C10-C44	EH_2D_AR_#1	N	5002	mg/kg	10.00	29	68	< 10	51	71	37
Total EPH >C10-C35	EH_2D_Total_#1	U	5002	mg/kg	10.00	64	86	< 10	77	150	42
Total EPH >C10-C40	EH_2D_Total_#1	N	5002	mg/kg	10.00	75	110	11	97	230	44
Total EPH >C10-C44	EH_2D_Total_#1	N	5002	mg/kg	10.00	78	120	11	110	250	44
Total Organic Carbon		M	2625	%	0.20	2.2	0.52	0.37	1.0	2.5	0.57
Naphthalene		M	2700	mg/kg	0.10	0.36	< 0.10	< 0.10	0.44	0.37	< 0.10
Acenaphthylene		M	2700	mg/kg	0.10	0.37	< 0.10	< 0.10	0.26	0.40	< 0.10
Acenaphthene		M	2700	mg/kg	0.10	0.48	< 0.10	< 0.10	0.71	0.43	< 0.10
Fluorene		M	2700	mg/kg	0.10	0.42	< 0.10	< 0.10	0.51	0.25	< 0.10
Phenanthrene		M	2700	mg/kg	0.10	3.4	0.46	< 0.10	4.2	1.4	0.82
Anthracene		M	2700	mg/kg	0.10	0.65	< 0.10	< 0.10	1.2	0.24	0.16
Fluoranthene		M	2700	mg/kg	0.10	4.8	0.51	< 0.10	4.8	1.6	1.2
Pyrene		M	2700	mg/kg	0.10	4.7	0.81	< 0.10	5.3	1.7	1.4
Benzo[a]anthracene		M	2700	mg/kg	0.10	2.2	0.31	< 0.10	2.1	0.77	0.19
Chrysene		M	2700	mg/kg	0.10	2.2	0.63	< 0.10	2.7	1.3	0.44
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	2.3	0.28	< 0.10	2.7	0.40	0.50
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	1.2	0.54	< 0.10	2.4	0.37	0.47
Benzo[a]pyrene		M	2700	mg/kg	0.10	2.0	0.27	< 0.10	2.0	0.70	0.58
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	1.1	< 0.10	< 0.10	1.2	0.50	0.38
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	0.41	< 0.10	< 0.10	0.48	0.19	0.29
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	1.2	< 0.10	< 0.10	1.5	0.61	0.66
Total Of 16 PAH's		M	2700	mg/kg	2.0	25	3.8	< 2.0	31	11	7.1

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Chemtest Sample ID	*Clients Sample Ref:*	*Clients Sample ID:*	*Clients Reference:*	*Sampled Date:*	Deviation Code(s):	Containers Received:
2066684			*BH01*	*04-Dec-2025*	B	Amber Glass 250ml
2066684			*BH01*	*04-Dec-2025*	B	Amber Glass 60ml
2066684			*BH01*	*04-Dec-2025*	B	Plastic Tub 1000g
2066685			*BH02*	*04-Dec-2025*	B	Amber Glass 250ml
2066685			*BH02*	*04-Dec-2025*	B	Amber Glass 60ml
2066685			*BH02*	*04-Dec-2025*	B	Plastic Tub 1000g
2066686			*BH03*	*04-Dec-2025*	B	Amber Glass 250ml
2066686			*BH03*	*04-Dec-2025*	B	Amber Glass 60ml
2066686			*BH03*	*04-Dec-2025*	B	Plastic Tub 1000g
2066687			*BH04*	*04-Dec-2025*	B	Amber Glass 250ml
2066687			*BH04*	*04-Dec-2025*	B	Amber Glass 60ml
2066687			*BH04*	*04-Dec-2025*	B	Plastic Tub 1000g
2066688			*BH05*	*04-Dec-2025*	B	Amber Glass 250ml
2066688			*BH05*	*04-Dec-2025*	B	Amber Glass 60ml
2066688			*BH05*	*04-Dec-2025*	B	Plastic Tub 1000g
2066689			*BH06*	*04-Dec-2025*	B	Amber Glass 250ml
2066689			*BH06*	*04-Dec-2025*	B	Amber Glass 60ml
2066689			*BH06*	*04-Dec-2025*	B	Plastic Tub 1000g

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos Quantification in Soils Sediments Ballast & Aggregate Crushed Concrete & Demolition Rubble	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
5002	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection
Text example	All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at ≤ 30°C prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Where analysis is performed on a dried and crushed sample, it has been prepared by crushing all of the sample. If material has been removed prior to crushing, or by request of the client, this will be stated on the report.

NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water (Non-Regulatory)
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
cs@etuki.eurofins.com