

Client: Commercial Development Projects Ltd	Project No: CD/30	Sheet 1 of 2
Project: Wiko Ridge Farm, Leeds	Calc By: JP	Date: 23/10/23
Element: Foundation Excavation Pit	Chkd By:	Date:

HP01



GL - 0.1m - Concrete

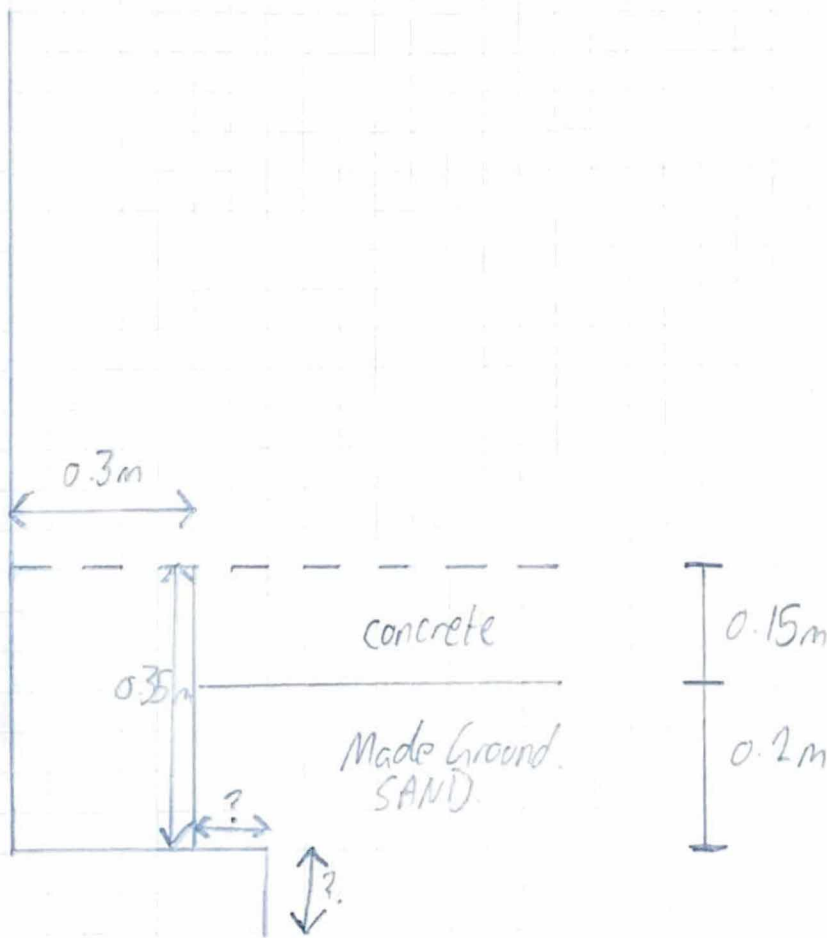
0.1m - 0.15m - Bedding SAND - Orangish brown, fine to coarse SAND.

0.15m - 0.4m - Firm, slightly gravelly, slightly sandy CLAY. Gravel is subangular to subrounded, fine to coarse, of sandstone.

- Base of foundation reached at 0.3m, with natural clay moved beneath.

Client: <i>Commercial Development Projects Ltd</i>	Project No: <i>CDP/30</i>	Sheet <i>2</i> of <i>2</i>
Project: <i>Wike Ridge Farm, Leeds</i>	Calc By: <i>JP</i>	Date: <i>23/10/23</i>
Element: <i>Foundation Excavation Pit</i>	Chkd By:	Date:

HPO2



GL - 0.15m - Concrete

0.15m - 0.35m - MADE GROUND: Light brown gravelly, silt to coarse sand. Gravel is subangular to subrounded, silt to coarse, org sandstone and concrete.
Hand Vines not possible.

0.35m - Concrete - Foundation Steps out.

APPENDIX C

LAB CERTS AND SV'S



ARP GEOTECHNICAL LIMITED
SOIL CONTAMINANT SCREENING VALUES
RESIDENTIAL WITH HOME-GROWN PRODUCE

Determinand	S4UL (mg/kg)			C4SL (mg/kg)		
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Arsenic	37			37		
Cadmium	11			22		
Chromium (trivalent)	910					
Chromium (hexavalent)	6			21		
Copper	2400					
Lead				200		
Inorganic Mercury	40					
Nickel	180					
Selenium	250					
Zinc	3700					
Acidity (pH)	*Should be Greater Than 5			*Should be Greater Than 5		
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Naphthalene	2.3	5.6	13			
Acenaphthylene	170	420	920			
Acenaphthene	210	510	1,100			
Fluorene	170	400	860			
Phenanthrene	95	220	440			
Anthracene	2,400	5,400	11,000			
Fluoranthene	280	560	890			
Pyrene	620	1,200	2,000			
Benzo(a)anthracene	7.2	11	13			
Chrysene	15	22	27			
Benzo(b)fluoranthene	2.6	3.3	3.7			
Benzo(k)fluoranthene	77	93	100			
Benzo(a)pyrene	2.2	2.7	3			5
Indeno(1,2,3-cd)pyrene	27	36	41			
Dibenzo(a,h)anthracene	0.24	0.28	0.30			
Benzo(g,h,i)perylene	320	340	350			
Phenols	120	200	380			
Total TPH	*Above 500, speciate and compare with values below:					
C5 to C6 Aliphatic	42	78	160			
C6 to C8 Aliphatic	100	230	530			
C8 to C10 Aliphatic	27	65	150			
C10 to C12 Aliphatic	130	330	760			
C12 to C16 Aliphatic	1100	2,400	4,300			
C16 to C35 Aliphatic	65,000	92,000	110,000			
C35 TO C44 Aliphatic	65,000	92,000	110,000			
C5 to C7 Aromatic (Benzene)	70	140	300			
C7 to C8 Aromatic (Toluene)	130	290	660			
C8 to C10 Aromatic	34	83	190			
C10 to C12 Aromatic	74	180	380			
C12 to C16 Aromatic	140	330	660			
C16 to C21 Aromatic	260	540	930			
C21 TO C35 Aromatic	1100	1,500	1,700			
C35 TO C44 Aromatic	1100	1,500	1,700			
Asbestos	*Should be None Detected			*Should be None Detected		

* In House Value/Approach S4UL = Suitable 4 Use Level, CIEH/LQM 2014 C4SL = Cat 4 Screening Level, DEFRA, 2014

Blank cell indicates no published value or in-house value. Some values presented are above saturation limits.

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Final Report

Report No.: 23-35867-1

Initial Date of Issue: 02-Nov-2023

Re-Issue Details:

Client ARP Geotechnical Ltd

Client Address: 5/6 Northwest Business Park
Servia Hill
Leeds
Yorkshire
LS6 2QH

Contact(s): Jake Pemberton

Project CDP/30 Wike Ridge Farm, Leeds

Quotation No.: Q20-21438

Date Received: 26-Oct-2023

Order No.: CDP/30

Date Instructed: 26-Oct-2023

No. of Samples: 11

Turnaround (Wkdays): 5

Results Due: 01-Nov-2023

Date Approved: 02-Nov-2023

Approved By:



Details: Stuart Henderson, Technical
Manager

Results - Soil

Project: CDP/30 Wike Ridge Farm, Leeds

Client: ARP Geotechnical Ltd		Chemtest Job No.:		23-35867	23-35867	23-35867	23-35867	23-35867	23-35867	23-35867	23-35867	23-35867	23-35867
Quotation No.: Q20-21438		Chemtest Sample ID.:		1722462	1722463	1722464	1722465	1722466	1722467	1722468	1722469	1722470	
Order No.: CDP/30		Client Sample Ref.:		1	1	1	1	1	1	1	1	1	
		Sample Location:		WS3	WS4	WS5	WS6	WS7	WS1	WS2	WS8	WS9	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.15	0.20	0.15	0.10	0.30	0.30	0.30	0.25	0.10	
		Bottom Depth (m):		0.30	0.30	0.25	0.30	0.50	0.50	0.40	0.40	0.30	
		Date Sampled:		23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM					
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-				
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected				
Moisture	N	2030	%	0.020	11	9.3	16	13	11	17	11	11	21
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones and Roots	Stones	Stones	Stones and Roots	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Loam	Loam	Loam	Sand	Loam	Clay	Loam	Loam	Clay
pH at 20C	M	2010		4.0	9.2	9.1	9.5	9.3	9.3				
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.12	0.041	0.076	0.021	0.052				
Sulphate (Total)	U	2430	mg/kg	100	800	650	2200	670	640				
Arsenic	M	2455	mg/kg	0.5	2.0	2.3	5.0	2.5	4.1				
Cadmium	M	2455	mg/kg	0.10	< 0.10	< 0.10	0.13	0.17	0.10				
Chromium	M	2455	mg/kg	0.5	12	8.9	14	10	16				
Copper	M	2455	mg/kg	0.50	6.6	12	15	7.5	11				
Mercury	M	2455	mg/kg	0.05	0.11	< 0.05	0.07	< 0.05	< 0.05				
Nickel	M	2455	mg/kg	0.50	8.6	7.0	9.8	9.8	11				
Lead	M	2455	mg/kg	0.50	21	16	68	25	67				
Selenium	M	2455	mg/kg	0.25	0.41	0.38	0.44	0.45	0.54				
Zinc	M	2455	mg/kg	0.50	48	99	54	41	47				
Chromium (Trivalent)	N	2490	mg/kg	1.0	12	8.8	14	9.9	16				
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50				
Organic Matter	M	2625	%	0.40	0.47	3.3	0.94	0.48	1.2	1.1	0.60	1.5	11
TPH >C6-C10	N	2670	mg/kg	1.0						< 1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C21	N	2670	mg/kg	1.0						< 1.0	< 1.0	< 1.0	33
TPH >C21-C40	N	2670	mg/kg	1.0						49	< 1.0	< 1.0	53
Total TPH >C6-C40	M	2670	mg/kg	10	< 10	140	120	29	< 10	48	< 10	< 10	86
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.0
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.43
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.22
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.54
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	0.86	0.40	0.41	< 0.10	< 0.10	< 0.10	< 0.10	1.4
Anthracene	M	2700	mg/kg	0.10	< 0.10	0.68	0.11	0.20	< 0.10	< 0.10	< 0.10	< 0.10	0.24
Fluoranthene	M	2700	mg/kg	0.10	0.21	3.0	1.0	0.48	0.37	< 0.10	0.22	0.48	1.8
Pyrene	M	2700	mg/kg	0.10	0.22	3.7	0.93	0.42	0.29	< 0.10	0.26	0.56	1.9
Benzo[a]anthracene	M	2700	mg/kg	0.10	0.16	2.3	0.65	0.22	0.10	< 0.10	< 0.10	< 0.10	1.2
Chrysene	M	2700	mg/kg	0.10	0.80	3.4	1.9	0.64	0.92	< 0.10	< 0.10	< 0.10	3.1

Results - Soil

Project: CDP/30 Wike Ridge Farm, Leeds

Client: ARP Geotechnical Ltd		Chemtest Job No.:		23-35867	23-35867	23-35867	23-35867	23-35867	23-35867	23-35867	23-35867	23-35867	
Quotation No.: Q20-21438		Chemtest Sample ID.:		1722462	1722463	1722464	1722465	1722466	1722467	1722468	1722469	1722470	
Order No.: CDP/30		Client Sample Ref.:		1	1	1	1	1	1	1	1	1	
		Sample Location:		WS3	WS4	WS5	WS6	WS7	WS1	WS2	WS8	WS9	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.15	0.20	0.15	0.10	0.30	0.30	0.30	0.25	0.10	
		Bottom Depth (m):		0.30	0.30	0.25	0.30	0.50	0.50	0.40	0.40	0.30	
		Date Sampled:		23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	23-Oct-2023	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM					
Determinand	Accred.	SOP	Units	LOD									
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	3.9	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.6
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	2.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.85
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	3.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.90
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.3
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.0
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.5
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	23	5.0	2.4	< 2.0	< 2.0	< 2.0	< 2.0	20
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				

Results - Soil

Project: CDP/30 Wike Ridge Farm, Leeds

Client: ARP Geotechnical Ltd		Chemtest Job No.:		23-35867	23-35867	
Quotation No.: Q20-21438		Chemtest Sample ID.:		1722471	1722472	
Order No.: CDP/30		Client Sample Ref.:		1	1	
		Sample Location:		HP1	HP2	
		Sample Type:		SOIL	SOIL	
		Top Depth (m):		0.20	0.20	
		Bottom Depth (m):		0.40	0.30	
		Date Sampled:		23-Oct-2023	23-Oct-2023	
		Asbestos Lab:				
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A		
Asbestos Identification	U	2192		N/A		
Moisture	N	2030	%	0.020	17	2.8
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones	Roots and Stones
Soil Texture	N	2040		N/A	Clay	Gravel
pH at 20C	M	2010		4.0		
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		
Sulphate (Total)	U	2430	mg/kg	100		
Arsenic	M	2455	mg/kg	0.5		
Cadmium	M	2455	mg/kg	0.10		
Chromium	M	2455	mg/kg	0.5		
Copper	M	2455	mg/kg	0.50		
Mercury	M	2455	mg/kg	0.05		
Nickel	M	2455	mg/kg	0.50		
Lead	M	2455	mg/kg	0.50		
Selenium	M	2455	mg/kg	0.25		
Zinc	M	2455	mg/kg	0.50		
Chromium (Trivalent)	N	2490	mg/kg	1.0		
Chromium (Hexavalent)	N	2490	mg/kg	0.50		
Organic Matter	M	2625	%	0.40	1.1	1.8
TPH >C6-C10	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C10-C21	N	2670	mg/kg	1.0	< 1.0	57
TPH >C21-C40	N	2670	mg/kg	1.0	< 1.0	41
Total TPH >C6-C40	M	2670	mg/kg	10	< 10	98
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Chrysene	M	2700	mg/kg	0.10	< 0.10	< 0.10

Results - Soil

Project: CDP/30 Wike Ridge Farm, Leeds

Client: ARP Geotechnical Ltd	Chemtest Job No.:		23-35867	23-35867		
Quotation No.: Q20-21438	Chemtest Sample ID.:		1722471	1722472		
Order No.: CDP/30	Client Sample Ref.:		1	1		
	Sample Location:		HP1	HP2		
	Sample Type:		SOIL	SOIL		
	Top Depth (m):		0.20	0.20		
	Bottom Depth (m):		0.40	0.30		
	Date Sampled:		23-Oct-2023	23-Oct-2023		
	Asbestos Lab:					
Determinand	Accred.	SOP	Units	LOD		
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	< 2.0
Total Phenols	M	2920	mg/kg	0.10		

Test Methods

SOP	Title	Parameters included	Method summary
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 <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
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.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
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)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical 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

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

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 TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°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

Sample Deviation Codes

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 - Insufficient Sample (Applies to LOI in Trommel Fines Only)

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

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



LABORATORY REPORT



Contract Number: PSL23/9184

Report Date: 10 November 2023
Client's Reference: CDP/30a
Client Name: ARP Geotechnical Ltd
Northwest House
5/6 Northwest Business Park
Servia Hill
Leeds
LS6 2QH

For the attention of: Jake Pemberton

Project Name: Wike Ridge Farm, Leeds

Date Received: 27/10/2023
Date Commenced: 27/10/2023
Date Completed: 09/11/2023

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

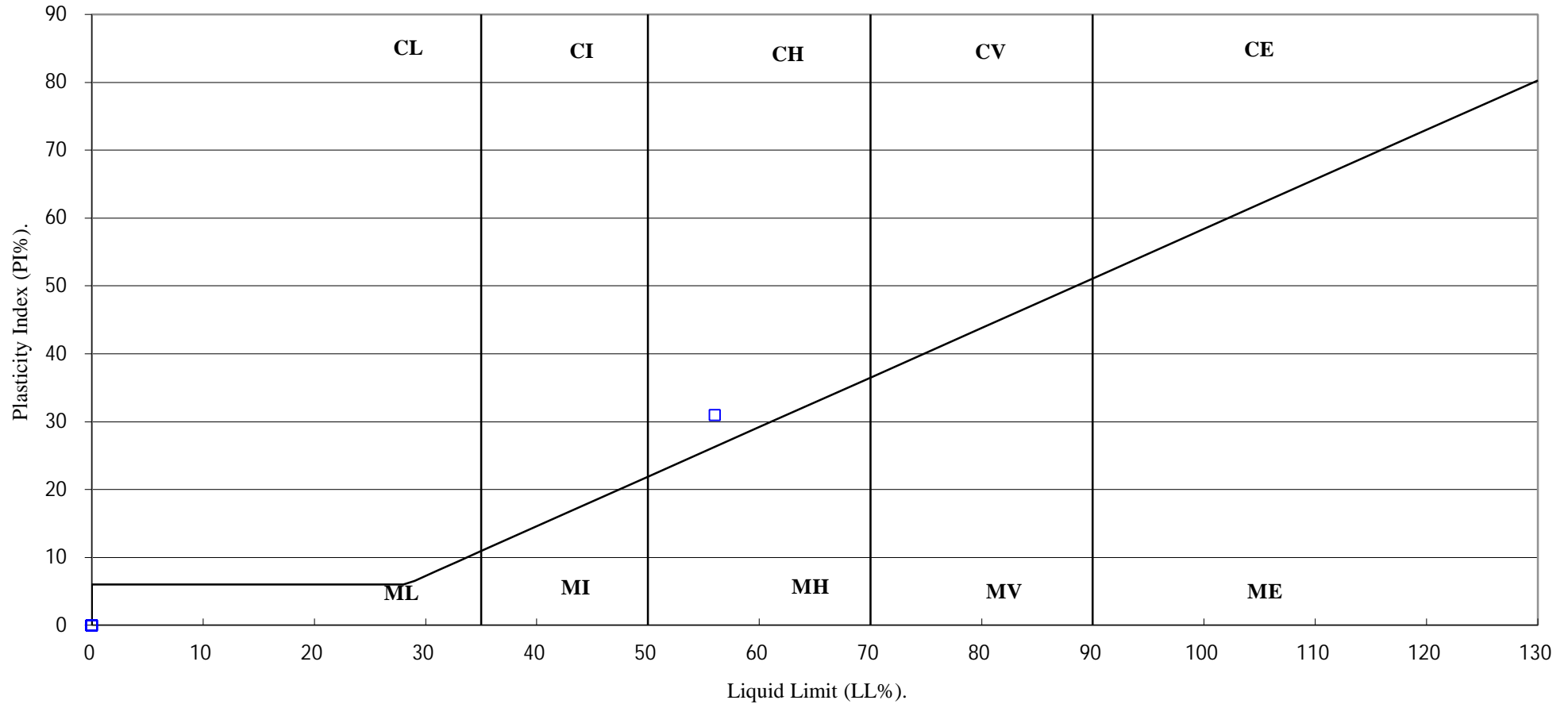
S Eyre
(Senior Technician)


M Fennell
(Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098

Page 1 of

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Wike Ridge Farm, Leeds

Contract No:

PSL23/9184

Client Ref:

CDP/30a



Professional Soils Laboratory

5/7 Hexthorpe Road
Hexthorpe
Doncaster
DN4 0AR

Analytical Test Report: L23/07297/PSL - 23-39572

Your Project Reference:	PSL23/9184 Wike Ridge Farm, Leeds		
Your Order Number:	PSL23/9184	Samples Received / Instructed:	24/11/2023 / 24/11/2023
Report Issue Number:	1	Sample Tested:	24/11 to 30/11/2023
Samples Analysed:	3 soil samples	Report issued:	30/11/2023

Signed



James Gane
Analytical Services Manager
CTS Group

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

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Issued by: J. Gane

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7 - 11 Harding Street
Leicester
LE1 4DH

L23/07297/PSL - 23-39572
Project Reference - PSL23/9184 Wike Ridge Farm,
Leeds

Analytical Test Results - Chemical Analysis

Lab Reference			328665	328666	328667
Client Sample ID			WS2	WS6	WS9
Client Sample Location			Wike Ridge Farm, Leeds	Wike Ridge Farm, Leeds	Wike Ridge Farm, Leeds
Client Sample Type			D	D	D
Client Sample Number			1	1	1
Depth - Top (m)			2.00	0.90	1.50
Depth - Bottom (m)			2.00	1.00	1.70
Date of Sampling			-	-	-
Time of Sampling			-	-	-
Sample Matrix			Clay	Sand	Sand
Determinant	Units	Accreditation			
Water soluble sulphate (as SO ₄)	(mg/l)	u	55	47	15
pH Value	pH Units	MCERTS	7.0	6.7	6.7



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Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
328665	WS2	Wike Ridge Farm, Leeds	D	1	Brownish grey sandy silty clay with rare mudstone	-	-	63
328666	WS6	Wike Ridge Farm, Leeds	D	1	Brown sandy crushed rock	-	-	60
328667	WS9	Wike Ridge Farm, Leeds	D	1	Brown slightly silty crushed rock	-	-	63



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Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
328665	WS2	Wike Ridge Farm, Leeds	D	1	
328666	WS6	Wike Ridge Farm, Leeds	D	1	
328667	WS9	Wike Ridge Farm, Leeds	D	1	



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Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis



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Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
328665	WS2	Wike Ridge Farm, Leeds	D	1		A
328666	WS6	Wike Ridge Farm, Leeds	D	1		A
328667	WS9	Wike Ridge Farm, Leeds	D	1		A

APPENDIX C

RISK CATEGORISATION TABLES

Severity of Consequence

Severe	Short term (acute) risks to human health, likely to result in : Major pollution of (watercourses or groundwater)
Medium	Long-term (Chronic) damage (significant harm) to human health. Pollution of sensitive water resources.
Mild	Pollution of non-sensitive water resources.
Minor	Non-permanent health effects easily prevented by use of personal protective equipment during site works.

Probability of Risk Event Occurring

High Likelihood	There is a pollutant linkage and an event that either appears very likely in the short term, almost inevitable in the long term, or there is evidence of harm or pollution at the receptor.
Likely	There is a pollution linkage and all the elements are present and in the right place, so that a risk event is possible in the short term and likely over the long term.
Low Likelihood	There is a pollution linkage and circumstances are possible under which a risk event could occur. However, it is not certain that such an event would take place even over a longer period, and even less likely in the short term.
unlikely	There is a pollution linkage, but circumstances are such that it is improbable that an event would occur even in the very long term.

Comparison of Probability Against Severity of Consequence

		Severity of Consequence			
		Severe	Medium	Mild	Minor
P R O B A B I L I T Y	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate/ Low Risk
	Likely	High Risk	Moderate Risk	Moderate/ Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate/ Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate/ Low Risk	Low Risk	Very Low Risk	Very Low Risk

Risk Categories - Definitions

Very High Risk	High probability that severe harm could arise to a receptor, or there is evidence that severe harm is already occurring. Urgent investigation is required and urgent remediation is likely to be required.
High Risk	Harm is likely to arise to a receptor. Urgent investigation is required and remediation may be necessary in the short term and likely over the longer term.
Moderate Risk	Possible that harm could arise to a receptor, but low likelihood that such harm would be severe. Harm is likely to be mild. Investigation normally required to clarify risk. Some remedial works may be required in the long-term.
Moderate/ Low Risk	Possible that harm could arise to a receptor, but where a combination of likelihood and consequence results in a risk that is above low, but is not of sufficient concern to be classified as mild. Limited further investigation may be required to clarify the risk. If necessary, remediation works are likely to be limited in extent.
Low Risk	Possible that harm could arise to a receptor. Such harm, at worst, would normally be mild.
Very Low Risk	Low possibility that harm could arise to a receptor. Such harm is unlikely to be any worse than mild.

APPENDIX E

METHOD STATEMENT FOR IMPORTED SOILS



ARP GEOTECHNICAL LIMITED
SOIL CONTAMINANT SCREENING VALUES
RESIDENTIAL WITH HOME-GROWN PRODUCE

Determinand	S4UL (mg/kg)			C4SL (mg/kg)		
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Arsenic	37			37		
Cadmium	11			22		
Chromium (trivalent)	910					
Chromium (hexavalent)	6			21		
Copper	2400					
Lead				200		
Inorganic Mercury	40					
Nickel	180					
Selenium	250					
Zinc	3700					
Acidity (pH)	*Should be Greater Than 5			*Should be Greater Than 5		
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Naphthalene	2.3	5.6	13			
Acenaphthylene	170	420	920			
Acenaphthene	210	510	1,100			
Fluorene	170	400	860			
Phenanthrene	95	220	440			
Anthracene	2,400	5,400	11,000			
Fluoranthene	280	560	890			
Pyrene	620	1,200	2,000			
Benzo(a)anthracene	7.2	11	13			
Chrysene	15	22	27			
Benzo(b)fluoranthene	2.6	3.3	3.7			
Benzo(k)fluoranthene	77	93	100			
Benzo(a)pyrene	2.2	2.7	3			5
Indeno(1,2,3-cd)pyrene	27	36	41			
Dibenzo(a,h)anthracene	0.24	0.28	0.30			
Benzo(g,h,i)perylene	320	340	350			
Phenols	120	200	380			
Total TPH	*Above 500, speciate and compare with values below:					
C5 to C6 Aliphatic	42	78	160			
C6 to C8 Aliphatic	100	230	530			
C8 to C10 Aliphatic	27	65	150			
C10 to C12 Aliphatic	130	330	760			
C12 to C16 Aliphatic	1100	2,400	4,300			
C16 to C35 Aliphatic	65,000	92,000	110,000			
C35 TO C44 Aliphatic	65,000	92,000	110,000			
C5 to C7 Aromatic (Benzene)	70	140	300			
C7 to C8 Aromatic (Toluene)	130	290	660			
C8 to C10 Aromatic	34	83	190			
C10 to C12 Aromatic	74	180	380			
C12 to C16 Aromatic	140	330	660			
C16 to C21 Aromatic	260	540	930			
C21 TO C35 Aromatic	1100	1,500	1,700			
C35 TO C44 Aromatic	1100	1,500	1,700			
Asbestos	*Should be None Detected			*Should be None Detected		

* In House Value/Approach S4UL = Suitable 4 Use Level, CIEH/LQM 2014 C4SL = Cat 4 Screening Level, DEFRA, 2014

Blank cell indicates no published value or in-house value. Some values presented are above saturation limits.

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METHOD STATEMENT FOR ASSESSMENT OF IMPORTED SOILS

AT
WIKE RIDGE FARM
LEEDS

ON BEHALF OF

COMMERCIAL
DEVELOPMENT
PROJECTS LTD

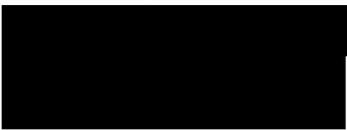

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CLIENT: COMMERCIAL DEVELOPMENT PROJECTS LTD
 JOB NUMBER: CDP/30
 PROJECT: WIKE RIDGE FARM, LEEDS
 REPORT TYPE: METHOD STATEMENT FOR ASSESSMENT OF IMPORTED SOILS
 REPORT REFERENCE: CDP/30imple

	Name	Signature
Prepared By:	J Pemberton BSc	
Reviewed & Authorised By:	J Race BSc CGeol FGS EurGeol	

ISSUE	DATE	STATUS
1	4 th DECEMBER 2023	V1 FINAL

1.0 Introduction

- 1.1 This document has been prepared to provide information for the Client and other interested parties, such as the Regulatory Authorities, outlining how soils imported to the site will be managed to ensure that they are suitable, in terms of human health, for the intended residential use. The document should be agreed, prior to implementation, with the relevant Regulatory Authorities, usually the local Planning Authority and NHBC or other building control provider.

2.0 The Site

- 2.1 The ARP Geotechnical Ltd Stage 2 Geo-environmental Report, dated 29th November 2023 under reference CDP/30r2, makes an assessment of contamination, along with other aspects.
- 2.2 The conceptual site model is for the conversion of existing farm buildings into a residential development, including private gardens.
- 2.3 The site currently comprises disused stone stable buildings surrounding a central courtyard. The building along the northern edge of the courtyard is two storey high and the buildings along the eastern and western edges are single storey and are in various states of disrepair. The courtyard is under concrete hardstanding with sporadic vegetation growth.
- 2.4 Ordnance Survey archive maps show since 1851, the site has been occupied by farm buildings that are still present on site today. Additional small buildings were added just inside the northern boundary around 1965, and barns adjacent to (off-site) the east. A well is indicated to have been present, just inside the northern boundary. Old quarries were once present off-site approximately 250m south, but infilled/restored by 1893.
- 2.5 The geological maps show the site to be underlain by sandstone of the East Carlton Grit Formation, with no recorded superficial deposits. There are no faults shown to affect the site.
- 2.6 The site is considered stable with regard to coal mining.
- 2.7 The strata beneath the site are classed as a Secondary AAquifer. There are no groundwater abstractions within 1km of the site. The nearest watercourse downslope is Sturdy Beck, 56m to the south. There are no surface water abstractions within 1km of the site.
- 2.8 No Radon Protection Measures are required for the proposed properties on the site.
- 2.9 The ground investigation revealed made ground across the site, to depths of up to 0.5m, including between 0.1m and 0.3m of concrete from ground level. The made ground, generally to depths of between 0.25m and 0.5m, comprising mainly slightly clayey sandy gravel of sandstone. In WS5, WS6 and WS7, the gravel included brick as well as sandstone, and in WS9, the gravel also included trace bitmac. In WS6 and WS7, the made ground was cohesive rather than granular, but the granular content was similar (sandstone and brick).

The made ground across the site was underlain by firm, locally soft, stony clays and slightly clayey sands, gravels and cobbles, all of residual material derived from in situ weathering of rock. All the window sample boreholes (except WS4 which intentionally terminated at a shallower depth of 1.5m as part of the investigation design) terminated by refusals in rock at depths of between 0.6m and 2.7m.

- 2.10 The contamination testing, carried out on eleven samples of made ground, did not identify any concentrations of contaminants requiring any remedial measures. It is still necessary to have in place a method statement for the assessment of any soils to be imported, in order to satisfy the Regulatory Authorities that the soils are suitable for use on the site, in terms of human health. This needs to be independently confirmed, in accordance with the guidance supplied in the document produced by the Yorkshire and Lincolnshire Pollution Advisory Council (YALPAG): "Guidance on the Verification Requirements for Cover Systems". The measures described below will be required to ensure compliance with the document.

3.0 Imported Soils

- 3.1 If any imported soils are required, the source will need to be confirmed, and the material tested for the attached suite of contaminants, to comply with the maximum screening values listed. The frequency of testing is given on the table below.

Material Type	Number of Samples
Topsoil or subsoil from greenfield site or manufactured source	Minimum 3No. or 1 per 250m ³ (whichever is greater)
Topsoil or subsoil from brownfield site or screened source	Minimum 6No. or 1 per 100m ³ (whichever is greater)

- 3.2 An MMP or U1 exemption (dependent on volume) may be required if soils are to be imported from other development sites under the DoWCoP.
- 3.3 The material should be placed in quarantined stockpiles and once a stockpile has been approved by the Engineer, no further material should be added to the stockpile, and any further import should be stockpiled separately. Further testing shall be carried out where any mixing is suspected to have occurred.
- 3.4 As and when required, the soils will be used around the plots as the development progresses, and it will be necessary to verify that the appropriate soils have been placed in the garden area, and not soils from any other source. This will be achieved by excavating trial pits on the basis of one per 25m². The trial pits will be photographed, to include a reference scale, and the photographs included within any report to enable the location on site to be identified.
- 3.5 If space is insufficient on the site to store quarantined stockpiles, the soils can be placed directly into the garden area, but samples of each material would need to be taken and tested directly from the trial pits within the garden, described in 3.3 above.

3.6 The results of all the laboratory analysis, sample descriptions, plans, and import documents, will form part of the Soils Validation Report.

4.0 Unexpected Contamination

4.1 Any unexpected contamination uncovered during the works shall be inspected, sampled and analysed in laboratory for the suite of determinands appended to this Method Statement, and compared to the maximum concentration levels listed on the enclosure. Works on the affected materials shall cease until the appraisal is complete and, if necessary, a Remediation Statement is to be prepared and approved by the Planning Authority before work is recommenced.